

# Product Catalog

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## INNCO systems

Positioning systems for EMC business.....

### Antenna Masts

The antenna mast is suitable for use in either open areas or in electromagnetic absorption chambers. Guy wires and anchoring pins are available for antenna installation in open areas. Metal parts are located only in the base plate and the drive mechanism (max. 0.3 m above ground level).

Adapters for all commercially available antennas are available. Special designs are available on request. All antennas during polarization rotate around their axis so as to eliminate any elevation errors. Limit switches and the general mechanical design ensure a reliable system operation



### Model Types

Type	Antenna weight	Scan height	Polarization	Tilt
AS2000	6	fix	pneumatic	manually as option
AS1500E	6	fix	electric	-
MM4000	6	electric	pneumatic	manually as option
MA4000	10	electric	electric or pneumatic	-
TW4000	20	electric	electric	-
TW4000	15	electric	pneumatic	electric
TW10000	20	electric	pneumatic	electric



## Technical Data

### MA 6000-EP (for example)

Antenna height	1.0 to 6.0 m
Total mast height	max. 6.6 m
Material	PVC + fibre glass, weatherproof
Mast cross-section	100 mm x 100 mm
Base	L x W 1080 mm x 1080 mm
Antenna weight	max. 10 kg (15 kg available)
Positioning speed adjustable between (15 or 20 cm/sec. available)	1 to 12 cm/sec.
Positioning accuracy	better +/- 1 cm
Polarization	0°/90° (vert./hor.)
Positioning time 0°/90°	approx. 3 sec.
Antenna support drive	2 Kevlar toothed belts (metal free)
Motor	electronic EC motor 150 W
Control cable	fibre optic cable, POF type (standard)
Drive unit	shielded and radio interference Suppressed 20dB under Class B
Temperature range	-5°C...+40°C
Input current	max. 1.6 A
Operating Voltage	115 V / 230 V AC (50 / 60 Hz)
Accessories Interface to	CO 1000 / 2000 3 m power supply cable 1x5 m, 1x10 m control cable Service manual

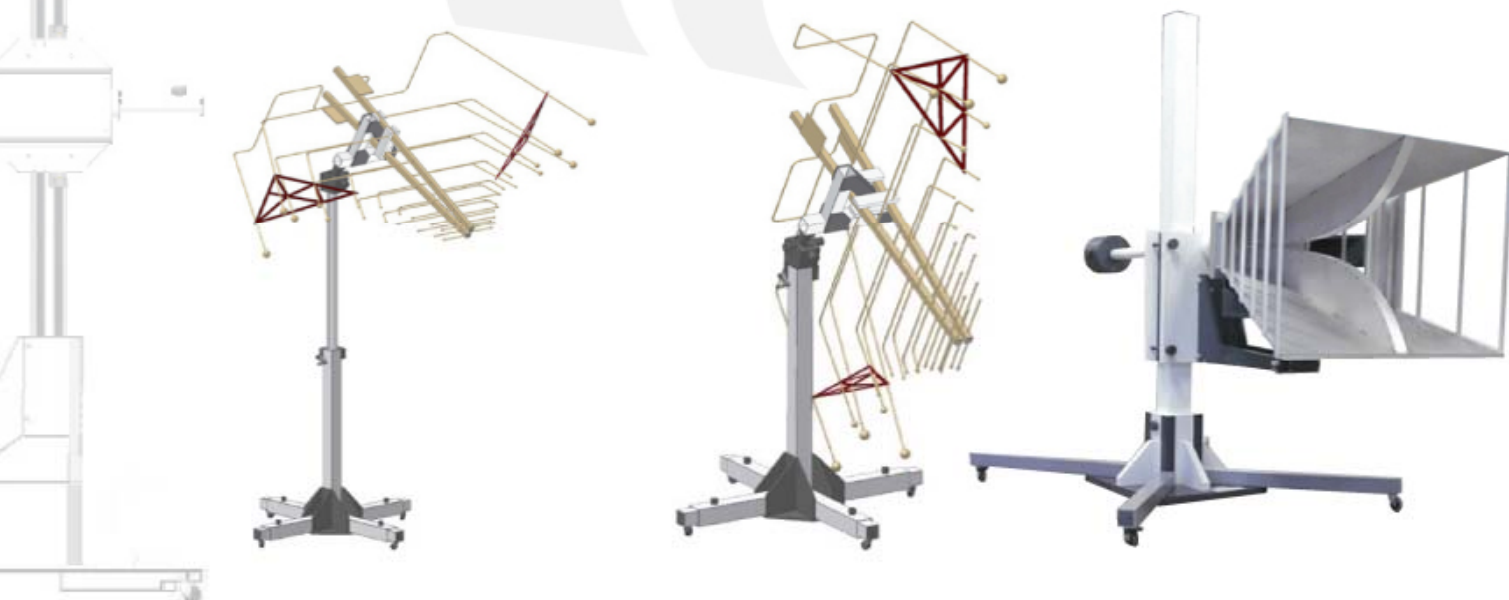
## Antenna adapters

Various adaptors for all commercially available antennas were supplied. Mostly metal free for high performance!



## Custom made

Designed for AR antennas





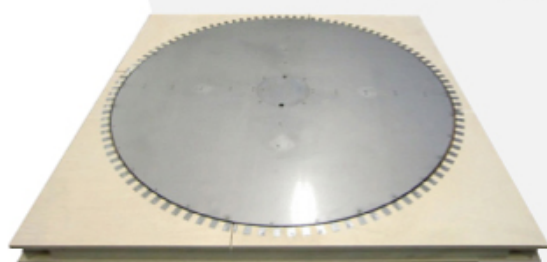
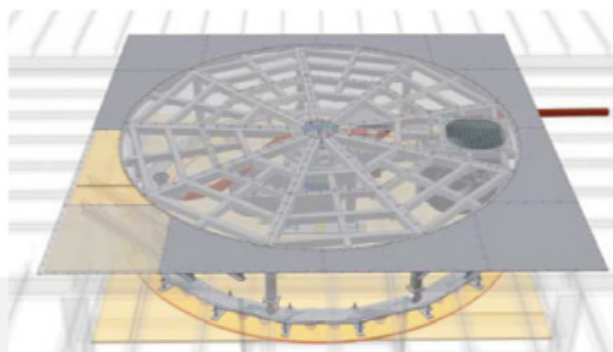
## INNCO systems

Positioning systems for EMC business.....

### Turntables

The turntable is specifically designed for installation either at intermediate levels in electromagnetic absorption chambers or in open areas. The base plate is available in stainless steel. If a ground plane exists, and the carrying plate is made of steel, then the adapter contact ring with a quadratic rim can be supplied.

A 0.2 m diameter opening in the centre of the turntable provides the capability to insert a power supply for testing. Removable braces can be installed if necessary.



*In door (standard)*



*Out door*

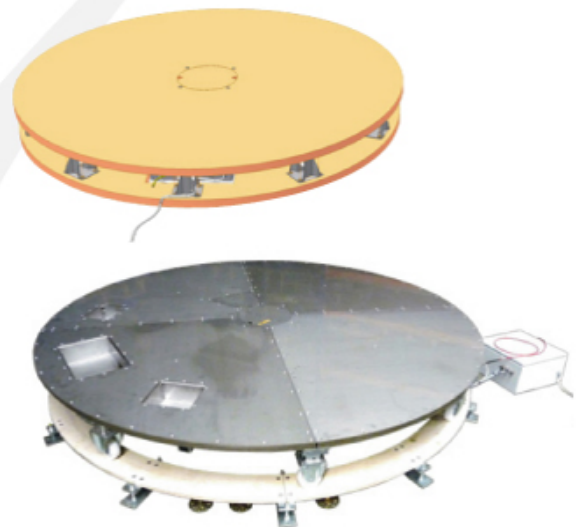
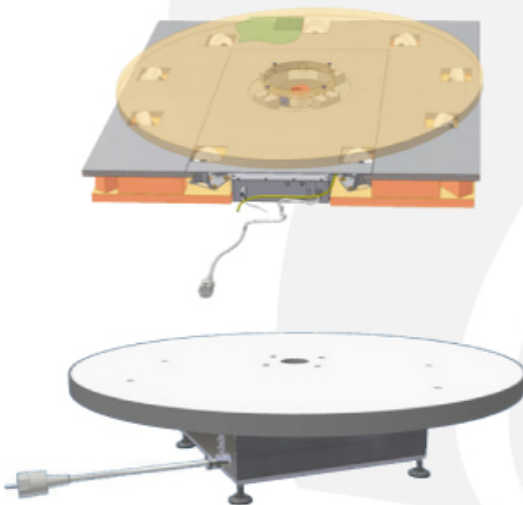
#### Model Types

	Name	Carrier plate diameter	Standard load From....	Range Up to
Compact table	CT0500	500 mm	75 kg...	75 kg
	CT0800 / CT0801	800 mm	75 kg...	150 kg
	CT1000 / CT1001	1,000 mm		150 kg
Turndisc -Build-on for SAC / FAC	DS1200-HA	1,200 mm	300 kg...	500 kg
	DS1500-HA	1,500 mm	300 kg...	500 kg
	DS2000-HA	2,000 mm	500 kg...	1,000 kg
Turndisc -Build-on for FAC	DS1200-HE	1,200 mm	300 kg...	500 kg
	DS1500-HE	1,500 mm	300 kg...	500 kg
	DS2000-HE	2,000 mm	500 kg...	1,000 kg
Turndisc -Build-on for SAC	DS1200-S	1,200 mm	500 kg...	1,000 kg
	DS1500-S	1,500 mm	500 kg...	1,000 kg
	DS2000-S	2,000 mm	700 kg...	1,000 kg
Turntable -Build-on for SAC	DT2000	2,000 mm	1,000 kg...	3,000 kg
	DT2500	2,500 mm	1,000 kg...	3,000 kg
	DT3000	3,000 mm	1,000 kg...	5,000 kg
	DT4000	4,000 mm	1,000 kg...	6,000 kg
	DT5000	5,000 mm	2,000 kg...	8,000 kg
	DT6000	6,000 mm	3,000 kg...	10,000 kg

## Technical Data

### DS 1500 S (for example)

Diameter	1.5 m
Permissible load	500 kg
Height	min. 130 mm
Material	stainless steel
Base	L x W 1.8 m x 1.8 m
Positioning speed adjustable between	0.5 to 2 r/pm
Positioning accuracy	better +/- 1°
Rotating angle	+400°/-200°
Control	microcontroller
Control cable	fibre optic cable, POF type (standard)
Turntable drive	chain drive, worm gear
Motor	electronic EC motor 150 W
Drive unit	shielded and radio interference Suppressed 20 dB under Class B
Temperature range	-5°C...+40°C
Input Current	max. 1.6 A
Operating Voltage	115 V/ 230 V AC (50 / 60 Hz)
Accessories Interface to	CO 1000/ 2000
	3 m power supply cable
	1x5 m, 1x10 m control cable
	Service manual



## Customizing CP



## INNCO systems

Positioning systems for EMC business.....

### Slide bar

The KMS cable measuring slide bar with the exception of the drive unit is fabricated from plastic (PVC).  
The slide rail has adapter plates, which fit all commercially available measuring clamps.  
The zero point of the measuring length is located 20 mm from the edge of the slide bar (E.U.T).



KMS 5300

#### Technical Data

##### KMS 5300 (for example)

Measuring length	max. 5.3 m
Total length	6.0 m
Height	800 mm
Material	PVC + fibre glass, weatherproof
KMS cross-section	100 mm x 100 mm
Base	L x W 0.3 m x 0.3 m
Positioning speed adjustable between	5 supporting pillars min. 1 m / 35 sec max. 1 m / 5 sec
Positioning accuracy	better +/- 1 cm
Slide bar drive	2 Kevlar toothed belts
Motor	electronic EC motor 150 W
Control	microcontroller
Interface	fibre optic
Control cable	fibre optic cable (POF type)
Operating temperature	-10 °C...+35 °C
Input Current	max. 1.6 A
Operating Voltage	115 V / 230 V AC (50 / 60 Hz)

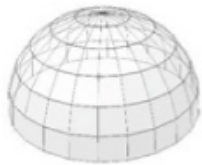
## INNCO systems

Positioning systems for EMC business.....

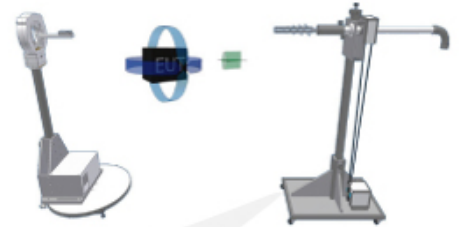
### Turn Devices

The Turn device is specifically designed for mobile telephone measurements with or without "artificial head", and with the exception of the drive unit is all Rohacell and PVC. Different sized mobile telephones can be mounted on the available Holder.

#### Half sphere



#### Full sphere



#### Standard Turn Device



DE 3600-RH



DE 3700-RH



DE 3800-RH

#### Technical Data

##### DE3600-RH (for example)

Total height  
Height of turning axis  
Max. load  
Material upper part

Material bottom part  
Positioning accuracy  
Rotating angle  
Rotating time  
Motor  
Drive unit

Temperature range  
Current consumption  
Voltage  
Accessories

max. 1.8 m  
1.5 m (above floor)  
2 kg  
Rohacell, with dielectric constant below 1.2  
Körmodur, PVC  
+/- 1°  
360°  
max. 2.0 rpm  
electronic EC motor 150 W  
shielded and radio interference suppressed  
-10°C...+40°C  
1.6 A  
115 V / 230 V  
Interface to CO 1000 / 2000  
3 m power supply cable  
1x1 m & 1x10 m fibre optic cable  
Service manual



## INNCO systems

Positioning systems for EMC business.....

### Positioners

The Field Probe Positioner FSM 2315 is an X and Y Axis positioner for continuous and step by step movement for the Field Probe. The construction is in the vertical level. Metal parts are only used in the Groundplate and in the drive Unit (max. 20 cm upper floor). Limit switches and the mechanic design take care for a save operating. While operating with the Controller CO 2000 is a referencing Mode and changing of movement speed also with IEC-Bus (IEEE 488.2) possible.



#### Technical Data

##### FSM 2315 (for example)

Sensor high Z

max. 1.98 m

min. 0.8 m

Y-Axis

max. 1.5 m

Total high

2.3 m

Construction

PVC, GFK, Komacell, POM

Overall Dimensions

0.8 x 2.24 m

Sensor weight

max. 2 kg

Position speed

max. 0.12 m/sec.

Position accuracy

+/- 1 cm

Movement of Sensor

Kevlar toothbelt (Metal free)

Motor

EC Motor 150 W

Power Requirements

230V Schuko

Connection

Fibre optic line

Drive Unit

shielded Box

Thermal Ratings

-10 °C to +35 °C

Accessory

fibre optic transmission

to CO 2000

With F-SMA Connectors

5 m + 10 m LWL-duplex lines

Service-Manual

#### Mast Positioner

Model

MP2200

Movement range

2200 mm

Material

PVC(except drive)





## INNCO systems

Positioning systems for EMC business.....

### Positioners

#### XYZ 120815

Moving range

Sensor weight

Positioning accuracy

All 3 Axis movable at the same time.

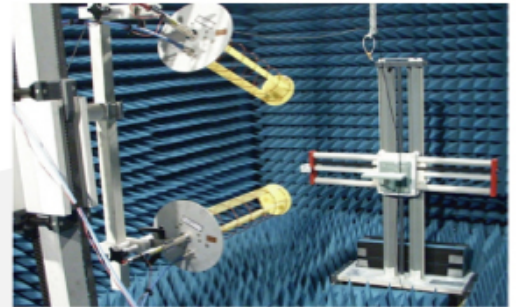
X-Axis 0.7 m

Y-Axis 1.2 m

Z-Axis 1.0 m

max. 5 kg

better  $\pm 5$  mm



#### VSWR 1500-MP

Movement range

Antenna height

Polarisation

Mast rotatable

Antenna weight

Positioning speed

Positioning accuracy

1.5 m (electric)

0.80.....2.3 m (manual)

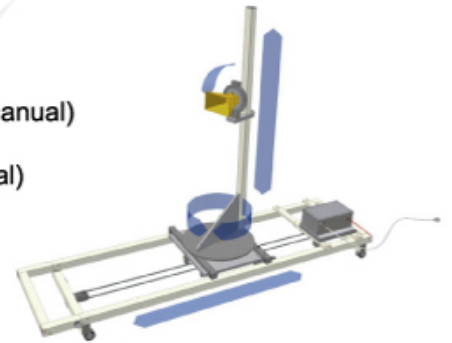
manually

0.....360° (manual)

max. 3 kg

1.....12 cm/sec

better  $\pm 3$  mm



### Aircraft positioning system at EADS (for RCS measurements)

#### Aircraft Lift

Load capacity

Height max

Force of hydraulic cylinders

Beam angle to the horizontal

Elevation angle

75 tons

12 m

350 tons

65°

$\pm 35^\circ$

#### Turntable

Diameter

Height

Load capacity

Accuracy

Turning angle

Turning time

18 m

2.2 m

100 tons

$\pm 0.1^\circ$

$\pm 225^\circ$

5 to 60 min



## INNCO systems

Positioning systems for EMC business.....

### Controllers

The digital controller CO 1000/2000 is suited for the operation of antenna masts, turntables, Slide bars and other positioning equipment. This controller permits the operation in manual, semi-automatic and remote control mode



### Technical Data

Data interface  
Device interface

Transfer rate

Display

Voltage

Size

Weight

IEEE488 (optional RS 232)

3 Port's CAN-Bus via fibre optic cable (POF)  
(4 Port's & glass cable available)

20 kbit/sec

5.5" LCD 240 x 64 Pixel

115 V/ 230 V AC (50 / 60 Hz)

19" Rack mount (427 x 87 x 300 mm)

approx. 5 kg

### EUT Test Tables

Model Types

-SD & -RH

-SD

Material

Dielectric constant  $\Sigma$  at 1 MHz

Table Top

Dielectric constant  $\Sigma$  at 1 MHz

Styrofoam

1.2

Perdinax  $t=1$  mm

1.6

-RH

Material

Dielectric constant  $\Sigma$  at 1 MHz

Table Top:

Dielectric constant  $\Sigma$  at 1 MHz

Height

Table Top

Rohacell

1.04

Perdinax  $t=1$  mm

1.6

0.8 m

$\varnothing$  1.2 or 1.5 m

1.2 m x 0.8 m or

1.5 m x 1.0 m or

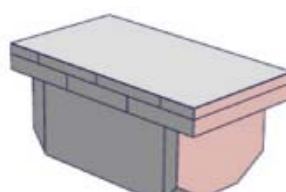
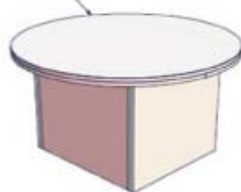
1.8 m x 1.0 m

100, 120 or 150 kg

Load capability



Perdinax cover plate 1mm



## INNCO systems

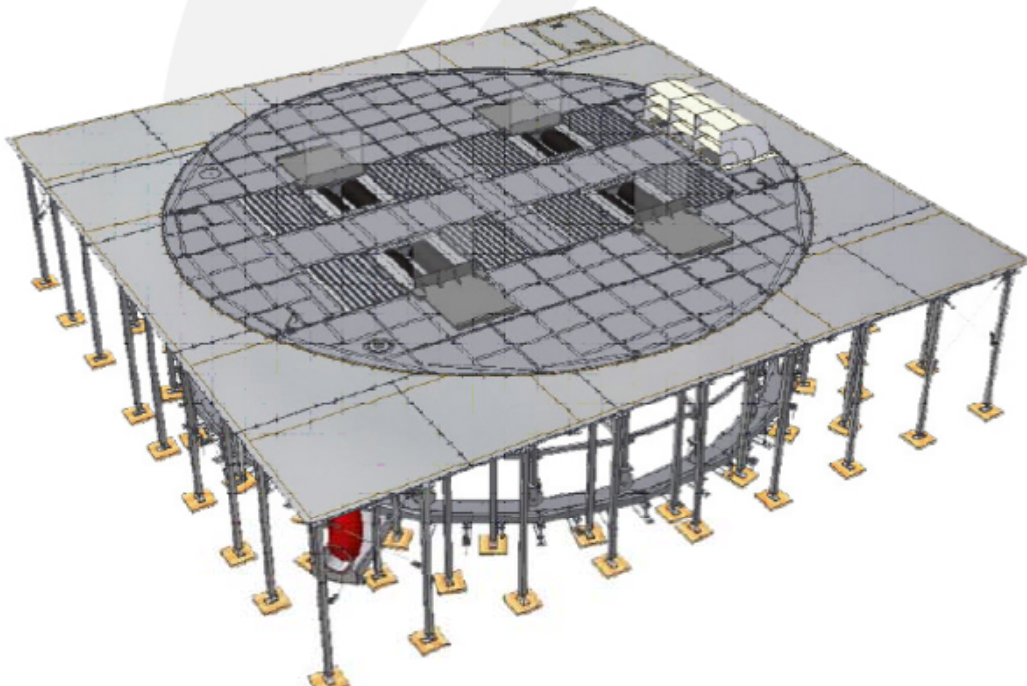
Positioning systems for EMC business.....

### Chassis Dynamometer

The turntable DT8000-4.5t-RPS is designed for installation in electromagnetic absorption chambers. The well engineered design with high grade components are chosen to match with ambitious demands of the EMC business.



The RPS40-200-5-DT consists primarily of two RPS-modules for the front and rear axle of the vehicle. These modules are constructed as a chassis dynamometer. Two active elements are used for cars with rear/front wheel drive or four-wheel drive. Each car wheel is driven by a separate motor/generator. It can be used for acceleration/retardation and in an endurance mode. The motors/generators are controlled by PLC to allow quick gradients and good control results. The programming happens user-friendly with PC and Dynam3-software.

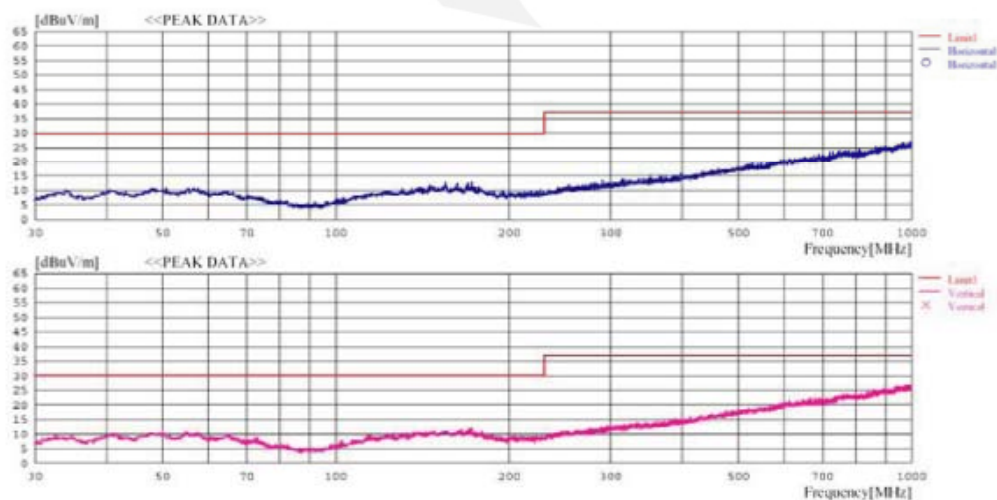


*Turntable with chassis dynamometer*



**Technical Data****Turntable DT8000-4.5t-RPS (for example)**

Diameter	8.0 m
Permissible load	4,500 kg
Height needed	min./recommended 1.75/2.2 m
Rotating speed adjustable	step less 2....8°/s
Positioning accuracy	better $\pm 0.2^\circ$
Rotating angle	-20....+380°
Temperature working range	10 °C...+40 °C
Current consumption	max. 16 A
Voltage	400 V
Square form environment	8.5 x 8.5 m
Ground plane connecting every	50 mm
Wheel base	min 1,800 mm max 3,200 mm
Control cable	Fibre optic lines
Turntable drive	2 frictional wheels
Motor	Asynchrony motor, frequency inverter
Drive unit	Shielded and radio interference suppressed
Including	Interface to CO 2000 15 m FO-control cable Service manual
Specifics	Car fixing elements Emergency Switch Preparation for cooling system Distributed Energy Chain for Power and Control Lines
Emission:	
Less than the limits of CISPR 22	better -10 dB
Frequency range	10 kHz - 3 GHz
Measuring point	1 m above the floor level 5 m distance to the table centre
Immunity:	
continuous field strength	400 V/m
Frequency range	10 kHz - 18 GHz



## Technical Data

### Dynamometer RPS40-200-5-DT (for example)

Permissible axle load

2,200 kg

Diameter car wheels

min 400 mm

Distance between....

....outer roller edges

2,100 mm

....inner roller edges

900 mm

Design as

twin rollers (4 roller pairs)

Diameter rollers

324 mm

Lengths of rollers

0.6 m

Max speed

above 200 km/h

Speed measurement accuracy

better  $\pm 1$  km/h

4 Drive/Brake AC motor/generator

approx. each 41 kW (Siemens Motors)

4 Vector frequency inverter

entired approx. 400 A

(Siemens Frequency Inverters)

better 5 m/s<sup>2</sup>

Acceleration for cars

better 5 m/s<sup>2</sup>

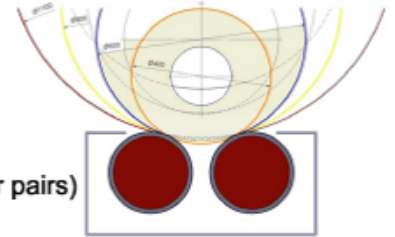
Deceleration for cars

200 km/h

Up to a speed of

via fibre optic link

Controlled



### Cooling fan system

Air flow (max):

37,000 m<sup>3</sup>/h

Wind speed:

65 km/h

At air outlet area

1,100 x 500 mm

### Roller stands

Be free! - Two boxes filled up with powerful technology.

RPS-F is the free standing EMC worthy dyno, Easy to move, flexible to use on turntable or not. No external cabinet is needed.



### Gantrys (for Nearfield)

In combination with INNCO systems turntables make 3D patterns possible.



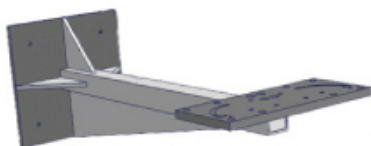
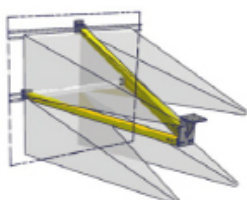


**INNCO systems**

Positioning systems for EMC business.....

**Accessories**Wall mounting brackets

Custom made and standard for any weight and absorber type

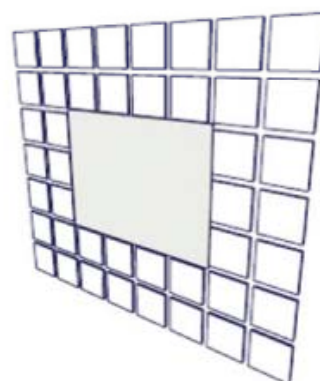
Compact cooling fan

Wind speed  
Air stream  
Material

50 km/h  
10 m<sup>3</sup>/h  
Wood & PVC

Projection screen

For white caps & as "stand alone"  
In 100" and 120"



## Will-Burt

Antenna Mast Systems Military & Commercial.....

### Vertical-Mounted Masts

Will-Burt's line of vertical telescoping masts are designed and manufactured for performance and safety. Vertical mounted masts can be used to elevate a variety of payloads including lighting, camera, or antennas. Vertical mounted telescoping products are constructed of high strength heat-treated aluminum tubes and collars with low friction synthetic bearings for long dependable service and can be mounted internally or externally on a vehicle. The Stiletto mast, used for military applications, is constructed of durable, high strength carbon fiber composite tubes.

Will-Burt

#### Pneumatic Mast

Free-standing unit so guylines are not needed.

Constructed of high strength, heat-treated aluminum tubes and collars for long, dependable life.

Two full length external keys on mast sections, with matching machined keyways on collars, maintaining directional azimuth.

Each tube and collar is protected by low friction synthetic bearings for smooth operation and long life.

The bumpers are designed to reduce shock on extension and retraction.

All exterior aluminum surfaces are anodized and sealed for long life, fasteners are stainless steel for corrosion resistance.

#### Standard Equipment

Internal roof mounting hardware

Non-rotatable base plate

Antenna extension stub

Magnetic mast extension warning light kit

Installation & operation manual

ANSI/ISO CE Certified hazard labels

Shipping crate

#### Optional Equipment

Rotatable base plate & turning handles

Mounting for external installation

Top mountings: platform adapter or custom interfaces

Lukon 24 & other finishes available

Black anodized finish

Canvas top cover

## STANDARD DUTY MASTS Non Locking

	Payload Capacity	Extended Height	Nested Height	Approx. Mast Weight	No. of Sections	Tube Diameter Range	Collar Type	Max. Operating Pressure
5-20	70 lb (32 kg)	20' 6.1 m	5' 4" 1.6 m	45 lb (21 kg)	6	5-2" 127-64 mm	Non-locking	20 PSIG (1.4bar)
6-27	40 lb (18 kg)	26' 10" 8.2 m	6' 0" 1.8 m	54 lb (25 kg)	7	5-2" 127-51 mm	Non-locking	20 PSIG (1.4bar)
7-34	40 lb (18 kg)	33' 10" 10.3 m	7' 0" 2.1 m	67 lb (31 kg)	7	5-2" 127-51 mm	Non-locking	20 PSIG (1.4bar)
8-30	100 lb (45 kg)	29' 11" 9.1 m	8' 0" 2.4 m	64 lb (29 kg)	5	5-3" 127-76 mm	Non-locking	20 PSIG (1.4bar)

## HEAVY DUTY MASTS Locking

	Payload Capacity	Extended Height	Nested Height	Approx. Mast Weight	No. of Sections	Tube Diameter Range	Collar Type	Guying Required	Max. Operating Pressure
7-30	150 lb (68 kg)	29' 1" 8.9 m	7' 2.6 m	125 lb (57 kg)	6	6.75-3" 171-76 mm	Locking T Handles	NR*	35 PSIG (2.4bar)
7-42	150 lb (68 kg)	41' 3" 12.6 m	7' 9" 2.3 m	235 lb (107 kg)	9	9-3" 229-76 mm	Locking T Handles	NR*	35 PSIG (2.4bar)
10-60	200 lb (91 kg)	60' 5" 18.5 m	10' 1" 3 m	330 lb (150 kg)	8	9-3.75" 229-95 mm	Locking T Handles	NR*	35 PSIG (2.4bar)
14.5-80	225 lb (102 kg)	79' 9" 24.3 m	14' 3" 4.3 m	416 lb (189 kg)	7	9-4.5" 229-114 mm	Locking T Handles	4Way 4Level	35 PSIG (2.4bar)
17-100	200 lb (90 kg)	99' 9" 30.4 m	17' 2" 5.2 m	480 lb (218 kg)	7	9-4.5" 229-114 mm	Locking Triplines	4Way 4Level	35 PSIG (2.4bar)
20-134	150 lb (68 kg)	133' 9" 40.8 m	20' 2" 6.1 m	600 lb (273 kg)	8	9-3.75" 229-95 mm	Locking Triplines	4Way 5Level	35 PSIG (2.4bar)

## HEAVY DUTY MASTS Non Locking

	Payload Capacity	Extended Height	Nested Height	Approx. Mast Weight	No. of Sections	Tube Diameter Range	Collar Type	Max. Operating Pressure
6-25	150 lb (68 kg)	25' (7.6 m)	5' 10" (1.8 m)	110 lb (50 kg)	6	6.75-3" (171-76 mm)	Non-locking	35 PSIG (2.4bar)
7-30	150 lb (68 kg)	29' 1" (8.9 m)	6' 8" (2 m)	125 lb (57 kg)	6	6.75-3" (171-76 mm)	Non-locking	35 PSIG (2.4bar)
7-42	150 lb (68 kg)	41' 2" (18.5 m)	7' 1" (2.1 m)	235 lb (107 kg)	9	9-3" (229-76 mm)	Non-locking	35 PSIG (2.4bar)
8.5-48	200 lb (90 kg)	48' (14.6 m)	8' 6" (2.6 m)	275 lb (125 kg)	8	9-3.75" (229-95 mm)	Non-locking	35 PSIG (2.4bar)
8.5-52	100 lb (45 kg)	52' (15.8 m)	8' 4" (2.5 m)	266 lb (121 kg)	9	9-35" (229-76 mm)	Non-locking	35 PSIG (1.4bar)
9.5-56	200 lb (90 kg)	56' 2" (17 m)	9' 6" (2.9 m)	296 lb (135 kg)	8	9-3.75" (229-95 mm)	Non-locking	35 PSIG (1.4bar)

## SUPER HEAVY DUTY MASTS Locking

	Payload Capacity	Extended Height	Nested Height	Approx. Mast Weight	No. of Sections	Tube Diameter Range	Collar Type	Max. Operating Pressure
9-50	450 lb (205 kg)	50' 5" (15.3 m)	9' 2" (2.8 m)	500 lb (227 kg)	8	11.25-5.25" (288-135 mm)	Locking T Handles	35 PSIG (2.4bar)
10.3-60	450 lb (205 kg)	60' 5" (18.3 m)	10' 3" (3.15 m)	500lb (227 kg)	8	11.25-5.25" (288-135 mm)	Locking T Handles	35 PSIG (2.4bar)
10.8-76	200 lb (91 kg)	76' 2" (23 m)	10' 9" (3.3 m)	536 lb (245 kg)	10	11.25-3.75" (288-96 mm)	Locking T Handles	35 PSIG (2.4bar)
15.7-100	450 lb (205 kg)	100' (30.3 m)	15' 8" (4.8 m)	790 lb (361 kg)	8	11.25-5.25" (288-135 mm)	Locking Triplines	35 PSIG (2.4bar)
22.5-164	100 lb (45 kg)	164' (50 m)	22.6' (6.8 m)	1150 lb (521 kg)	10	11.25-3.75" (288-96 mm)	Locking Triplines	35 PSIG (2.4bar)



## SUPER HEAVY DUTY MASTS Non Locking

	Payload Capacity	Extended Height	Nested Height	Approx. Mast Weight	No. of Sections	Tube Diameter Range	Collar Type	Max. Operating Pressure
10-38	1,000 lb (453 kg)	38' (6.1 m)	10' (16 m)	400 lb (21 kg)	5	11.13-735" (285-192 mm)	Non-locking	40 PSIG (2.75bar)
12-48	1,000 lb (453 kg)	48' (14.5 m)	12' (3.6 m)	475 lb (215 kg)	5	11.13-7.5" (285-192 mm)	Non-locking	40 PSIG (2.75bar)
13.6-45	1,200 lb (545 kg)	45' 4" (13.6 m)	13' 8" (4.1 m)	475 lb (215 kg)	4	11.13-8.25" (285-211 mm)	Non-locking	40 PSIG (2.75bar)
14-67	800 lb (363 kg)	67' (20.3 m)	13' 2" (4 m)	575 lb (261 kg)	6	11.13-6.75" (285-173 mm)	Non-locking	35 PSIG (2.4bar)





## Military Mast

The Will-Burt Company offers a broad array of military masts ranging from heavy-duty vehicle-mounted masts to lightweight, portable field masts. With electro-mechanical, pneumatic or manual deployment designs, our masts provide solutions to elevate antennas, surveillance and target acquisition equipment and elevated testing equipment. Our masts are designed and manufactured to meet the harsh environmental requirements of the military and are qualified to meet MIL-STD-810.



## Antenna Solutions

For the warfighter, Command, Control, Communication, Computers and Intelligence (C4I) is a key factor in mission success. Today's demanding military communications Requirements are met by the proven electro-mechanical, pneumatic and manual telescoping masts from Will-Burt. Will-Burt provides antenna support with high stability and pointing accuracy with lightweight and reliable telescoping masts.

## Surveillance & Target Acquisition Solutions

Military operations rely on Intelligence, Surveillance and Reconnaissance (ISR) to provide situational awareness for the success and safety of the mission. Will-Burt products in mobile and tactical situations can provide the high payload capacity, durability and reliability for mission success.

## Elevated Testing Solutions

Will-Burt delivers the ability to elevate and support the equipment for all of your elevated testing needs. Whether it's for meteorological testing or monitoring, Chemical, Biological, Radiological, and Nuclear (CBRN) environment air quality testing, or Wi-Fi, our range of masts provide the height, capacity, and mobility necessary for your applications.



# Stiletto™

The Stiletto electro-mechanical mast (28VDC) is a revolutionary screw-drive telescoping mast designed for communications, reconnaissance, and surveillance applications. The Stiletto is lightweight and mobile and allows internal or external mountings for MRAP or shelter installations. Built with durable, high strength carbon fiber composite tube sections, the Stiletto is designed and tested to meet MIL-STD-810 environmental standards for operations in extreme conditions.

## Features:

### Non-rotatable self-locking sections

- Allows Stiletto to lock at any height without power for increased safety for personnel and payload
- Provides tight antenna pointing accuracy

### Does not require guylines

- Allows for quick and easy setup and fast deployment

### Enhanced controls

- Provides height read-out
- Computer interface and operation option

### Electric drive for extension and retraction

- Provides positive retraction against ice

### Easy maintainability

- Five minute in-field routine maintenance
- Easy disassembly and reassembly for depot maintenance

### Standard finish is polyurethane green enamel #34094

- CARC and other polyurethane colors available

### Optional hand-held remote control (wired)



Specifications	4 meter	6 meter	10 meter	15 meter
Nested height (+0 in./-1.0 in.)	40 in./1.02 m	47 in./1.2 m	68 in./1.73 m	95.5 in./2.43 m
Extended height (+4 in./-0 in.)	13.5 ft./4.1 m	19 ft./5.79 m	32.83 ft./10 m	49.17 ft./15 m
Payload Capacity	200 lb./91 kg	200 lb./91 kg	175 lb./80 kg	125 lb./57 kg
Erection time with power	1 min.	1.5 min.	2.5 min.	4 min.
Typical payload sail area	8 sq. ft./2.4 sq. m CD=1.5	8 sq. ft./74 sq. m CD=1.5	6 sq. ft./56 sq. m CD=1.5	4 sq. ft./37 sq. m CD=1.5
Deployment wind speed	50 mph/80 km/hr	40 mph/60 km/hr	34 mph/55 km/hr	33 mph/50 km/hr
Survival wind speed	110 mph/165 km/hr	100 mph/150 km/hr	80 mph/120 km/hr	65 mph/105 km/hr
Voltage	28 VDC	28 VDC	28 VDC	28 VDC
Weight including control box & cables	196 lb./89 kg	209 lb./95 kg	252 lb./115 kg	306 lb./139 kg
Rotation accuracy (twist)	+/-1°	+/-1°	+/-1°	+/-1°
Footprint	17.56 in. x 11.19 in./ .45 m x .28 m	17.56 in. x 11.19 in./ .45 m x .28 m	17.56 in. x 11.19 in./ .45 m x .28 m	17.56 in. x 11.19 in./ .45 m x .28 m



The Stiletto HD is a more rugged version of our original Stiletto electro-mechanical mast. The Stiletto HD also has extended on-the move capabilities or can support up to 400 pounds (181 kg). The Stiletto HD includes all the features of the Stiletto.

#### Additional Features of Stiletto HD vs. Stiletto:

##### Heavier-duty design

- Limited on-the-move operation

##### Larger diameter and higher strength carbon fiber tube sections

- Greater strength and rigidity for larger payloads

##### Heavier-duty collars and triple locks

- Greater capacity and strength

##### Heavier-duty drive assembly

- Greater payload capacity and faster extension

##### Greater section lap

- Decreased deflection



Specifications	4 meter	6 meter	10 meter
Nested height (+0 in./-1.0 in.)	43.2 in./1.1 m	58.2 in./1.5 m	79 in./2 m
Extended height (+4 in./-0 in.)	12.46 ft./3.8 m	19.67 ft./6 m	32.83 ft./10 m
Payload Capacity	400 lb./180 kg	400 lb./180 kg	400 lb./180 kg
Erection time with power	30 sec.	30 sec.	45 sec.
Typical payload sail area	11 sq. ft./1.0 sq. m CD=1.5	11 sq. ft./1.0 sq. m CD=1.5	8 sq. ft./2.4 sq. m CD=1.5
Deployment wind speed	40 mph/60 km/hr	40 mph/60 km/hr	34 mph/51 km/hr
Survival wind speed	100 mph/150 km/hr	100 mph/150 km/hr	80 mph/120 km/hr
Voltage	28 VDC	28 VDC	28 VDC
Weight including control box & cables	250 lb./ 113 kg	270 lb./122 kg	300 lb./ 136 kg
Rotation accuracy (twist)	+/-1°	+/-1°	+/-1°

#### Stiletto & Stiletto HD - MIL-STD 810F Qualifications

**Altitude** / Sea level to 15,000 feet per MIL-STD-810F, Method 500.4

**Transportation / Altitude** / Sea level to 15,000 feet (unpressurized) MIL-STD-810F, Method 500.4

**Storage Temperature Ranges** / -40°C to +70°C MIL-STD-810F, Method 501.4 and 500.4

**Operating Temperature Ranges** / -30°C to +65°C MIL-STD-810F, Method 501.4 and 502.4

**Solar Radiation** / Per MIL-STD-810F, Method 505.4

**Rain** / Per MIL-STD-810F, Method 506.4

**Humidity** / Per MIL-STD-810F, Method 507.4

**Fungus** / Per MIL-STD-810F, Method 508.5

**Salt Fog** / Per MIL-STD-810F, Method 509.4

**Sand and Dust** / Per MIL-STD-810F, Method 510.4

**Ice and Freezing Rain** / Per MIL-STD-810F, Method 521.2

**Vibration and Shock** / Per MIL-STD-810F, Method 514.5 and 516.5 (nested position)

# Non-Locking

The Will-Burt line of military pneumatic non-locking masts are ideal for communications and surveillance applications. These masts are free-standing vehicle-mounted units so no guylines are needed. All pneumatic telescoping masts are constructed of high-strength heat treated 6061-T6 aluminum tubes. Collars have low friction synthetic bearings for long, dependable life. All pneumatic masts can be either vehicle or trailer mounted. Commercial-off-the shelf (COTS) heavy duty and super heavy-duty models are available. Super heavy-duty models feature greater heights and larger payload capacities. Standard models are shown below. Custom height and payload capacities are available upon request.



## Features:

### Two full-length external keys on mast sections with matching machined keyways on collars

- Maintains directional azimuth

### Low friction synthetic bearings

- Protects mast sections and collars for smooth operation and long life

### Black Hardcoat anodized and sealed aluminum surfaces

- Meets MIL-A-8625 Type III, Class II
- Extends life of mast and protects against salt fog corrosion

### External Wipers

- Protects against sand and dust

### Optional rotatable base for heavy-duty models

- Manual directional control

### Optional mounting kits

- Vehicle, shelter or ground

### Ruggedized Options

- Optional finishes and features for military applications

## Heavy-duty models:

Specifications	10 m	12.5 m	18 m	30 m
Nested height	7.5 ft./2.3 m	7.5 ft./2.3 m	10.4 ft./3.2 m	16.8 ft./5.1 m
Extended height	32.8 ft./10 m	41 ft./12.5 m	59 ft./18 m	98.5 ft./30 m
Payload Capacity	150 lb./68 kg	150 lb./68 kg	200 lb./90 kg	200 lb./90 kg
Mast Weight	125 lb./57 kg	235 lb./107 kg	330 lb./150 kg	480 lb./218 kg
Tube Diameter Range	6.75-3"/171-76 mm	9-3"/229-76 mm	9-3.75"/229-95 mm	9-4.5"/229-114 mm
Max. Operating Pressure	35 PSIG (2.4 bar)	35 PSIG (2.4 bar)	35 PSIG (2.4 bar)	35 PSIG (2.4 bar)

## Super heavy-duty models:

Specifications	10 m	12 m	72' Patriot
Nested height	8 ft./2.5 m	9.3 ft./2.8 m	18 ft./5.5 m
Extended height	32.8 ft./10 m	39.4 ft./12 m	72 ft./22 m
Payload Capacity	800 lb./363 kg	660 lb./300 kg	700 lb./318 kg
Approx. Mast Weight	375 lb./170 kg	430 lb./195 kg	1500 lb./680 kg
Tube Diameter Range	11.25-6.75"/285-171 mm	11.25-6"/285-152 mm	11-6.5"/280-165 mm
Max. Operating Pressure	35 PSIG (2.4 bar)	35 PSIG (2.4 bar)	35 PSIG (2.4 bar)

# Locking

Will-Burt's locking pneumatic masts are ideal for military communications, elevated testing and mobile radar applications. When a mast deployment is needed for extended periods, locking collars allow the mast to remain extended indefinitely without air pressure. Vehicle-mounted heavy-duty models up to 60 feet (18 meters) do not require guylines. Commercial-off-the-shelf (COTS) heavy-duty and super heavy-duty models are available. Super heavy-duty models feature greater unguyed heights and larger payload capacities. Standard models are shown below. Custom height and payload capacities are available upon request.



- Features:**
- Two full-length external keys on mast sections with matching machined Key ways on collars**
    - Maintains directional azimuth
  - Low friction synthetic bearings**
    - Protects mast sections and collars for smooth operation and long life
  - Mechanical locking collars**
    - Supports high guying forces
  - Black Hardcoat anodized and sealed aluminum surfaces**
    - Meets MIL-A-8625 Type III, Class II
    - Extends life of mast and protects against salt fog corrosion
  - External Wipers**
    - Protects against sand and dust
  - Ruggedized Options**
    - Optional finishes and features for military applications

**Heavy-duty models:**

Specifications	7.5 m	10 m	12.5 m	15 m	17 m
Nested height	6 ft./1.8 m	6.7 ft./2 m	7.3 ft./2.1 m	8.7 ft./2.7 m	9.6 ft./2.9 m
Extended height	25 ft./7.6 m	32.8 ft./10 m	41.2 ft./12.5 m	48.6 ft./14.8 m	56.17 ft./17.1 m
Payload Capacity	150 lb./68 kg	200 lb./90 kg	150 lb./68 kg	200 lb./90 kg	200 lb./90 kg
Approx. Mast Weight	110 lb./50 kg	200 lb./90 kg	235 lb./107 kg	275 lb./125 kg	296 lb./135 kg
Tube Diameter Range	6.75-3"/171-76 mm	9-3.75"/229-95 mm	9-3"/229-76 mm	9-3.75"/229-95 mm	9-3.75"/229-95 mm
Max. Operating Pressure	35 PSIG (2.4 bar)	35 PSIG (2.4 bar)	35 PSIG (2.4 bar)	35 PSIG (2.4 bar)	35 PSIG (2.4 bar)

**Super heavy-duty models:**

Specifications	15 m	18 m	23 m	30 m
Nested height	9.2 ft./2.8 m	10.5 ft./3.2 m	11.1 ft./3.4 m	15.4 ft./4.7 m
Extended height	49.2 ft./15 m	59.1 ft./18 m	76 ft./23.2 m	98.4 ft./30 m
Payload Capacity	450 lb./205 kg	450 lb./205 kg	200 lb./91 kg	450 lb./205 kg
Mast Weight	450 lb./204 kg	500 lb./227 kg	550 lb./249 kg	790 lb./361 kg
Tube Diameter Range	11.25-5.25"/288-135 mm	11.25-5.25"/288-135 mm	11.25-3.75"/288-96 mm	11.25-5.25"/288-135 mm
Max. Operating Pressure	35 PSIG (2.4 bar)	35 PSIG (2.4 bar)	35 PSIG (2.4 bar)	35 PSIG (2.4 bar)



# Quick Erecting Antenna Mast (QEAM)

Will-Burt



Will-Burt's Quick Erecting Antenna Mast (QEAM) is a series of reliable screw-drive or strap-drive guyed field masts made of high-strength 6061-T6 aluminum tubes. The HDTM 10C and the TM 15C are made from carbon composite tubes. Designed for manual operation,

QEAM elevates light payloads for groundmounted, vehicle and shelter deployment. QEAM is an economical mast and meets MIL-STD-810 environmental standards for operations in extreme conditions. The QEAM TM 10 is recognized as the AB-1386/U for the U.S. Army CECOM

## Features:

### Easy manual crank up

- No power supply needed

### Automatic locking collars

- Locks at any height desired
- Patented latch mechanism

### Manual mechanical drive

- Reliable deployment without power

### Standard ground mounting kits with guylines and Transport bag included

### Optional vehicle and shelter mounting kits available



Specifications	TM 10 (AB-1386/U)	HDTM 10C	TM 15C	TM 21	TM 34
Nested height	8 ft./2.4 m	8 ft./2.4 m	8 ft./2.4 m	14.58 ft./4.5 m	19 ft./5.8 m
Extended height	32.83 ft./10 m	32.83 ft./10 m	50 ft./15 m	70.67 ft./21 m	112 ft./34 m
Guying	2 level/3 way	2 level/3 way	3 level/4 way	4 level/4 way	5 level/4 way
No. of sections	5	5	8	6	7
Weight (mast only)	42 lb./19 kg	55 lb./25 kg	95 lb./43.1 kg	197 lb./90 kg	250 lb./113 kg
Weight (accessory kit)	57 lb./26 kg	(2) 42 lb./19kg	(2) 42 lb./19kg	245 lb./111 kg	275 lb./125 kg
Payload Capacity	15 lb./7 kg	75 lb./34 kg	75 lb./34 kg	180 lb./80 kg	110 lb./50 kg
Deployment time	2 persons, 7.5 min.	2 persons, 8 min	2 persons, 15 min	3 persons, 25 min.	3 persons, 30 min.
Drive System	Screw drive	Screw drive	Screw drive	Strap drive	Strap drive
Finish	MIL-F-14072 CARC	Pultruded Black Finish	Pultruded Black Finish	MIL-A-8625 Type II, CL 2 Black	MIL-A-8625 Type II, CL 2 Black

# Mobilemast

Mobile mast, a highly portable, lightweight, economical field mast, can support a variety of Payloads including cameras and antennas. All Mobilemast models are easily transportable.

This sleek line of masts is ideal for deployments that do not require a shelter or a vehicle for support. The patented large tripod base allows a single crew member to assemble and extend 4 foot (1.2 m) sections to heights from 8 feet (2.5 m) to 72 feet (22 m). Mobilemast is ideal for compact storage and fast deployment and is available in lightweight high strength carbon fiber tubes or economical steel tubes.



## Features:

### Lightweight and portable

- One person deployable
- Mast and accessories fit conveniently in compartmentalized transport bag

### Sturdy tripod base

- Provides deployment and operational stability

### Models 24' and less do not require guylines

- Quick and easy setup

### Optional mounting hardware

- Vehicle mounting available

## Mobilemast Carbon Fiber 50 mm

### Optional EZ Raze™ System

Model	System Weight	Height	Payload Capacity	System Weight with EZ Raze	Payload capacity EZ Raze	Payload capacity Total
TWR-CF-16	58 lb./26.5 kg	16 ft./4.9 m	65 lb./30 kg	84 lb./38 kg	40 lb./18 kg	100 lb./46 kg
TWR-CF-20	60 lb./27.5 kg	20 ft./6.1 m	60 lb./27 kg	86 lb./39 kg	40 lb./18 kg	95 lb./43 kg
TWR-CF-24	63 lb./29 kg	24 ft./7.3 m	60 lb./27 kg	89 lb./40.5 kg	40 lb./18 kg	90 lb./41 kg
TWR-CF-28	69 lb./29.5 kg	28 ft./8.5 m	55 lb./25 kg	91 lb./41.5 kg	40 lb./18 kg	85 lb./39 kg
TWR-CF-32	68 lb./31 kg	32 ft./9.7 m	55 lb./25 kg	94 lb./43 kg	40 lb./18 kg	80 lb./37 kg
TWR-CF-36	70 lb./32 kg	36 ft./11 m	50 lb./23 kg	96 lb./44 kg	40 lb./18 kg	75 lb./34 kg
TWR-CF-40	73 lb./33 kg	40 ft./12.2 m	50 lb./23 kg	99 lb./45 kg	40 lb./18 kg	70 lb./32 kg
TWR-CF-44	79 lb./36 kg	44 ft./13.4 m	45 lb./20 kg	105 lb./48 kg	40 lb./18 kg	65 lb./30 kg
TWR-CF-48	82 lb./37 kg	48 ft./14.6 m	45 lb./20 kg	108 lb./49 kg	40 lb./18 kg	55 lb./25 kg
TWR-CF-52	84 lb./38 kg	52 ft./15.8 m	40 lb./18 kg	110 lb./50 kg	40 lb./18 kg	45 lb./21 kg
TWR-CF-56	87 lb./40 kg	56 ft./17 m	35 lb./16 kg	113 lb./51.5 kg	35 lb./16 kg	35 lb./16 kg
TWR-CF-60	90 lb./41 kg	60 ft./18.3 m	30 lb./14 kg	115 lb./52.5 kg	30 lb./14 kg	30 lb./14 kg
TWR-CF-64	92 lb./42 kg	64 ft./19.5 m	25 lb./11 kg	118 lb./53.5 kg	25 lb./11 kg	25 lb./12 kg
TWR-CF-68	94 lb./43 kg	68 ft./20.7 m	20 lb./9 kg	120 lb./54.5 kg	20 lb./9 kg	20 lb./9 kg
TWR-CF-72	97 lb./45 kg	72 ft./22 m	15 lb./7 kg	123 lb./56 kg	15 lb./7 kg	15 lb./7 kg

# AccuPoint<sup>®</sup>

Will-Burt



AccuPoint positioners are designed to deliver maximum performance for top-of-the-mast antenna positioning. This line features two models.

The AP-100 is a 100 pound (45 kg) payload capacity positioner and the AP-25 is a 25 pound (11 kg) payload capacity positioner.

Design highlights feature optimized gear and motor ratios for enhanced performance and easily accessible, adjustable-limit cams for easy service.

The AP-100 features an easy to replace breakaway base with lanyard for added safety.

## AP-100 features:

- AC or DC operation
- 30 minute full load duty cycle
- Adjustable pan speed: 0.25° - 11° /s
- Adjustable tilt speed: 0.1° - 4° /s
- 180° tilt angular rotation
- 100 ft-lbs tilt torque
- 4 red LED's underneath unit for easy visibility and increased safety

## AccuPoint Controllers

### Basic Control

Voltage: 24 AC, 24 DC, 115 DC or 115 AC

Features: On/off switch, High/low speed, 4 button

Temperature Limits: 32°F-120°F/0°C- 49°C/

Hand-held remote control interface

Form: Rack-Mount-1 RU

### Basic Control

Voltage: 24 AC, 24 DC, 115 DC or 115 AC

Features: On/off switch, High/low speed, 4 button

Temperature Limits: 32°F-120°F/0°C- 49°C/

Hand-held remote control interface

## AP-25 features:

- DC operation only
- Adjustable tilt speed: 0.1° - 14° /s
- Adjustable pan speed: 0.25° - 3° /s
- 180° tilt angular rotation
- 12.5 ft-lbs tilt torque

## Plus Control

All Basic control features

Stow/Unstow



## Premium Control

All Enhanced features

Automatically orients the antenna with extreme accuracy from platform

LCD shows GPS accurate time

Compensates and fine-tunes targeting

when mast is raised at a skew

Provides exact GPS location readout

Stores 40 receive site names/ coordinates

## NYCOIL<sup>®</sup> Cable Conduit

NYCOIL is coiled conduit to house wiring, antenna coax and positioner cable



**Features:**

- Easily fits around non-locking telescoping masts
- Extends neatly with the mast
- Compactly retracts when mast is nested
- Sizes from 3/4 in. ID to 1 1/4 in. ID (12 mm to 32 mm)
- Lengths to 100 feet (30 m)
- Available in gray or black



## BONN Elektronik GmbH

RF systems, Instruments and components.....

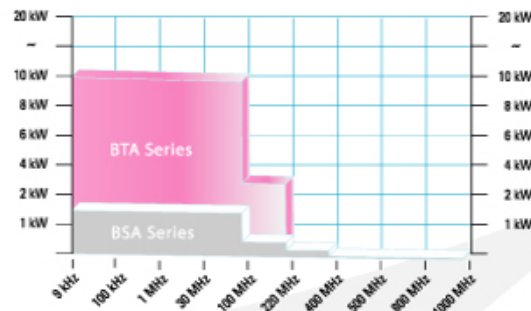
### RF Power Amplifier

#### BSA Series

Solid State Amplifiers  
9 kHz ... 1000 MHz  
1 W ... 1.5 kW

#### BTA Series

Hybrid Amplifiers  
9 kHz ... 220 MHz  
250 W ... 10 kW

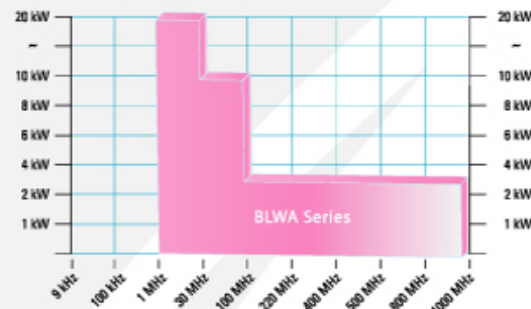


#### BLWA Series

Solid State Amplifiers  
1 ... 1000 (4000) MHz  
1 W ... 20 kW

#### Cellular Bands

Solid State Amplifiers  
800 ... 2500 MHz  
10 W ... 200 W

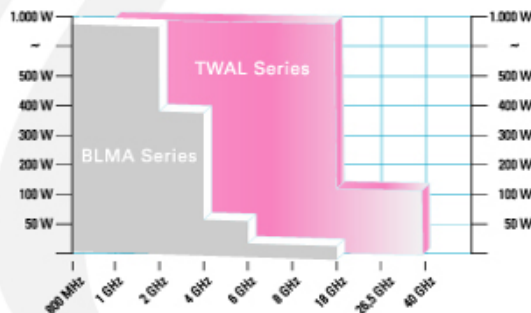


#### BLMA Series

Solid State Amplifiers  
100 MHz ... 40 GHz  
0.1 W ... 1 kW

#### TWAL Series

TWT Amplifiers  
1 GHz ... 40 GHz  
20 W ... 1 kW

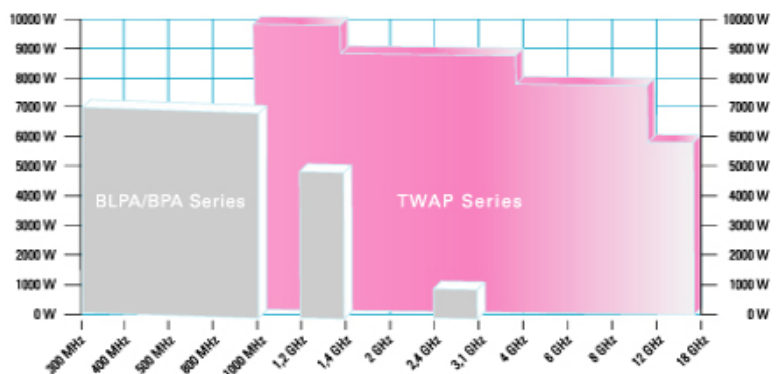


#### EMI Preamplifiers

Amplifiers + Antennas  
100 MHz ... 40 GHz  
18 dB ... 50 dB Gain

#### BPA / TWAP series

Pulsed Amplifiers  
300 MHz ... 18 GHz  
25 W ... 30 kW



### BSA Series

Model	Frequency Range	Output Power $P_N$ min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power VA	Dimensions (H, D) 19"-System	Weight kg
BSA 0110-100	9 kHz ... 100 MHz	100 / 125	50 / 52 $\pm$ 2	20 / 20	400	4 HU, 550 mm	21
BSA 0110-175	9 kHz ... 100 MHz	175 / 200	52.4 / 55 $\pm$ 2	20 / 20	800	4 HU, 550 mm	32
BSA 0110-350	9 kHz ... 100 MHz	350 / 400	55.4 / 58 $\pm$ 2	20 / 20	1500	5 HU, 630 mm	45
BSA 0110-500	9 kHz ... 100 MHz	500 / 600	57 / 59 $\pm$ 10	20 / 20	2500	6 HU, 630 mm	55
BSA 0110-1500	9 kHz ... 100 MHz	1500 / 1700	61.8 / 64 $\pm$ 2	20 / 20	9000	32 HU, 630 mm	190
BSA 0125-5	9 kHz ... 250 MHz	5 / 8	37 / 39 $\pm$ 2	20 / 20	100	3 HU, 350 mm	11
BSA 0125-15	9 kHz ... 250 MHz	15 / 25	41.8 / 44 $\pm$ 2	20 / 20	175	3 HU, 350 mm	12
BSA 0125-25	9 kHz ... 250 MHz	25 / 30	44 / 46 $\pm$ 2	20 / 20	200	3 HU, 350 mm	13
BSA 0125-75	9 kHz ... 250 MHz	75 / 100	48.8 / 51 $\pm$ 2	20 / 20	350	4 HU, 550 mm	21
BSA 0125-150	9 kHz ... 250 MHz	150 / 200	51.8 / 54 $\pm$ 2	20 / 18	800	4 HU, 550 mm	32
BSA 0125-250	9 kHz ... 250 MHz	250 / 300	54 / 56 $\pm$ 2	20 / 20	1500	5 HU, 630 mm	45
BSA 0125-400	9 kHz ... 250 MHz	400 / 500	56 / 58 $\pm$ 2	20 / 18	3000	9 HU, 630 mm	90
BSA 0125-500	9 kHz ... 250 MHz	500 / 600	57 / 59 $\pm$ 2	20 / 18	3500	12 HU, 630 mm	130
BSA 0140-5	9 kHz ... 400 MHz	5 / 8	37 / 39 $\pm$ 2	20 / 20	100	3 HU, 350 mm	12
BSA 0140-10	9 kHz ... 400 MHz	10 / 15	40 / 42 $\pm$ 2	20 / 20	150	3 HU, 350 mm	12
BSA 0140-20	9 kHz ... 400 MHz	20 / 25	43 / 45 $\pm$ 2	20 / 20	180	3 HU, 350 mm	13
BSA 0140-40	9 kHz ... 400 MHz	40 / 50	46 / 48 $\pm$ 2	20 / 20	350	4 HU, 550 mm	24
BSA 0140-75	9 kHz ... 400 MHz	75 / 100	48.8 / 51 $\pm$ 2	20 / 20	750	4 HU, 550 mm	35
BSA 0140-150	9 kHz ... 400 MHz	150 / 200	51.8 / 52 $\pm$ 2	20 / 20	1400	5 HU, 630 mm	42
BSA 0150-5	9 kHz ... 500 MHz	5 / 8	37 / 39 $\pm$ 2	20 / 20	100	3 HU, 350 mm	11
BSA 0150-10	9 kHz ... 500 MHz	10 / 12	40 / 42 $\pm$ 2	20 / 20	150	3 HU, 350 mm	12
BSA 0150-25	9 kHz ... 500 MHz	25 / 30	44 / 46 $\pm$ 2	20 / 20	200	3 HU, 350 mm	13
BSA 0150-75	9 kHz ... 500 MHz	75 / 90	48.8 / 51 $\pm$ 2	20 / 20	750	4 HU, 550 mm	35
BSA 0150-150D	9 kHz ... 250 MHz	150 / 180	51.8 / 54 $\pm$ 2	20 / 20	1000	5 HU, 630 mm	44
	200 ... 500 MHz	150 / 180	51.8 / 54 $\pm$ 2	20 / 20			
BSA 0101-5	9 kHz ... 1000 MHz	5 / 8	37 / 39 $\pm$ 2	20 / 20	100	3 HU, 350 mm	11
BSA 0101-7.5	9 kHz ... 1000 MHz	7.5 / 10	38.8 / 41 $\pm$ 2	20 / 20	100	3 HU, 350 mm	12
BSA 0101-25/30D	9 kHz ... 250 MHz	25 / 30	44 / 46 $\pm$ 1	20 / 20	180	3 HU, 550 mm	18
	200 ... 1000 MHz	30 / 35	44.8 / 47 $\pm$ 2	20 / 20			
BSA 0101-75/60D	9 kHz ... 250 MHz	75 / 100	48.8 / 51 $\pm$ 2	20 / 20	450	4 HU, 550 mm	26
	200 ... 1000 MHz	60 / 75	47.8 / 50 $\pm$ 2	20 / 20			
BSA 0101-100D	9 kHz ... 100 MHz	100 / 120	50 / 52 $\pm$ 2	20 / 20	700	4 HU, 630 mm	38
	100 ... 1000 MHz	100 / 120	50 / 52 $\pm$ 2	20 / 20			
BSA 0101-150/120D	9 kHz ... 250 MHz	150 / 180	51.8 / 54 $\pm$ 2	20 / 18	900	5 HU, 630 mm	42
	200 ... 1000 MHz	120 / 130	50.8 / 53 $\pm$ 2	20 / 15			
BSA 1010-10	100 kHz ... 100 MHz	10 / 15	40 / 42 $\pm$ 2	20 / 20	120	3 HU, 350 mm	11
BSA 1010-25	100 kHz ... 100 MHz	25 / 35	44 / 46 $\pm$ 2	20 / 20	180	3 HU, 350 mm	13
BSA 1010-50	100 kHz ... 100 MHz	50 / 70	47 / 49 $\pm$ 2	20 / 20	200	3 HU, 350 mm	13
BSA 1010-100	100 kHz ... 100 MHz	100 / 120	50 / 52 $\pm$ 2	20 / 20	400	4 HU, 550 mm	21
BSA 1010-200	100 kHz ... 100 MHz	200 / 250	53 / 55 $\pm$ 2	20 / 20	800	4 HU, 550 mm	30
BSA 1010-500	100 kHz ... 100 MHz	500 / 600	57 / 59 $\pm$ 2	20 / 20	2500	6 HU, 630 mm	55
BSA 1010-1500	100 kHz ... 100 MHz	1500 / 1700	61.8 / 64 $\pm$ 2	20 / 20	9000	32 HU, 630 mm	190
BSA 1025-90	100 kHz ... 250 MHz	90 / 110	49.5 / 52 $\pm$ 2	20 / 18	400	4 HU, 550 mm	21
BSA 1025-150	100 kHz ... 250 MHz	150 / 180	51.8 / 54 $\pm$ 2	20 / 20	800	4 HU, 550 mm	30
BSA 1025-375	100 kHz ... 250 MHz	375 / 450	55.7 / 58 $\pm$ 2	20 / 18	1800	5 HU, 630 mm	44
BSA 1040-50	100 kHz ... 400 MHz	50 / 70	47 / 49 $\pm$ 2	20 / 20	400	4 HU, 550 mm	20
BSA 1040-100	100 kHz ... 400 MHz	100 / 120	50 / 52 $\pm$ 2	20 / 20	800	4 HU, 550 mm	30
BSA 1040-250	100 kHz ... 400 MHz	250 / 300	54 / 56 $\pm$ 2	20 / 20	1700	5 HU, 630 mm	42
BSA 1040-500/200D	100 kHz ... 100 MHz	500 / 600	57 / 59 $\pm$ 2	20 / 18	2800	9 HU, 630 mm	80
	100 ... 400 MHz	200 / 250	53 / 55 $\pm$ 2	20 / 15			

### BSA Series

Model	Frequency Range	Output Power $P_N$ min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power VA	Dimensions (H, D) 19"-System	Weight kg
BSA 1050-75	100 kHz ... 500 MHz	75 / 90	48.8 / 51 $\pm$ 2	20 / 20	800	4 HU, 550 mm	322
BSA 1050-150	100 kHz ... 500 MHz	150 / 175	51.8 / 52 $\pm$ 2	20 / 20	1500	5 HU, 630 mm	42
BSA 1050-250/100	100 kHz ... 400 MHz	250 / 300	54 / 56 $\pm$ 2	20 / 20	1700	5 HU, 630 mm	45
	100 ... 500 MHz	150 / 180	51.8 / 52 $\pm$ 2	20 / 20			
BSA 1001-25/30D	100 kHz ... 100 MHz	25 / 30	44 / 46 $\pm$ 2	20 / 20	180	3 HU, 550 mm	18
	100 ... 1000 MHz	30 / 35	44.8 / 47 $\pm$ 2	20 / 20			
BSA 1001-50/75D	100 kHz ... 400 MHz	50 / 70	47 / 49 $\pm$ 2	20 / 20	600	4 HU, 550 mm	28
	400 ... 1000 MHz	75 / 100	48.8 / 51 $\pm$ 2	20 / 20			
BSA 1001-100D	100 kHz ... 400 MHz	100 / 120	50 / 52 $\pm$ 2	20 / 20	900	4 HU, 550 mm	32
	400 ... 1000 MHz	100 / 120	50 / 52 $\pm$ 2	20 / 20			
BSA 1515-25	150 kHz ... 150 MHz	25 / 35	44 / 46 $\pm$ 2	20 / 20	200	3 HU, 350 mm	12
BSA 1515-50	150 kHz ... 150 MHz	50 / 75	47 / 49 $\pm$ 2	20 / 20	250	3 HU, 350 mm	14
BSA 1501-1	150 kHz ... 1000 MHz	1 / 1.5	30 / 32 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BSA 1501-5	150 kHz ... 1000 MHz	5 / 7	37 / 39 $\pm$ 2	20 / 20	100	3 HU, 350 mm	11
BSA 1501-10	150 kHz ... 1000 MHz	10 / 12	40 / 42 $\pm$ 2	20 / 20	150	3 HU, 350 mm	12
BSA 5001-1	500 kHz ... 1000 MHz	1 / 1.5	30 / 32 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BSA 5001-2	500 kHz ... 1000 MHz	2 / 2.5	33 / 35 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BSA 5001-5	500 kHz ... 1000 MHz	5 / 7	37 / 39 $\pm$ 2	18 / 20	100	3 HU, 350 mm	11
BSA 5001-10	500 kHz ... 1000 MHz	10 / 12	40 / 42 $\pm$ 2	20 / 20	150	3 HU, 350 mm	12

### BTA Series

Model	Frequency Range	Output Power $P_N$ min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power KVA	Dimensions (H, D) 19"-System	Weight kg
BTA 0110-5000	9 kHz ... 100 MHz	5000 / 6000	67 / 70 $\pm$ 3	12 / 18	75	2x37 HU, 800 mm	900
BTA 0110-10000	9 kHz ... 100 MHz	10000 / 12000	70 / 73 $\pm$ 3	12 / 18	100	2x37 HU, 800 mm	1100
Model	Frequency Range	Output Power $P_N$ min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power KVA	Dimensions (H, D) 19"-System	Weight kg
BTA 0122-250	9 kHz ... 220 MHz	250 / 300	54 / 57 $\pm$ 3	12 / 20	2.5	8 HU, 800 mm	75
BTA 0122-500	9 kHz ... 220 MHz	500 / 600	57 / 60 $\pm$ 3	12 / 20	7	15 HU, 800 mm	160
BTA 0122-1000	9 kHz ... 220 MHz	1000 / 1200	60 / 63 $\pm$ 3	12 / 18	12	15 HU, 800 mm	200
BTA 0122-2000	9 kHz ... 220 MHz	2000 / 2200	63 / 66 $\pm$ 3	12 / 18	25	2x18 HU, 800 mm	400
BTA 0122-3000	9 kHz ... 200 MHz	3000 / 3300	64.8 / 67.5 $\pm$ 2.5	12 / 18	25	32 HU, 800 mm	300
	200 ... 220 MHz	2500 / 3000	64 / 66.5 $\pm$ 2.5	12 / 18			

### BLWA Series

Model	Frequency Range	Output Power $P_N$ min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power VA	Dimensions (H, D) 19"-System	Weight kg
BLWA 0103-100	1 ... 30 MHz	100 / 120	50 / 52 $\pm$ 2	20 / 12	500	4 HU, 550 mm	21
BLWA 0103-250	1 ... 30 MHz	250 / 300	54 / 56 $\pm$ 2	20 / 12	800	4 HU, 550 mm	22
BLWA 0103-500	1 ... 30 MHz	500 / 600	57 / 59 $\pm$ 2	20 / 12	2500	4 HU, 630 mm	45
BLWA 0103-1000	1 ... 30 MHz	1000 / 1200	60 / 62 $\pm$ 2	20 / 12	4500	7 HU, 630 mm	80
BLWA 0103-2000	1 ... 30 MHz	2000 / 2200	63 / 65 $\pm$ 2	20 / 12	10000	8 HU, 630 mm	100
BLWA 0103-3500	1 ... 30 MHz	3500 / 4000	65.4 / 68 $\pm$ 2	20 / 12	13000	15 HU, 630 mm	150
BLWA 0103-5000	1 ... 30 MHz	5000 / 6000	67 / 69 $\pm$ 2	20 / 12	25000	36 HU, 800 mm	500
BLWA 0103-10000	1 ... 30 MHz	10000 / 12000	70 / 72 $\pm$ 2	20 / 12	60000	2x37 HU, 800 mm	1000
BLWA 0103-20000	1 ... 30 MHz	20000 / 22000	73 / 75 $\pm$ 2	20 / 12	120000	4x37 HU, 800 mm	2000



### BLWA Series

Model	Frequency Range	Output Power $P_N$ min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power VA	Dimensions (H, D) 19"-System	Weight kg
BLWA 0150-2	1 ... 500 MHz	2 / 2.5	33 / 35 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLWA 0150-5	1 ... 500 MHz	5 / 6	37 / 39 $\pm$ 2	20 / 20	100	3 HU, 350 mm	11
BLWA 0150-10	1 ... 500 MHz	10 / 12	40 / 42 $\pm$ 2	20 / 20	150	3 HU, 350 mm	12
BLWA 0150-25	1 ... 500 MHz	25 / 30	44 / 46 $\pm$ 2	20 / 20	180	3 HU, 350 mm	13
BLWA 0110-1	1 ... 1000 MHz	1 / 1.5	30 / 32 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLWA 0110-3	1 ... 1000 MHz	3 / 3.5	34.8 / 37 $\pm$ 2	20 / 20	100	3 HU, 350 mm	11
BLWA 0110-5	1 ... 1000 MHz	5 / 6	37 / 39 $\pm$ 2	20 / 20	150	3 HU, 350 mm	12
BLWA 0110-10	1 ... 1000 MHz	10 / 12	40 / 42 $\pm$ 2	20 / 20	200	3 HU, 350 mm	13
BLWA 0110-30	1 ... 1000 MHz	30 / 35	44.8 / 47 $\pm$ 2	20 / 20	700	4 HU, 550 mm	25
BLWA 0110-100	1 ... 1000 MHz	100 / 110	50 / 20 $\pm$ 2	20 / 20	1400	4 HU, 630 mm	35
BLWA 0210-100	20 ... 100 MHz	100 / 120	50 / 52 $\pm$ 2	20 / 15	450	4 HU, 550 mm	20
BLWA 0210-200	20 ... 100 MHz	200 / 250	53 / 55 $\pm$ 2	20 / 15	800	4 HU, 550 mm	30
BLWA 0210-500	20 ... 100 MHz	500 / 600	57 / 59 $\pm$ 2	20 / 15	1800	4 HU, 630 mm	35
BLWA 0210-1000	20 ... 100 MHz	1000 / 1200	60 / 62 $\pm$ 2	20 / 15	5000	8 HU, 630 mm	100
BLWA 0210-1250	20 ... 100 MHz	1250 / 1400	61 / 63 $\pm$ 2	20 / 15	7500	8 HU, 630 mm	150
BLWA 0210-1800	20 ... 100 MHz	1800 / 2000	62.5 / 65 $\pm$ 2	20 / 15	12000	12 HU, 630 mm	200
BLWA 0210-2500	20 ... 100 MHz	2500 / 2700	64 / 66 $\pm$ 2	20 / 15	12000	12 HU, 630 mm	200
BLWA 0210-3000	20 ... 100 MHz	3000 / 3300	64.8 / 67 $\pm$ 2	20 / 15	20000	18 HU, 630 mm	300
BLWA 0210-4000	20 ... 100 MHz	4000 / 4500	66 / 68 $\pm$ 2	20 / 15	23000	24 HU, 630 mm	400
BLWA 0210-5000	20 ... 100 MHz	5000 / 5500	67 / 69 $\pm$ 2	20 / 15	30000	36 HU, 800 mm	500
BLWA 0210-10000	20 ... 100 MHz	10000 / 11000	70 / 72 $\pm$ 2	20 / 15	60000	2x36 HU, 800 mm	1000
BLWA 0250-15	20 ... 500 MHz	15 / 18	41.8 / 44 $\pm$ 2	20 / 15	250	3 HU, 350 mm	12
BLWA 0250-35	20 ... 500 MHz	35 / 40	45.4 / 48 $\pm$ 2	20 / 20	280	3 HU, 350 mm	13
BLWA 0250-60	20 ... 500 MHz	60 / 70	47.8 / 50 $\pm$ 2	20 / 15	500	4 HU, 550 mm	30
BLWA 0250-85	20 ... 500 MHz	85 / 100	49.3 / 52 $\pm$ 2	20 / 15	500	4 HU, 550 mm	30
BLWA 0250-125	20 ... 500 MHz	125 / 135	51 / 53 $\pm$ 2	20 / 15	1000	4 HU, 550 mm	35
BLWA 0250-200	20 ... 500 MHz	200 / 300	53 / 55 $\pm$ 2	20 / 20	1250	5 HU, 630 mm	40
BLWA 0250-400	20 ... 500 MHz	400 / 600	56 / 58 $\pm$ 2	20 / 20	2500	5 HU, 630 mm	45
BLWA 0250-500D	20 ... 100 MHz	500 / 600	57 / 59 $\pm$ 2	20 / 15	4000	8 HU, 630 mm	80
	100 ... 500 MHz	500 / 600	57 / 59 $\pm$ 2	20 / 15			
BLWA 0250-750	20 ... 500 MHz	750 / 1000	58.8 / 61 $\pm$ 2	20 / 15	5000	8 HU, 630 mm	75
BLWA 0310-1	25 ... 1000 MHz	1 / 1.5	30 / 32 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLWA 0310-3	25 ... 1000 MHz	3 / 3.5	34.8 / 37 $\pm$ 2	20 / 20	100	3 HU, 350 mm	11
BLWA 0310-5	25 ... 1000 MHz	5 / 6	37 / 39 $\pm$ 2	20 / 20	150	3 HU, 350 mm	11
BLWA 0310-10	25 ... 1000 MHz	10 / 12	40 / 42 $\pm$ 2	20 / 20	150	3 HU, 350 mm	13
BLWA 0310-30	25 ... 1000 MHz	30 / 35	44.8 / 47 $\pm$ 2	20 / 20	200	3 HU, 350 mm	13
BLWA 0310-50	25 ... 1000 MHz	50 / 60	47 / 49 $\pm$ 2	20 / 20	400	4 HU, 550 mm	22
BLWA 0310-100	25 ... 1000 MHz	100 / 110	50 / 52 $\pm$ 2	20 / 20	900	4 HU, 550 mm	26
BLWA 0310-150	25 ... 1000 MHz	150 / 170	51.8 / 54 $\pm$ 2	20 / 20	1500	5 HU, 630 mm	40
BLWA 0310-350/160/100D	25 ... 100 MHz	350 / 400	55.4 / 58 $\pm$ 2	20 / 15	1000	8 HU, 550 mm	60
	100 ... 400 MHz	160 / 180	52 / 54 $\pm$ 2	20 / 15			
	400 ... 1000 MHz	100 / 120	50 / 52 $\pm$ 2	20 / 20			
BLWA 0510-1	47 ... 1000 MHz	1 / 1.5	30 / 32 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLWA 0510-3	47 ... 1000 MHz	3 / 3.5	34.8 / 37 $\pm$ 2	20 / 20	100	3 HU, 350 mm	11
BLWA 0510-5	47 ... 1000 MHz	5 / 6	37 / 39 $\pm$ 2	20 / 20	150	3 HU, 350 mm	11
BLWA 0510-10	47 ... 1000 MHz	10 / 12	40 / 42 $\pm$ 2	20 / 20	150	3 HU, 350 mm	13
BLWA 0510-30	47 ... 1000 MHz	30 / 35	44.8 / 47 $\pm$ 2	20 / 20	200	3 HU, 350 mm	13
BLWA 0510-50	47 ... 1000 MHz	50 / 60	47 / 49 $\pm$ 2	20 / 20	400	4 HU, 550 mm	22
BLWA 0510-100	47 ... 1000 MHz	100 / 120	50 / 52 $\pm$ 2	20 / 20	900	4 HU, 550 mm	26
BLWA 0510-150	47 ... 1000 MHz	150 / 180	51.8 / 54 $\pm$ 2	20 / 20	1500	5 HU, 630 mm	40
BLWA 0510-350/160/100D	47 ... 100 MHz	350 / 400	55.4 / 58 $\pm$ 2	20 / 15	1000	8 HU, 550 mm	60
	100 ... 400 MHz	160 / 180	52 / 54 $\pm$ 2	20 / 15			
	400 ... 1000 MHz	100 / 120	50 / 52 $\pm$ 2	20 / 20			



### BLWA Series

Model	Frequency Range	Output Power P <sub>N</sub> min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power VA	Dimensions (H, D) 19"-System	Weight kg
BLWA 0840-150	80 ... 400 MHz	150 / 180	51.8 / 54 ±2	20 / 15	800	3 HU, 550 mm	30
BLWA 0840-250	80 ... 400 MHz	250 / 300	54 / 56 ±2	20 / 15	1600	4 HU, 630 mm	35
BLWA 0840-500	80 ... 400 MHz	500 / 600	57 / 59 ±2	20 / 15	3000	6 HU, 630 mm	55
BLWA 0840-750	80 ... 400 MHz	750 / 900	58.8 / 61 ±2	20 / 15	4500	8 HU, 630 mm	120
BLWA 0840-1000	80 ... 400 MHz	1000 / 1150	60 / 62 ±2	20 / 15	8000	16 HU, 630 mm	180
BLWA 0840-1500	80 ... 400 MHz	1500 / 1700	61.8 / 64 ±2	20 / 15	10000	19 HU, 630 mm	200
BLWA 0840-2000	80 ... 400 MHz	2000 / 2200	63 / 65 ±2	20 / 15	17000	29 HU, 630 mm	300
BLWA 0840-2500	80 ... 400 MHz	2500 / 2700	64 / 66 ±2	20 / 15	20000	41 HU, 630 mm	400
BLWA 0840-4000	80 ... 400 MHz	4000 / 4400	66 / 68 ±2	20 / 15	35000	2x32 HU, 800 mm	600
BLWA 0840-5000	80 ... 400 MHz	5000 / 5500	67 / 69 ±2	20 / 15	45000	2x32 HU, 800 mm	800
BLWA 0810-10	80 ... 1000 MHz	10 / 12	40 / 42 ±2	20 / 20	150	3 HU, 350 mm	13
BLWA 0810-30	80 ... 1000 MHz	30 / 35	44.8 / 47 ±2	20 / 20	200	3 HU, 350 mm	13
BLWA 0810-50	80 ... 1000 MHz	50 / 60	47 / 49 ±2	20 / 20	400	4 HU, 550 mm	20
BLWA 0810-100	80 ... 1000 MHz	100 / 120	50 / 52 ±2	20 / 20	900	4 HU, 550 mm	26
BLWA 0810-160/100D	80 ... 400 MHz 400 ... 1000 MHz	160 / 180 100 / 120	52 / 54 ±2 50 / 52 ±2	20 / 15 20 / 20	800	4 HU, 550 mm	32
BLWA 0810-200	80 ... 1000 MHz	200 / 250	53 / 55 ±2	20 / 20	1500	5 HU, 630 mm	42
BLWA 0810-250/100	80 ... 400 MHz 400 ... 1000 MHz	250 / 280 100 / 150	54 / 56 ±2 50 / 52 ±2	20 / 20 20 / 20	1500	5 HU, 630 mm	40
BLWA 0810-250/200	80 ... 400 MHz 400 ... 1000 MHz	250 / 280 200 / 230	54 / 56 ±2 53 / 55 ±2	20 / 20 20 / 20	1500	5 HU, 630 mm	42
BLWA 0810-350	80 ... 1000 MHz	350 / 400	55.4 / 58 ±2	20 / 20	3100	9 HU, 630 mm	90
BLWA 0810-500/200D	80 ... 400 MHz 400 ... 1000 MHz	500 / 600 200 / 220	57 / 59 ±2 53 / 55 ±2	20 / 15 20 / 20	3300	9 HU, 630 mm	85
BLWA 0810-500/350D	80 ... 400 MHz 400 ... 1000 MHz	500 / 600 350 / 400	57 / 59 ±2 55.4 / 58 ±2	20 / 15 20 / 20	3300	12 HU, 630 mm	110
BLWA 0810-500D	80 ... 400 MHz 400 ... 1000 MHz	500 / 600 500 / 600	57 / 59 ±2 57 / 59 ±2	20 / 15 20 / 20	4000	12 HU, 630 mm	110
BLWA 0810-650	80 ... 1000 MHz	650 / 750	58.1 / 61 ±2	20 / 20	7000	20 HU, 630 mm	250
BLWA 0810-750/350D	80 ... 400 MHz 400 ... 1000 MHz	750 / 850 350 / 400	58.8 / 61 ±2 55.4 / 58 ±2	20 / 15 20 / 20	5000	13 HU, 630 mm	150
BLWA 0810-750/500D	80 ... 400 MHz 400 ... 1000 MHz	750 / 850 500 / 600	58.8 / 61 ±2 57 / 59 ±2	20 / 15 20 / 20	5000	13 HU, 630 mm	150
BLWA 0810-750/700D	80 ... 400 MHz 400 ... 1000 MHz	750 / 850 700 / 850	58.8 / 61 ±2 58.4 / 61 ±2	20 / 15 20 / 20	5000	15 HU, 630 mm	150
BLWA 0810-1000/500D	80 ... 400 MHz 400 ... 1000 MHz	1000 / 1150 500 / 600	60 / 62 ±2 57 / 59 ±2	20 / 15 20 / 20	9000	21 HU, 630 mm	220
BLWA 0810-1000/700D	80 ... 400 MHz 400 ... 1000 MHz	1000 / 1150 700 / 850	60 / 62 ±2 58.4 / 61 ±2	20 / 15 20 / 20	9000	21 HU, 630 mm	220
BLWA 0810-1000D	80 ... 400 MHz 400 ... 1000 MHz	1000 / 1150 1000 / 1150	60 / 62 ±2 60 / 62 ±2	20 / 15 20 / 20	9000	21 HU, 630 mm	220
BLWA 0810-1500/700D	80 ... 400 MHz 400 ... 1000 MHz	1500 / 1700 700 / 850	61.8 / 64 ±2 58.4 / 61 ±2	20 / 15 20 / 20	11000	24 HU, 630 mm	270
BLWA 0810-1500/1000D	80 ... 400 MHz 400 ... 1000 MHz	1500 / 1700 1000 / 1150	61.8 / 64 ±2 60 / 62 ±2	20 / 15 20 / 20	11000	32 HU, 630 mm	400
BLWA 0810-1500D	80 ... 400 MHz 400 ... 1000 MHz	1500 / 1700 1500 / 1700	61.8 / 64 ±2 61.8 / 64 ±2	20 / 15 20 / 20	11000	37 HU, 630 mm	450
BLWA 0810-2000/1000D	80 ... 400 MHz 400 ... 1000 MHz	2000 / 2200 1000 / 1150	63 / 65 ±2 60 / 62 ±2	20 / 15 20 / 20	18000	2x32 HU, 800 mm	550
BLWA 0810-2000/1500D	80 ... 400 MHz 400 ... 1000 MHz	2000 / 2200 1500 / 1700	63 / 65 ±2 61.8 / 64 ±2	20 / 15 20 / 20	18000	2x32 HU, 800 mm	600
BLWA 0810-2000D	80 ... 400 MHz 400 ... 1000 MHz	2000 / 2200 2000 / 2200	63 / 65 ±2 63 / 65 ±2	20 / 15 20 / 20	18000	2x32 HU, 800 mm	600
BLWA 0810-5000/3000D	80 ... 400 MHz 400 ... 1000 MHz	5000 / 5500 3000 / 3500	67 / 69 ±2 65 / 67 ±2	20 / 15 20 / 20	45000	2x37 HU, 800 mm	1200



### BLWA Series

Model	Frequency Range	Output Power $P_N$ min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power VA	Dimensions (H, D) 19"-System	Weight kg
BLWA 0820-5	80 ... 2000 MHz	5 / 6	37 / 39 ±2	20 / 20	150	3 HU, 350 mm	12
BLWA 0820-160/100/30D	80 ... 400 MHz	160 / 180	52 / 54 ±2	20 / 15	800	5 HU, 630 mm	42
	400 ... 1000 MHz	100 / 120	50 / 52 ±2	20 / 20			
	1 ... 2 GHz	30 / 35	47.8 / 50 ±2	20 / 20			
BLWA 0820-160/100/60D	80 ... 400 MHz	160 / 180	52 / 54 ±2	20 / 15	800	5 HU, 630 mm	45
	400 ... 1000 MHz	100 / 120	50 / 52 ±2	20 / 20			
	1 ... 2 GHz	60 / 70	47.8 / 50 ±2	20 / 20			
BLWA 0825-160/100/35D	80 ... 400 MHz	160 / 180	52 / 54 ±2	20 / 15	800	5 HU, 630 mm	40
	400 ... 1000 MHz	100 / 120	50 / 52 ±2	20 / 20			
	1 ... 2.5 GHz	35 / 40	45.4 / 48 ±2	20 / 20			
BLWA 0825-160/100/70D	80 ... 400 MHz	160 / 180	52 / 54 ±2	20 / 15	800	6 HU, 630 mm	54
	400 ... 1000 MHz	100 / 120	50 / 52 ±2	20 / 20			
	1 ... 2.5 GHz	70 / 80	48.5 / 51 ±2	20 / 20			
BLWA 0830-160/100/20D	80 ... 400 MHz	160 / 180	52 / 54 ±2	20 / 15	800	5 HU, 630 mm	38
	400 ... 1000 MHz	100 / 120	50 / 52 ±2	20 / 20			
	1 GHz ... 3000 MHz	20 / 25	43 / 45 ±2	20 / 20			
BLWA 0830-160/100/40D	80 ... 400 MHz	160 / 180	52 / 54 ±2	20 / 15	800	5 HU, 630 mm	40
	400 ... 1000 MHz	100 / 120	50 / 52 ±2	20 / 20			
	1 GHz ... 3000 MHz	40 / 50	46 / 48 ±2	20 / 20			
BLWA 0830-250/100/40D	80 ... 400 MHz	250 / 300	54 / 56 ±2	20 / 15	1600	6 HU, 630 mm	65
	400 ... 1000 MHz	100 / 120	50 / 52 ±2	20 / 20			
	1 GHz ... 3000 MHz	40 / 50	46 / 48 ±2	20 / 20			
BLWA 0830-250/200/40D	80 ... 400 MHz	250 / 300	54 / 56 ±2	20 / 15	1600	6 HU, 630 mm	65
	400 ... 1000 MHz	200 / 240	53 / 55 ±2	20 / 20			
	1 GHz ... 3000 MHz	40 / 50	46 / 48 ±2	20 / 20			
BLWA 0840-160/100/60/30D	80 ... 400 MHz	160 / 180	54 / 56 ±2	20 / 15	800	6 HU, 630 mm	62
	400 ... 1000 MHz	100 / 120	50 / 52 ±2	20 / 20			
	1 ... 2 GHz	60 / 70	47.8 / 50 ±2	20 / 20			
	2 ... 4 GHz	30 / 35	44.8 / 47 ±2	20 / 20			
BLWA 1050-150	100 ... 500 MHz	150 / 180	51.8 / 54 ±2	20 / 15	800	4 HU, 550 mm	25
BLWA 1050-250	100 ... 500 MHz	250 / 300	54 / 56 ±2	20 / 15	1500	4 HU, 550 mm	35
BLWA 1050-500	100 ... 500 MHz	500 / 600	57 / 59 ±2	20 / 15	3000	6 HU, 630 mm	55
BLWA 1050-750	100 ... 500 MHz	750 / 900	58.8 / 61 ±2	20 / 15	4500	8 HU, 630 mm	120
BLWA 1050-1000	100 ... 500 MHz	1000 / 1150	60 / 62 ±2	20 / 15	8000	16 HU, 630 mm	180
BLWA 1050-1500	100 ... 500 MHz	1500 / 1700	61.8 / 64 ±2	20 / 15	10000	21 HU, 630 mm	200
BLWA 1050-2000	100 ... 500 MHz	2000 / 2200	63 / 65 ±2	20 / 15	17000	29 HU, 630 mm	300
BLWA 1050-2500	100 ... 500 MHz	2500 / 2700	64 / 66 ±2	20 / 15	20000	41 HU, 630 mm	400
BLWA 1050-4000	100 ... 500 MHz	4000 / 4400	66 / 68 ±2	20 / 15	35000	2x32 HU, 800 mm	600
BLWA 1050-5000	100 ... 500 MHz	5000 / 5500	67 / 69 ±2	20 / 15	45000	2x32 HU, 800 mm	800
BLWA 2050-150	200 ... 500 MHz	150 / 180	51.8 / 54 ±2	20 / 20	700	4 HU, 550 mm	23
BLWA 2050-300	200 ... 500 MHz	300 / 330	54.8 / 57 ±2	20 / 20	1500	4 HU, 630 mm	35
BLWA 2050-500	200 ... 500 MHz	500 / 600	57 / 59 ±2	20 / 20	2500	5 HU, 630 mm	43
BLWA 2050-750	200 ... 500 MHz	750 / 850	58.8 / 61 ±2	20 / 20	4000	6 HU, 630 mm	80
BLWA 2050-1000	200 ... 500 MHz	1000 / 1150	60 / 62 ±2	20 / 20	6000	8 HU, 630 mm	120
BLWA 2050-1500	200 ... 500 MHz	1500 / 1700	61.8 / 64 ±2	20 / 20	8000	16 HU, 630 mm	180
BLWA 2050-2000	200 ... 500 MHz	2000 / 2200	63 / 65 ±2	20 / 20	10000	19 HU, 630 mm	200
BLWA 2050-2500	200 ... 500 MHz	2500 / 2700	64 / 66 ±2	20 / 20	17000	29 HU, 630 mm	300
BLWA 2050-3500	200 ... 500 MHz	3500 / 4000	65.4 / 68 ±2	20 / 20	20000	41 HU, 630 mm	400
BLWA 2050-4500	200 ... 500 MHz	4500 / 5000	65.5 / 68 ±2	20 / 20	35000	2x32 HU, 800 mm	600
BLWA 2050-6000	200 ... 500 MHz	6000 / 6500	67.8 / 70 ±2	20 / 20	45000	2x32 HU, 800 mm	600



### BLWA Series

Model	Frequency Range	Output Power P <sub>N</sub> min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power VA	Dimensions (H, D) 19"-System	Weight kg
BLWA 2010-10	200 ... 1000 MHz	10 / 13	40 / 42 ±2	20 / 20	150	3 HU, 350 mm	13
BLWA 2010-30	200 ... 1000 MHz	30 / 40	44.8 / 47 ±2	20 / 20	200	3 HU, 350 mm	13
BLWA 2010-40	200 ... 1000 MHz	40 / 45	46 / 48 ±2	20 / 20	300	3 HU, 350 mm	13
BLWA 2010-60	200 ... 1000 MHz	60 / 70	47.8 / 50 ±2	20 / 20	350	4 HU, 550 mm	19
BLWA 2010-125	200 ... 1000 MHz	125 / 140	51 / 53 ±2	20 / 15	700	4 HU, 550 mm	25
BLWA 2010-250	200 ... 1000 MHz	250 / 300	54 / 56 ±2	20 / 15	1500	5 HU, 630 mm	40
BLWA 2010-400	200 ... 1000 MHz	400 / 450	56 / 58 ±2	20 / 15	3100	9 HU, 630 mm	90
BLWA 2010-500/350D	200 ... 500 MHz	500 / 600	57 / 59 ±2	20 / 20	4000	12 HU, 630 mm	110
	500 ... 1000 MHz	350 / 400	55.4 / 58 ±2	20 / 20			
BLWA 2010-500D	200 ... 500 MHz	500 / 600	57 / 59 ±2	20 / 20	4000	12 HU, 630 mm	110
	500 ... 1000 MHz	500 / 600	57 / 59 ±2	20 / 20			
BLWA 2010-750/350D	200 ... 500 MHz	750 / 900	58.8 / 61 ±2	20 / 20	5000	13 HU, 630 mm	135
	500 ... 1000 MHz	350 / 400	55.5 / 58 ±2	20 / 20			
BLWA 2010-750/500D	200 ... 500 MHz	750 / 900	58.8 / 61 ±2	20 / 20	5000	13 HU, 630 mm	135
	500 ... 1000 MHz	500 / 600	57 / 59 ±2	20 / 20			
BLWA 2010-750/700D	200 ... 500 MHz	750 / 900	58.8 / 61 ±2	20 / 20	5000	13 HU, 630 mm	135
	500 ... 1000 MHz	700 / 750	58.5 / 61 ±2	20 / 20			
BLWA 2010-750	200 ... 1000 MHz	750 / 850	58.8 / 61 ±2	20 / 15	7000	18 HU, 630 mm	165
BLWA 2010-1000/500D	200 ... 500 MHz	1000 / 1150	60 / 62 ±2	20 / 20	6000	15 HU, 630 mm	140
	500 ... 1000 MHz	500 / 600	58.5 / 61 ±2	20 / 20			
BLWA 2010-1000/700D	200 ... 500 MHz	1000 / 1150	60 / 62 ±2	20 / 20	6000	15 HU, 630 mm	140
	500 ... 1000 MHz	700 / 750	58.5 / 61 ±2	20 / 20			
BLWA 2010-1000D	200 ... 500 MHz	1000 / 1150	60 / 62 ±2	20 / 20	7500	21 HU, 630 mm	230
	500 ... 1000 MHz	1000 / 1150	60 / 62 ±2	20 / 20			
BLWA 2010-1500/700D	200 ... 500 MHz	1500 / 1700	61.8 / 64 ±2	20 / 20	10000	23 HU, 630 mm	300
	500 ... 1000 MHz	700 / 750	58.5 / 61 ±2	20 / 20			
BLWA 2010-1500/1000D	200 ... 500 MHz	1500 / 1700	61.8 / 64 ±2	20 / 20	10000	32 HU, 630 mm	350
	500 ... 1000 MHz	1000 / 1150	60 / 62 ±2	20 / 20			
BLWA 2010-1500D	200 ... 500 MHz	1500 / 1700	61.8 / 64 ±2	20 / 20	10000	37 HU, 630 mm	400
	500 ... 1000 MHz	1500 / 1700	61.8 / 64 ±2	20 / 20			
BLWA 2010-2000/1000D	200 ... 500 MHz	2000 / 2200	61.8 / 64 ±2	20 / 20	11000	37 HU, 630 mm	420
	500 ... 1000 MHz	1000 / 1150	60 / 62 ±2	20 / 20			
BLWA 2010-2000/1500D	200 ... 500 MHz	2000 / 2200	63 / 65 ±2	20 / 20	11000	37 HU, 630 mm	450
	500 ... 1000 MHz	1500 / 1700	61.8 / 64 ±2	20 / 20			
BLWA 2010-2000D	200 ... 500 MHz	2000 / 2200	63 / 65 ±2	20 / 20	11000	2x32 HU, 800 mm	600
	500 ... 1000 MHz	2000 / 2200	63 / 65 ±2	20 / 20			
BLWA 4010-75	400 ... 1000 MHz	75 / 100	48.8 / 51 ±2	20 / 20	500	4 HU, 550 mm	18
BLWA 4010-100	400 ... 1000 MHz	100 / 120	50 / 52 ±2	20 / 20	500	4 HU, 550 mm	20
BLWA 4010-200	400 ... 1000 MHz	200 / 230	53 / 55 ±2	20 / 20	900	4 HU, 550 mm	28
BLWA 4010-250	400 ... 1000 MHz	250 / 300	54 / 56 ±2	20 / 20	1200	4 HU, 550 mm	30
BLWA 4010-350	400 ... 1000 MHz	350 / 400	55.4 / 58 ±2	20 / 20	1500	4 HU, 550 mm	32
BLWA 4010-500	400 ... 1000 MHz	500 / 600	57 / 59 ±2	20 / 20	1800	8 HU, 630 mm	70
BLWA 4010-700	400 ... 1000 MHz	700 / 750	58.5 / 61 ±2	20 / 20	3500	8 HU, 630 mm	70
BLWA 4010-1000	400 ... 1000 MHz	1000 / 1150	60 / 62 ±2	20 / 20	6000	18 HU, 630 mm	150
BLWA 4010-1250	400 ... 1000 MHz	1250 / 1300	61 / 63 ±2	20 / 20	6000	18 HU, 630 mm	150
BLWA 4010-1500	400 ... 1000 MHz	1500 / 1700	61.8 / 64 ±2	20 / 20	12000	26 HU, 630 mm	250
BLWA 4010-2000	400 ... 1000 MHz	2000 / 2200	63 / 65 ±2	20 / 20	12000	26 HU, 630 mm	250
BLWA 4010-3000	400 ... 1000 MHz	3000 / 3300	64.8 / 67 ±2	20 / 20	22000	37 HU, 630 mm	450
BLWA 4010-4000	400 ... 1000 MHz	4000 / 4500	66 / 68 ±2	20 / 20	34000	37 HU, 630 mm	450
BLWA 5010-75	500 ... 1000 MHz	75 / 100	48.8 / 51 ±2	20 / 20	500	4 HU, 550 mm	18
BLWA 5010-100	500 ... 1000 MHz	100 / 120	50 / 52 ±2	20 / 20	500	4 HU, 550 mm	20
BLWA 5010-200	500 ... 1000 MHz	200 / 230	53 / 55 ±2	20 / 20	900	4 HU, 550 mm	28
BLWA 5010-250	500 ... 1000 MHz	250 / 300	54 / 56 ±2	20 / 20	1200	4 HU, 550 mm	30
BLWA 5010-350	500 ... 1000 MHz	350 / 400	55.4 / 58 ±2	20 / 20	1500	4 HU, 550 mm	32



### BLWA Series

Model	Frequency Range	Output Power $P_N$ min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power VA	Dimensions (H, D) 19"-System	Weight kg
BLWA 5010-500	500 ... 1000 MHz	500 / 600	57 / 59 $\pm$ 2	20 / 20	1800	8 HU, 630 mm	70
BLWA 5010-700	500 ... 1000 MHz	700 / 750	58.5 / 61 $\pm$ 2	20 / 20	3500	8 HU, 630 mm	70
BLWA 5010-1000	500 ... 1000 MHz	1000 / 1150	60 / 62 $\pm$ 2	20 / 20	6000	18 HU, 630 mm	150
BLWA 5010-1250	500 ... 1000 MHz	1250 / 1300	61 / 63 $\pm$ 2	20 / 20	6000	18 HU, 630 mm	150
BLWA 5010-1500	500 ... 1000 MHz	1500 / 1700	61.8 / 64 $\pm$ 2	20 / 20	12000	26 HU, 630 mm	250
BLWA 5010-2000	500 ... 1000 MHz	2000 / 2200	63 / 65 $\pm$ 2	20 / 20	12000	26 HU, 630 mm	250
BLWA 5010-3000	500 ... 1000 MHz	3000 / 3300	64.8 / 67 $\pm$ 2	20 / 20	22000	37 HU, 630 mm	450
BLWA 5010-4000	500 ... 1000 MHz	4000 / 4500	66 / 68 $\pm$ 2	20 / 20	34000	37 HU, 630 mm	450

### Cellular Bands

Model	Frequency Range	Output Power $P_N$ min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power VA	Dimensions (H, D) 19"-System	Weight kg
BLWA 8010-10	800 ... 1000 MHz	10 / 13	40 / 42 $\pm$ 2	25 / 25	75	3 HU, 350 mm	12
BLWA 8010-25	800 ... 1000 MHz	25 / 30	44 / 46 $\pm$ 2	25 / 25	150	3 HU, 350 mm	12
BLWA 8010-50	800 ... 1000 MHz	50 / 60	47 / 49 $\pm$ 2	50 / 50	300	3 HU, 550 mm	15
BLWA 8010-90	800 ... 1000 MHz	90 / 110	49.5 / 52 $\pm$ 2	50 / 50	500	3 HU, 550 mm	18
BLWA 8010-175	800 ... 1000 MHz	175 / 190	52.4 / 55 $\pm$ 2	50 / 50	1200	4 HU, 630 mm	35
BLWA 8996-10	890 ... 960 MHz	10 / 13	40 / 42 $\pm$ 2	25 / 25	75	3 HU, 350 mm	12
BLWA 8996-25	890 ... 960 MHz	25 / 30	44 / 46 $\pm$ 2	25 / 25	150	3 HU, 350 mm	12
BLWA 8996-50	890 ... 960 MHz	50 / 60	47 / 49 $\pm$ 2	50 / 50	300	3 HU, 550 mm	15
BLWA 8996-100	890 ... 960 MHz	100 / 115	50 / 52 $\pm$ 2	50 / 50	500	3 HU, 550 mm	18
BLWA 8996-200	890 ... 960 MHz	200 / 220	53 / 55 $\pm$ 2	50 / 50	1200	4 HU, 630 mm	35
BLWA 9396-10	930 ... 960 MHz	10 / 13	40 / 42 $\pm$ 2	25 / 25	75	3 HU, 350 mm	11
BLWA 9396-25	930 ... 960 MHz	25 / 30	44 / 46 $\pm$ 2	25 / 25	150	3 HU, 350 mm	12
BLWA 9396-50	930 ... 960 MHz	50 / 60	47 / 49 $\pm$ 2	50 / 50	300	3 HU, 550 mm	15
BLWA 9396-100	930 ... 960 MHz	100 / 115	50 / 52 $\pm$ 2	50 / 50	500	3 HU, 550 mm	18
BLWA 9396-200	930 ... 960 MHz	200 / 220	53 / 55 $\pm$ 2	50 / 50	1200	4 HU, 630 mm	35
BLMA 1719-10	1.7 ... 1.9 GHz	10 / 13	40 / 42 $\pm$ 2	50 / 50	75	3 HU, 350 mm	12
BLMA 1719-20	1.7 ... 1.9 GHz	20 / 25	43 / 45 $\pm$ 2	50 / 50	180	3 HU, 350 mm	13
BLMA 1719-40	1.7 ... 1.9 GHz	40 / 50	46 / 48 $\pm$ 2	50 / 50	350	3 HU, 550 mm	16
BLMA 1719-80	1.7 ... 1.9 GHz	80 / 100	49 / 51 $\pm$ 2	50 / 50	650	4 HU, 550 mm	25
BLMA 1719-150	1.7 ... 1.9 GHz	150 / 180	51.8 / 54 $\pm$ 2	50 / 50	1500	4 HU, 630 mm	40
BLMA 1820-120	1.8 ... 2 GHz	120 / 140	51 / 53 $\pm$ 2	50 / 50	750	4 HU, 550 mm	27
BLMA 1822-10	1.8 ... 2.2 GHz	10 / 13	40 / 42 $\pm$ 2	50 / 50	75	3 HU, 350 mm	12
BLMA 1822-20	1.8 ... 2.2 GHz	20 / 25	43 / 45 $\pm$ 2	50 / 50	200	3 HU, 350 mm	14
BLMA 1822-40	1.8 ... 2.2 GHz	40 / 50	46 / 48 $\pm$ 2	50 / 50	350	3 HU, 550 mm	16
BLMA 1822-100	1.8 ... 2.2 GHz	100 / 110	50 / 52 $\pm$ 2	50 / 50	750	4 HU, 550 mm	27
BLMA 1822-180	1.8 ... 2.2 GHz	180 / 200	52 / 54 $\pm$ 2	50 / 50	1500	4 HU, 630 mm	40
BLMA 1822-200/150	1.9 ... 2.1 GHz	200 / 220	53 / 55 $\pm$ 2	50 / 50	1500	4 HU, 630 mm	40
	1.9 ... 2.2 GHz	150 / 170	51.8 / 54 $\pm$ 2	50 / 50			
BLMA 1921-10	1.9 ... 2.1 GHz	10 / 13	40 / 42 $\pm$ 2	50 / 50	75	3 HU, 350 mm	12
BLMA 1921-25	1.9 ... 2.1 GHz	25 / 30	44 / 46 $\pm$ 2	50 / 50	200	3 HU, 350 mm	14
BLMA 1921-50	1.9 ... 2.1 GHz	50 / 60	47 / 49 $\pm$ 2	50 / 50	350	3 HU, 350 mm	16
BLMA 1921-100	1.9 ... 2.1 GHz	100 / 110	50 / 52 $\pm$ 2	50 / 50	650	4 HU, 550 mm	25
BLMA 1921-200	1.9 ... 2.1 GHz	200 / 210	53 / 55 $\pm$ 2	50 / 50	1500	4 HU, 630 mm	40
BLMA 2021-50	2.11 ... 2.17 GHz	50 / 60	47 / 49 $\pm$ 2	50 / 50	400	4 HU, 550 mm	25
BLMA 2021-100	2.11 ... 2.17 GHz	100 / 110	50 / 52 $\pm$ 2	50 / 50	750	4 HU, 550 mm	28
BLMA 2021-200	2.11 ... 2.17 GHz	200 / 220	53 / 55 $\pm$ 2	50 / 50	1800	4 HU, 630 mm	32



### Cellular Bands

Model	Frequency Range	Output Power $P_N$ min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power VA	Dimensions (H, D) 19"-System	Weight kg
BLMA 2325-10	2.3 ... 2.5 GHz	10 / 13	40 / 42 $\pm$ 2	50 / 50	80	3 HU, 350 mm	12
BLMA 2325-25	2.3 ... 2.5 GHz	25 / 30	44 / 46 $\pm$ 2	50 / 50	180	3 HU, 350 mm	18
BLMA 2325-50	2.3 ... 2.5 GHz	50 / 60	47 / 49 $\pm$ 2	50 / 50	400	3 HU, 550 mm	25
BLMA 2325-100	2.3 ... 2.5 GHz	100 / 110	50 / 52 $\pm$ 2	50 / 50	800	3 HU, 550 mm	28
BLMA 2325-150	2.3 ... 2.5 GHz	150 / 165	51.8 / 54 $\pm$ 2	50 / 50	1500	4 HU, 630 mm	45

### BLMA Series

Model	Frequency Range	Output Power $P_N$ min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power VA	Dimensions (H, D) 19"-System	Weight kg
BLMA 0118-0.1	0.1 ... 18 GHz	0.1 / 0.15	20 / 22 $\pm$ 2	15 / 20	50	3 HU, 350 mm	11
BLMA 0126-0.1	0.1 ... 26.5 GHz	0.1 / 0.15	20 / 24 $\pm$ 4	15 / 20	50	3 HU, 350 mm	11
BLMA 0520-1	0.5 ... 2 GHz	1 / 1.3	30 / 32 $\pm$ 2	20 / 20	50	3 HU, 350 mm	11
BLMA 0525-20	0.5 ... 2.5 GHz	20 / 30	43 / 45 $\pm$ 2	20 / 20	150	3 HU, 350 mm	12
BLMA 0525-35	0.5 ... 2.5 GHz	35 / 50	45.4 / 48 $\pm$ 2	15 / 20	300	3 HU, 350 mm	13
BLMA 0820-1	0.8 ... 2 GHz	1 / 1.3	30 / 32 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 0820-3	0.8 ... 2 GHz	3 / 3.5	34.8 / 37 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 0820-7	0.8 ... 2 GHz	7 / 8	38.5 / 41 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 0820-10	0.8 ... 2 GHz	10 / 12	40 / 42 $\pm$ 2	20 / 20	150	3 HU, 350 mm	11
BLMA 0820-25	0.8 ... 2 GHz	25 / 30	44 / 46 $\pm$ 2	20 / 20	200	3 HU, 350 mm	13
BLMA 0820-50	0.8 ... 2 GHz	50 / 60	47 / 49 $\pm$ 2	20 / 20	350	3 HU, 550 mm	22
BLMA 0820-100	0.8 ... 2 GHz	100 / 120	50 / 52 $\pm$ 2	20 / 20	700	3 HU, 630 mm	22
BLMA 0820-200	0.8 ... 2 GHz	200 / 240	53 / 55 $\pm$ 2	20 / 20	1200	3 HU, 630 mm	26
BLMA 0820-400	0.8 ... 2 GHz	400 / 450	56 / 58 $\pm$ 2	20 / 20	2600	6 HU, 630 mm	50
BLMA 0820-750	0.8 ... 2 GHz	750 / 900	58.8 / 61 $\pm$ 2	20 / 20	6000	15 HU, 630 mm	150
BLMA 0822-1	0.8 ... 2.2 GHz	1 / 1.3	30 / 32 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 0822-3	0.8 ... 2.2 GHz	3 / 3.5	34.8 / 37 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 0822-7	0.8 ... 2.2 GHz	7 / 8	38.5 / 41 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 0822-10	0.8 ... 2.2 GHz	10 / 12	40 / 42 $\pm$ 2	20 / 20	150	3 HU, 350 mm	11
BLMA 0822-25	0.8 ... 2.2 GHz	25 / 30	44 / 46 $\pm$ 2	20 / 20	200	3 HU, 350 mm	11
BLMA 0822-50	0.8 ... 2.2 GHz	50 / 60	47 / 49 $\pm$ 2	20 / 20	350	3 HU, 630 mm	18
BLMA 0822-100	0.8 ... 2.2 GHz	100 / 120	50 / 52 $\pm$ 2	20 / 20	700	3 HU, 630 mm	22
BLMA 0822-200	0.8 ... 2.2 GHz	200 / 240	53 / 55 $\pm$ 2	20 / 20	1200	3 HU, 630 mm	26
BLMA 0822-400	0.8 ... 2.2 GHz	400 / 450	56 / 58 $\pm$ 2	20 / 20	2600	6 HU, 630 mm	50
BLMA 0822-750	0.8 ... 2.2 GHz	750 / 900	58.8 / 61 $\pm$ 2	20 / 20	6000	15 HU, 630 mm	150
BLMA 0825-1	0.8 ... 2.5 GHz	1 / 1.3	30 / 32 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 0825-3	0.8 ... 2.5 GHz	3 / 3.5	34.8 / 37 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 0825-5	0.8 ... 2.5 GHz	5 / 6	37 / 39 $\pm$ 2	20 / 20	75	3 HU, 350 mm	12
BLMA 0825-10	0.8 ... 2.5 GHz	10 / 13	40 / 42 $\pm$ 2	20 / 20	150	3 HU, 350 mm	13
BLMA 0825-20	0.8 ... 2.5 GHz	20 / 25	43 / 45 $\pm$ 2	20 / 20	250	3 HU, 350 mm	13
BLMA 0825-40	0.8 ... 2.5 GHz	40 / 50	46 / 48 $\pm$ 2	20 / 20	350	3 HU, 630 mm	18
BLMA 0825-75	0.8 ... 2.5 GHz	75 / 90	48.8 / 51 $\pm$ 2	20 / 20	800	3 HU, 630 mm	22
BLMA 0825-150	0.8 ... 2.5 GHz	150 / 180	51.8 / 54 $\pm$ 2	20 / 20	1200	3 HU, 630 mm	26
BLMA 0825-300	0.8 ... 2.5 GHz	300 / 350	54.8 / 57 $\pm$ 2	20 / 20	2400	6 HU, 630 mm	52
BLMA 0825-500	0.8 ... 2.5 GHz	500 / 550	57 / 59 $\pm$ 2	20 / 20	5000	13 HU, 630 mm	120
BLMA 0830-1	0.8 ... 3 GHz	1 / 1.3	30 / 32 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 0830-3	0.8 ... 3 GHz	3 / 3.5	34.8 / 37 $\pm$ 2	20 / 20	75	3 HU, 350 mm	12
BLMA 0830-6	0.8 ... 3 GHz	6 / 7	37.8 / 40 $\pm$ 2	20 / 20	100	3 HU, 350 mm	12
BLMA 0830-10	0.8 ... 3 GHz	10 / 13	40 / 42 $\pm$ 2	20 / 20	150	3 HU, 350 mm	16
BLMA 0830-20	0.8 ... 3 GHz	20 / 25	43 / 45 $\pm$ 2	20 / 20	250	3 HU, 550 mm	18
BLMA 0830-40	0.8 ... 3 GHz	40 / 50	46 / 48 $\pm$ 2	20 / 20	600	4 HU, 550 mm	22



### BLMA Series

Model	Frequency Range	Output Power $P_N$ min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power VA	Dimensions (H, D) 19"-System	Weight kg
BLMA 0840-30/20D	0.8 ... 2 GHz 0.8 ... 4 GHz	30 / 35 20 / 25	44.8 / 47 ±2 43 / 45 ±2	20 / 20 20 / 20	200	3 HU, 550 mm	20
BLMA 0840-30D	0.8 ... 2 GHz 2 ... 4 GHz	30 / 35 30 / 35	44.8 / 47 ±2 44.8 / 47 ±2	20 / 20 20 / 20	350	3 HU, 630 mm	23
BLMA 0840-50/30D	0.8 ... 2 GHz 2 ... 4 GHz	50 / 60 30 / 35	47 / 49 ±2 44.8 / 47 ±2	20 / 20 20 / 20	500	3 HU, 630 mm	23
BLMA 0840-50/60D	0.8 ... 2 GHz 2 ... 4 GHz	50 / 60 60 / 75	47 / 49 ±2 47.8 / 50 ±2	20 / 20 20 / 20	600	3 HU, 630 mm	26
BLMA 0840-100/60D	0.8 ... 2 GHz 2 ... 4 GHz	100 / 120 60 / 75	50 / 52 ±2 47.8 / 50 ±2	20 / 20 20 / 20	750	3 HU, 630 mm	28
BLMA 0840-100D	0.8 ... 2 GHz 2 ... 4 GHz	100 / 120 100 / 120	50 / 52 ±2 50 / 52 ±2	20 / 20 20 / 20	1300	6 HU, 630 mm	42
BLMA 0840-200/100D	0.8 ... 2 GHz 2 ... 4 GHz	200 / 240 100 / 120	53 / 55 ±2 50 / 52 ±2	20 / 20 20 / 20	1300	6 HU, 630 mm	45
BLMA 0840-200D	0.8 ... 2 GHz 2 ... 4 GHz	200 / 240 200 / 240	53 / 55 ±2 53 / 55 ±2	20 / 20 20 / 20	2500	9 HU, 630 mm	52
BLMA 0840-400/200D	0.8 ... 2 GHz 2 ... 4 GHz	400 / 450 200 / 240	56 / 58 ±2 53 / 55 ±2	20 / 20 20 / 20	2500	13 HU, 630 mm	105
BLMA 0840-400D	0.8 ... 2 GHz 2 ... 4 GHz	400 / 450 400 / 450	56 / 58 ±2 56 / 58 ±2	20 / 20 20 / 20	6500	20 HU, 630 mm	180
BLMA 0840-750/400D	0.8 ... 2 GHz 2 ... 4 GHz	750 / 900 400 / 450	58.8 / 61 ±2 56 / 58 ±2	20 / 20 20 / 20	9000	30 HU, 630 mm	230
BLMA 0842-1	0.8 ... 4.2 GHz	1 / 1.3	30 / 32 ±2	20 / 20	75	3 HU, 350 mm	11
BLMA 0842-3	0.8 ... 4.2 GHz	3 / 3.5	34.8 / 37 ±2	20 / 20	75	3 HU, 350 mm	11
BLMA 0842-5	0.8 ... 4.2 GHz	5 / 6	37 / 39 ±2	20 / 20	100	3 HU, 350 mm	12
BLMA 0842-10	0.8 ... 4.2 GHz	10 / 13	40 / 42 ±2	20 / 20	300	3 HU, 550 mm	16
BLMA 0842-20	0.8 ... 4.2 GHz	20 / 25	43 / 45 ±2	20 / 20	400	4 HU, 550 mm	24
BLMA 0842-40	0.8 ... 4.2 GHz	40 / 50	46 / 48 ±2	20 / 20	1500	4 HU, 630 mm	35
BLMA 0842-80	0.8 ... 4.2 GHz	80 / 100	49 / 51 ±2	20 / 20	2500	6 HU, 630 mm	60
BLMA 0880-1	0.8 ... 8 GHz	1 / 1.2	30 / 33 ±3	20 / 20	75	3 HU, 350 mm	11
BLMA 1020-1	1 ... 2 GHz	1 / 1.3	30 / 32 ±2	20 / 20	50	3 HU, 350 mm	10
BLMA 1020-3	1 ... 2 GHz	3 / 3.5	34.8 / 37 ±2	20 / 20	50	3 HU, 350 mm	11
BLMA 1020-5	1 ... 2 GHz	5 / 6	37 / 39 ±2	20 / 20	100	3 HU, 350 mm	11
BLMA 1020-10	1 ... 2 GHz	10 / 13	40 / 42 ±2	20 / 20	150	3 HU, 350 mm	11
BLMA 1020-30	1 ... 2 GHz	30 / 35	44.8 / 47 ±2	20 / 20	180	3 HU, 350 mm	11
BLMA 1020-60	1 ... 2 GHz	60 / 70	47.8 / 50 ±2	20 / 20	350	3 HU, 550 mm	22
BLMA 1020-100	1 ... 2 GHz	100 / 125	50 / 52 ±2	20 / 20	600	3 HU, 630 mm	26
BLMA 1020-120	1 ... 2 GHz	120 / 140	50.8 / 53 ±2	20 / 20	700	3 HU, 630 mm	26
BLMA 1020-200	1 ... 2 GHz	200 / 240	53 / 55 ±2	20 / 20	1200	3 HU, 630 mm	28
BLMA 1020-240	1 ... 2 GHz	240 / 270	53.8 / 56 ±2	20 / 20	1600	3 HU, 630 mm	28
BLMA 1020-400	1 ... 2 GHz	400 / 450	56 / 58 ±2	20 / 20	2600	7 HU, 630 mm	55
BLMA 1020-450	1 ... 2 GHz	450 / 500	56.5 / 59 ±2	20 / 20	3500	7 HU, 630 mm	55
BLMA 1020-550	1 ... 2 GHz	550 / 600	57.4 / 60 ±2	20 / 20	4500	12 HU, 630 mm	120
BLMA 1020-600	1 ... 2 GHz	600 / 700	57.8 / 60 ±2	20 / 20	5000	12 HU, 630 mm	120
BLMA 1020-750	1 ... 2 GHz	750 / 900	58.8 / 61 ±2	20 / 20	6000	15 HU, 630 mm	150
BLMA 1020-850	1 ... 2 GHz	850 / 1000	59.3 / 62 ±2	20 / 20	7000	15 HU, 630 mm	150
BLMA 1030-1	1 ... 3 GHz	1 / 1.3	30 / 32 ±2	20 / 20	75	3 HU, 350 mm	11
BLMA 1030-3	1 ... 3 GHz	3 / 3.5	34.8 / 37 ±2	20 / 20	75	3 HU, 350 mm	12
BLMA 1030-5	1 ... 3 GHz	5 / 6	37 / 39 ±2	20 / 20	75	3 HU, 350 mm	12
BLMA 1030-8	1 ... 3 GHz	8 / 10	39 / 41 ±2	20 / 20	100	3 HU, 350 mm	12
BLMA 1030-10	1 ... 3 GHz	10 / 13	40 / 42 ±2	20 / 20	150	3 HU, 350 mm	16
BLMA 1030-20	1 ... 3 GHz	20 / 25	43 / 45 ±2	20 / 20	250	3 HU, 550 mm	18
BLMA 1030-40	1 ... 3 GHz	40 / 50	46 / 48 ±2	20 / 20	500	4 HU, 550 mm	22
BLMA 1030-80	1 ... 3 GHz	80 / 100	49 / 51 ±2	15 / 20	800	4 HU, 630 mm	32



### BLMA Series

Model	Frequency Range	Output Power $P_N$ min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power VA	Dimensions (H, D) 19"-System	Weight kg
BLMA 1040-30/20D	1 ... 2 GHz	30 / 35	44.8 / 47 $\pm$ 2	20 / 20	200	3 HU, 550 mm	20
	2 ... 4 GHz	20 / 35	43 / 45 $\pm$ 2	20 / 20			
BLMA 1040-30D	1 ... 2 GHz	30 / 35	44.8 / 47 $\pm$ 2	20 / 20	350	3 HU, 630 mm	23
	2 ... 4 GHz	30 / 35	44.8 / 47 $\pm$ 2	20 / 20			
BLMA 1040-60/35D	1 ... 2 GHz	60 / 70	47.8 / 50 $\pm$ 2	20 / 20	500	3 HU, 630 mm	23
	2 ... 4 GHz	35 / 40	45.4 / 48 $\pm$ 2	20 / 20			
BLMA 1040-60D	1 ... 2 GHz	60 / 70	47.8 / 50 $\pm$ 2	20 / 20	600	3 HU, 630 mm	26
	2 ... 4 GHz	60 / 75	47.8 / 50 $\pm$ 2	20 / 20			
BLMA 1040-100/60D	1 ... 2 GHz	100 / 120	50 / 52 $\pm$ 2	20 / 20	750	3 HU, 630 mm	28
	2 ... 4 GHz	60 / 75	47.8 / 50 $\pm$ 2	20 / 20			
BLMA 1040-100D	1 ... 2 GHz	100 / 120	50 / 52 $\pm$ 2	20 / 20	1300	6 HU, 630 mm	45
	2 ... 4 GHz	100 / 120	50 / 52 $\pm$ 2	20 / 20			
BLMA 1040-200/100D	1 ... 2 GHz	200 / 240	53 / 55 $\pm$ 2	20 / 20	1300	6 HU, 630 mm	45
	2 ... 4 GHz	100 / 120	50 / 52 $\pm$ 2	20 / 20			
BLMA 1040-200D	1 ... 2 GHz	200 / 240	53 / 55 $\pm$ 2	20 / 20	2500	9 HU, 630 mm	52
	2 ... 4 GHz	200 / 240	53 / 55 $\pm$ 2	20 / 20			
BLMA 1040-240/200D	1 ... 2 GHz	240 / 260	53.8 / 56 $\pm$ 2	20 / 20	2700	9 HU, 630 mm	52
	2 ... 4 GHz	200 / 240	53 / 55 $\pm$ 2	20 / 20			
BLMA 1040-400/200D	1 ... 2 GHz	400 / 450	56 / 58 $\pm$ 2	20 / 20	2700	13 HU, 630 mm	105
	2 ... 4 GHz	200 / 240	53 / 55 $\pm$ 2	20 / 20			
BLMA 1040-400D	1 ... 2 GHz	400 / 450	56 / 58 $\pm$ 2	20 / 20	6500	20 HU, 630 mm	180
	2 ... 4 GHz	400 / 450	56 / 58 $\pm$ 2	20 / 20			
BLMA 1040-750/400D	1 ... 2 GHz	750 / 900	58.8 / 61 $\pm$ 2	20 / 20	9000	30 HU, 630 mm	230
	2 ... 4 GHz	400 / 450	56 / 58 $\pm$ 2	20 / 20			
BLMA 1018-0.5	1 ... 18 GHz	0.5 / 0.6	27 / 30 $\pm$ 3	20 / 20	75	3 HU, 350 mm	11
BLMA 2040-1	2 ... 4 GHz	1 / 1.3	30 / 32 $\pm$ 2	20 / 20	50	3 HU, 350 mm	11
BLMA 2040-3	2 ... 4 GHz	3 / 3.5	34.8 / 37 $\pm$ 2	20 / 20	50	3 HU, 350 mm	11
BLMA 2040-7	2 ... 4 GHz	7 / 9	38.5 / 41 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 2040-20	2 ... 4 GHz	20 / 25	43 / 45 $\pm$ 2	20 / 20	200	3 HU, 350 mm	15
BLMA 2040-35	2 ... 4 GHz	35 / 45	45.4 / 48 $\pm$ 2	20 / 20	400	3 HU, 630 mm	18
BLMA 2040-60	2 ... 4 GHz	60 / 75	47.8 / 50 $\pm$ 2	20 / 20	600	3 HU, 630 mm	26
BLMA 2040-110	2 ... 4 GHz	110 / 130	50.4 / 53 $\pm$ 2	20 / 20	1100	3 HU, 630 mm	28
BLMA 2040-200	2 ... 4 GHz	200 / 240	53 / 55 $\pm$ 2	20 / 20	2500	6 HU, 630 mm	45
BLMA 2040-300	2 ... 4 GHz	300 / 350	54.8 / 57 $\pm$ 2	20 / 20	4000	12 HU, 630 mm	120
BLMA 2040-400	2 ... 4 GHz	400 / 450	56 / 58 $\pm$ 2	20 / 20	5000	15 HU, 630 mm	150
BLMA 2060-0.5	2 ... 6 GHz	0.5 / 0.6	27 / 29 $\pm$ 2	20 / 20	50	3 HU, 350 mm	10
BLMA 2060-1	2 ... 6 GHz	1 / 1.2	30 / 32 $\pm$ 2	20 / 20	50	3 HU, 350 mm	10
BLMA 2060-2	2 ... 6 GHz	2 / 2.3	33 / 35 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 2060-3	2 ... 6 GHz	3 / 3.3	34.8 / 37 $\pm$ 2	20 / 20	100	3 HU, 350 mm	11
BLMA 2060-10	2 ... 6 GHz	10 / 12	40 / 42 $\pm$ 2	20 / 20	125	3 HU, 350 mm	12
BLMA 2060-20	2 ... 6 GHz	20 / 25	43 / 45 $\pm$ 2	20 / 20	200	3 HU, 550 mm	18
BLMA 2060-30	2 ... 6 GHz	30 / 35	44.8 / 47 $\pm$ 2	20 / 20	300	3 HU, 630 mm	22
BLMA 2060-50	2 ... 6 GHz	50 / 60	47 / 49 $\pm$ 2	20 / 20	600	3 HU, 630 mm	26
BLMA 2080-0.5	2 ... 8 GHz	0.5 / 0.6	27 / 29 $\pm$ 2	20 / 20	50	3 HU, 350 mm	10
BLMA 2080-1	2 ... 8 GHz	1 / 1.2	30 / 32 $\pm$ 2	20 / 20	50	3 HU, 350 mm	10
BLMA 2080-2	2 ... 8 GHz	2 / 2.3	33 / 35 $\pm$ 2	20 / 20	50	3 HU, 350 mm	11
BLMA 2018-0.2	2 ... 18 GHz	0.2 / 0.25	23 / 25 $\pm$ 2	20 / 20	50	3 HU, 350 mm	10
BLMA 2018-0.3	2 ... 18 GHz	0.3 / 0.35	24.8 / 27 $\pm$ 2	20 / 20	50	3 HU, 350 mm	10
BLMA 2018-0.5	2 ... 18 GHz	0.5 / 0.8	27 / 29 $\pm$ 2	15 / 20	50	3 HU, 350 mm	11
BLMA 2018-0.8	2 ... 18 GHz	0.8 / 1	29 / 31 $\pm$ 2	20 / 20	65	3 HU, 350 mm	11
BLMA 2018-1	2 ... 18 GHz	1 / 1.2	30 / 32 $\pm$ 2	20 / 20	65	3 HU, 350 mm	12



### BLMA Series

Model	Frequency Range	Output Power $P_N$ min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power VA	Dimensions (H, D) 19"-System	Weight kg
BLMA 2020-1	2 ... 20 GHz	1 / 1.2	30 / 32 $\pm$ 2	20 / 20	65	3 HU, 350 mm	12
BLMA 2020-5	2 ... 20 GHz	5 / 6	37 / 39 $\pm$ 2	20 / 20	200	3 HU, 350 mm	15
BLMA 2560-10	2.5 ... 6 GHz	10 / 12	40 / 42 $\pm$ 2	20 / 20	150	3 HU, 350 mm	12
BLMA 2560-30	2.5 ... 6 GHz	30 / 35	44.8 / 47 $\pm$ 2	20 / 20	500	3 HU, 630 mm	25
BLMA 4060-2	4 ... 6 GHz	2 / 2.5	33 / 35 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 4060-4	4 ... 6 GHz	4 / 4.5	36 / 38 $\pm$ 2	20 / 20	110	3 HU, 350 mm	12
BLMA 4060-8	4 ... 6 GHz	8 / 9	39 / 41 $\pm$ 2	20 / 20	250	3 HU, 350 mm	13
BLMA 4060-10	4 ... 6 GHz	10 / 11	40 / 42 $\pm$ 2	20 / 20	300	3 HU, 350 mm	13
BLMA 4060-20	4 ... 6 GHz	20 / 22	43 / 45 $\pm$ 2	15 / 20	450	3 HU, 350 mm	14
BLMA 4080-1	4 ... 8 GHz	1 / 1.2	30 / 32 $\pm$ 2	20 / 20	50	3 HU, 350 mm	11
BLMA 4080-2	4 ... 8 GHz	2 / 2.3	33 / 35 $\pm$ 2	20 / 20	50	3 HU, 350 mm	11
BLMA 4080-2.5	4 ... 8 GHz	2.5 / 3	34 / 36 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 4080-4	4 ... 8 GHz	4 / 4.5	36 / 38 $\pm$ 2	20 / 20	110	3 HU, 350 mm	12
BLMA 4080-7	4 ... 8 GHz	7 / 8	38.5 / 41 $\pm$ 2	15 / 20	200	3 HU, 350 mm	12
BLMA 4080-8	4 ... 8 GHz	8 / 9	39 / 41 $\pm$ 2	20 / 20	250	3 HU, 350 mm	13
BLMA 4080-10	4 ... 8 GHz	10 / 11	40 / 42 $\pm$ 2	15 / 20	300	3 HU, 350 mm	13
BLMA 4080-20	4 ... 8 GHz	20 / 22	43 / 46 $\pm$ 3	12 / 20	350	3 HU, 550 mm	13
BLMA 4010-0.5	4 ... 10 GHz	0.5 / 0.6	27 / 29 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 4010-1	4 ... 10 GHz	1 / 1.2	30 / 32 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 4010-2	4 ... 10 GHz	2 / 2.3	33 / 35 $\pm$ 2	20 / 20	90	3 HU, 350 mm	11
BLMA 4010-6	4 ... 10 GHz	6 / 6.5	37.8 / 40 $\pm$ 2	20 / 20	200	3 HU, 350 mm	13
BLMA 4012-5	4 ... 12 GHz	5 / 6	37 / 39 $\pm$ 2	20 / 20	200	3 HU, 350 mm	13
BLMA 4012-10	4 ... 12 GHz	10 / 11	40 / 42 $\pm$ 2	20 / 20	300	3 HU, 350 mm	13
BLMA 4018-5	4 ... 18 GHz	5 / 6	37 / 39 $\pm$ 2	20 / 20	200	3 HU, 350 mm	13
BLMA 6012-0.5	6 ... 12 GHz	0.5 / 0.6	27 / 29 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 6012-1	6 ... 12 GHz	1 / 1.2	30 / 32 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 6012-2	6 ... 12 GHz	2 / 2.3	33 / 35 $\pm$ 2	20 / 20	90	3 HU, 350 mm	11
BLMA 6012-10	6 ... 12 GHz	10 / 11	40 / 42 $\pm$ 2	15 / 20	300	3 HU, 350 mm	13
BLMA 6012-20	6 ... 12 GHz	20 / 22	43 / 45 $\pm$ 2	15 / 20	450	3 HU, 350 mm	14
BLMA 6018-0.5	6 ... 18 GHz	0.5 / 0.6	27 / 29 $\pm$ 2	20 / 20	50	3 HU, 350 mm	10
BLMA 6018-1	6 ... 18 GHz	1 / 1.2	30 / 32 $\pm$ 2	20 / 20	50	3 HU, 350 mm	10
BLMA 6018-2	6 ... 18 GHz	2 / 2.3	33 / 35 $\pm$ 2	15 / 20	50	3 HU, 350 mm	10
BLMA 6018-4	6 ... 18 GHz	4 / 5	36 / 38 $\pm$ 2	20 / 20	150	3 HU, 350 mm	11
BLMA 6018-7	6 ... 18 GHz	7 / 8	38.5 / 41 $\pm$ 2	20 / 20	180	3 HU, 350 mm	12
BLMA 6018-10	6 ... 18 GHz	10 / 11	40 / 42 $\pm$ 2	20 / 20	250	3 HU, 350 mm	14
BLMA 6018-20	6 ... 18 GHz	20 / 22	43 / 45 $\pm$ 2	15 / 20	450	3 HU, 350 mm	14
BLMA 8012-1	8 ... 12 GHz	1 / 1.2	30 / 32 $\pm$ 2	20 / 20	75	3 HU, 350 mm	10
BLMA 8012-2	8 ... 12 GHz	2 / 2.3	33 / 35 $\pm$ 2	20 / 20	100	3 HU, 350 mm	11
BLMA 8012-5	8 ... 12 GHz	5 / 6	37 / 39 $\pm$ 2	20 / 20	150	3 HU, 350 mm	12
BLMA 8012-6	8 ... 12 GHz	6 / 7	37.8 / 40 $\pm$ 2	20 / 20	175	3 HU, 350 mm	12
BLMA 8012-8	8 ... 12 GHz	8 / 9	39 / 41 $\pm$ 2	20 / 20	200	3 HU, 350 mm	13
BLMA 8012-10	8 ... 12 GHz	10 / 11	40 / 42 $\pm$ 2	20 / 20	250	3 HU, 350 mm	14

### BLMA Series

Model	Frequency Range	Output Power $P_N$ min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power VA	Dimensions (H, D) 19"-System	Weight kg
BLMA 8018-0.5	8 ... 18 GHz	0.5 / 0.6	27 / 29 $\pm$ 2	20 / 20	50	3 HU, 350 mm	10
BLMA 8018-1	8 ... 18 GHz	1 / 1.2	30 / 32 $\pm$ 2	20 / 20	50	3 HU, 350 mm	10
BLMA 8018-1.5	8 ... 18 GHz	1.5 / 1.7	31.8 / 34 $\pm$ 2	20 / 20	75	3 HU, 350 mm	10
BLMA 8018-2	8 ... 18 GHz	2 / 2.3	33 / 35 $\pm$ 2	18 / 20	75	3 HU, 350 mm	10
BLMA 8018-5	8 ... 18 GHz	5 / 6	37 / 39 $\pm$ 2	15 / 20	150	3 HU, 350 mm	12
BLMA 8018-7	8 ... 18 GHz	7 / 8	38.5 / 41 $\pm$ 2	20 / 20	200	3 HU, 350 mm	12
BLMA 8018-8	8 ... 18 GHz	8 / 9	39 / 41 $\pm$ 2	20 / 20	200	3 HU, 350 mm	12
BLMA 8018-10	8 ... 18 GHz	10 / 11	40 / 43 $\pm$ 3	15 / 20	200	3 HU, 350 mm	12
BLMA 1218-1	12 ... 18 GHz	1 / 1.2	30 / 32 $\pm$ 2	20 / 20	60	3 HU, 350 mm	10
BLMA 1218-2	12 ... 18 GHz	2 / 2.3	33 / 35 $\pm$ 2	20 / 20	60	3 HU, 350 mm	11
BLMA 1218-3	12 ... 18 GHz	3 / 3.5	34.8 / 37 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 1218-5	12 ... 18 GHz	5 / 6	37 / 39 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 1218-7	12 ... 18 GHz	7 / 8	38.5 / 41 $\pm$ 2	20 / 20	200	3 HU, 350 mm	12
BLMA 1218-8	12 ... 18 GHz	8 / 9	39 / 41 $\pm$ 2	20 / 20	250	3 HU, 350 mm	13
BLMA 1826-0.25	18 ... 26.5 GHz	0.25 / 0.28	24 / 26 $\pm$ 2	20 / 20	50	3 HU, 350 mm	10
BLMA 1826-0.5	18 ... 26.5 GHz	0.5 / 0.6	27 / 29 $\pm$ 2	20 / 20	50	3 HU, 350 mm	10
BLMA 1826-0.7	18 ... 26.5 GHz	0.7 / 0.8	28.5 / 31 $\pm$ 2	20 / 20	50	3 HU, 350 mm	10
BLMA 1826-1	18 ... 26.5 GHz	1 / 1.1	30 / 32 $\pm$ 2	20 / 20	50	3 HU, 350 mm	10
BLMA 1826-2	18 ... 26.5 GHz	2 / 2.2	33 / 35 $\pm$ 2	20 / 20	75	3 HU, 350 mm	11
BLMA 1826-4	18 ... 26.5 GHz	4 / 4.4	36 / 39 $\pm$ 3	20 / 20	120	3 HU, 350 mm	11
BLMA 1840-0.1	18 ... 40 GHz	0.1 / 0.12	20 / 22 $\pm$ 2	20 / 20	50	3 HU, 350 mm	10
BLMA 1840-0.2	18 ... 40 GHz	0.2 / 0.22	23 / 25 $\pm$ 2	20 / 20	50	3 HU, 350 mm	11
BLMA 1840-0.25	18 ... 40 GHz	0.25 / 0.3	24 / 26 $\pm$ 2	20 / 20	50	3 HU, 350 mm	11
BLMA 1840-0.4	18 ... 40 GHz	0.4 / 0.45	26 / 28 $\pm$ 2	20 / 20	50	3 HU, 350 mm	11
BLMA 1840-0.7	18 ... 40 GHz	0.7 / 0.8	28.5 / 31 $\pm$ 2	20 / 20	75	3 HU, 350 mm	12
BLMA 2640-0.1	26.5 ... 40 GHz	0.1 / 0.12	20 / 22 $\pm$ 2	20 / 20	50	3 HU, 350 mm	10
BLMA 2640-0.2	26.5 ... 40 GHz	0.2 / 0.23	23 / 25 $\pm$ 2	20 / 20	50	3 HU, 350 mm	10
BLMA 2640-0.4	26.5 ... 40 GHz	0.4 / 0.45	26 / 28 $\pm$ 2	20 / 20	50	3 HU, 350 mm	10
BLMA 2640-0.8	26.5 ... 37 GHz 37 ... 40 GHz	0.8 / 1 0.5 / 0.6	29 / 33 $\pm$ 4 27 / 31 $\pm$ 4	20 / 20 20 / 20	50	3 HU, 350 mm	10
BLMA 2640-2	26.5 ... 40 GHz	2 / 2.1	33 / 37 $\pm$ 4	20 / 20	75	3 HU, 350 mm	11

### TWAL Series

Model	Frequency Range	Output Power $P_N$ min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power VA	Dimensions (H, D) 19"-System	Weight kg
TWAL 0103-250	1 ... 2.5 GHz	250 / 300	54 / 62 $\pm$ 7.5	4 / 12	3000	5 HU, 660 mm	48
TWAL 0103-320	1 ... 2.5 GHz	320 / 350	55 / 63 $\pm$ 7.5	3 / 10	3500	5 HU, 660 mm	48
TWAL 0103-500	1 ... 2.5 GHz	500 / 600	54 / 62 $\pm$ 7.5	2 / 10	4000	14 HU, 660 mm	140
TWAL 0103-1000	1 ... 2.5 GHz	1000 / 1100	50 / 60 $\pm$ 10	8 / 20	12000	32 HU, 800 mm	340
TWAL 0103-500E	1 ... 2.5 GHz	500 / 600	57 / 62 $\pm$ 5	2 / 10	3500	4 HU, 730 mm	40
TWAL 0103-1000E	1 ... 2.5 GHz	1000 / 1100	54 / 61.5 $\pm$ 7.5	3 / 10	7000	5 HU, 800 mm	100
TWAL 0204-250E	2 ... 4 GHz	250 / 300	54 / 62 $\pm$ 7.5	6 / 15	3000	4 HU, 730 mm	32
TWAL 0208-250	2 ... 8 GHz	250 / 300	54 / 62 $\pm$ 7.5	1 / 5	3000	5 HU, 660 mm	50
TWAL 0208-300	2 ... 8 GHz	300 / 350	54.8 / 63 $\pm$ 7.5	0 / 4	3500	5 HU, 660 mm	50
TWAL 0208-500	2.5 ... 8 GHz 1)	500 / 600	54 / 62 $\pm$ 7.5	5 / 10	6000	14 HU, 660 mm	140
TWAL 0208-1000	2.5 ... 8 GHz 1)	1000 / 1100	50 / 58 $\pm$ 7.5	10 / 15	12000	32 HU, 800 mm	340



### TWAL Series

Model	Frequency Range	Output Power $P_N$ min / typ W	Gain min / typ dB	Harmonics 2nd / 3rd dBc	Line Power VA	Dimensions (H, D) 19"-System	Weight kg
TWAL 0208-500E	2.5 ... 7.5 GHz	500 / 600	57 / 62 $\pm$ 5	5 / 10	3000	4 HU, 630 mm	40
TWAL 0208-1000E	2.5 ... 7.5 GHz	1000 / 1100	54 / 61.5 $\pm$ 7.5	5 / 10	6000	12 HU, 800 mm	100
TWAL 0408-20	4 ... 8 GHz	20 / 30	43 / 48 $\pm$ 5	5 / 20	400	3 HU, 550 mm	20
TWAL 0408-250E	4 ... 8 GHz	250 / 300	54 / 62 $\pm$ 7.5	6 / 15	3000	4 HU, 730 mm	30
TWAL 0410-70	4 ... 10 GHz	70 / 120	50 / 56 $\pm$ 6	3 / 10	1500	3 HU, 610 mm	33
TWAL 0410-170	4 ... 10 GHz	170 / 250	50 / 56 $\pm$ 6	3 / 10	1500	3 HU, 610 mm	33
TWAL 0412-20	4 ... 12 GHz	20 / 40	43 / 51 $\pm$ 4	0 / 6	500	3 HU, 550 mm	18
TWAL 0418-20	4 ... 18 GHz	20 / 40	43 / 51 $\pm$ 7.5	0 / 5	600	3 HU, 550 mm	20
TWAL 0418-30E	4 ... 5 GHz	25 / 30	44 / 54 $\pm$ 10	1 / 2	600	3 HU, 550 mm	20
	5 ... 6 GHz	30 / 35	45 / 55 $\pm$ 10	1 / 2			
	6 ... 16 GHz	70 / 90	49 / 59 $\pm$ 10	1 / 2			
	16 ... 18 GHz	30 / 35	45 / 55 $\pm$ 10	1 / 2			
TWAL 0618-20	6 ... 18 GHz	20 / 30	43 / 48 $\pm$ 5	5 / 20	400	3 HU, 550 mm	20
TWAL 0618-200	6 ... 18 GHz	200 / 250	53 / 61 $\pm$ 7.5	6 / 15	3000	4 HU, 700 mm	33
TWAL 0618-300	6 ... 18 GHz	300 / 350	54.8 / 62.5 $\pm$ 7.5	5 / 10	3500	4 HU, 700 mm	38
TWAL 0810-1500	8 ... 10 GHz	1500 / 1800	52 / 62 $\pm$ 10	10 / 20	7000	13 HU, 700 mm	90
TWAL 0812-20	8 ... 12 GHz	20 / 30	43 / 48 $\pm$ 5	5 / 20	400	3 HU, 550 mm	20
TWAL 0812-1000	8 ... 12 GHz	1000 / 1200	50 / 60 $\pm$ 10	10 / 20	7000	13 HU, 700 mm	90
TWAL 0818-20	8 ... 18 GHz	20 / 30	43 / 51 $\pm$ 7.5	10 / 20	400	3 HU, 550 mm	20
TWAL 0818-50/35	8 ... 15 GHz	50 / 60	47 / 55 $\pm$ 7.5	5 / 20	400	3 HU, 550 mm	22
	15 ... 18 GHz	35 / 40	43 / 51 $\pm$ 7.5	5 / 20			
TWAL 0818-250	8 ... 18 GHz	250 / 300	54 / 62 $\pm$ 7.5	8 / 20	1500	3 HU, 610 mm	33
TWAL 0818-320	8 ... 18 GHz	320 / 350	55 / 63 $\pm$ 7.5	6 / 18	1750	3 HU, 610 mm	33
TWAL 0818-500	8 ... 18 GHz	500 / 550	54 / 62 $\pm$ 7.5	8 / 20	3000	7 HU, 700 mm	85
TWAL 0818-1000	8 ... 18 GHz	1000 / 1100	50 / 60 $\pm$ 7.5	10 / 20	6000	18 HU, 700 mm	270
TWAL 0818-200E	8 ... 18 GHz	200 / 250	53 / 61 $\pm$ 7.5	6 / 15	2000	4 HU, 730 mm	33
TWAL 1012-1000	10 ... 12 GHz	1000 / 1200	50 / 60 $\pm$ 10	10 / 20	7000	13 HU, 700 mm	90
TWAL 1218-20	12 ... 18 GHz	20 / 40	43 / 48 $\pm$ 5	5 / 20	400	3 HU, 550 mm	20
TWAL 1826-40	18 ... 26.5 GHz	40 / 60	46 / 52 $\pm$ 6	15 / 20	1200	3+5 HU, 610 mm	41
TWAL 1826-120	18 ... 26.5 GHz	120 / 150	50.8 / 57 $\pm$ 6	15 / 20	750	6 HU, 630 mm	45
TWAL 1840-40E	18 ... 40 GHz	40 / 60	46 / 54 $\pm$ 7.5	4 / 12	1000	4 HU, 730 mm	30
TWAL 2640-40	26 ... 40 GHz	40 / 60	46 / 52 $\pm$ 6	15 / 20	1200	3+5 HU, 610 mm	41
TWAL 2640-120	26 ... 40 GHz	120 / 150	50.8 / 57 $\pm$ 6	15 / 20	750	6 HU, 630 mm	45



### BLMA Series

Model	Frequency Range	Output Power $P_N$ min dBm	Gain min / typ dB	Noise Figure dB	Dimensions (B,H,D) mm	Weight kg
BLMA 0118-A	1 ... 18 GHz	+10	18 / 21 $\pm$ 3	2.5	93 x 95 x 208	1.5
BLMA 0118-BT	3 ... 18 GHz <sup>1)</sup>	+3	44 / 48 $\pm$ 4	3.2	93 x 95 x 208	1.5
BLMA 0118-M	1 ... 18 GHz	+4	45 / 49 $\pm$ 4	2.5	93 x 95 x 208	1.5
BLMA 0118-1A	1 ... 18 GHz	+10	30 / 32 $\pm$ 2	2.6	93 x 95 x 208	1.5
BLMA 0118-1ABT	3 ... 18 GHz <sup>1)</sup>	+9	28 / 32 $\pm$ 2	3.3	93 x 95 x 208	1.5
BLMA 0118-1BT	3 ... 18 GHz <sup>1)</sup>	+9	36 / 39 $\pm$ 3	3.2	93 x 95 x 208	1.5
BLMA 0118-1M	1 ... 18 GHz	+10	38 / 41 $\pm$ 3	2.5	93 x 95 x 208	1.5
BLMA 0118-2M	1 ... 18 GHz	+10	38 / 41 $\pm$ 3	2.5	93 x 95 x 208	1.5
BLMA 0118-2A	1 ... 18 GHz	+5	29 / 31 $\pm$ 2	2.8	93 x 95 x 208	1.5
BLMA 0118-3A	1 ... 18 GHz	+8	30 / 32 $\pm$ 2	3	93 x 95 x 208	1.5
BLMA 0118-4A	1 ... 18 GHz	+8	40 / 42 $\pm$ 2	3	93 x 95 x 208	1.5
BLMA 0118-5A	1 ... 18 GHz	+8	50 / 52 $\pm$ 2	3	93 x 95 x 208	1.5
BLMA 1826-1M	18 ... 26 GHz	+10	40 / 42 $\pm$ 2	2.5	93 x 65 x 206	1
BLMA 1826-2M	18 ... 26 GHz	+10	30 / 32 $\pm$ 2	2.5	93 x 65 x 206	1
BLMA 1826-3A	18 ... 26 GHz	+10	30 / 32 $\pm$ 2	3	93 x 65 x 206	1
BLMA 1826-4A	18 ... 26 GHz	+10	40 / 42 $\pm$ 2	3	93 x 65 x 206	1
BLMA 1826-5A	18 ... 26 GHz	+10	50 / 52 $\pm$ 2	3	93 x 65 x 206	1
BLMA 1840-1M	18 ... 40 GHz	+5	23 / 26 $\pm$ 2.5	2.7	93 x 65 x 206	1
BLMA 1840-1A	18 ... 40 GHz	+5	23 / 26 $\pm$ 2.5	3	93 x 65 x 206	1
BLMA 1840-2A	18 ... 40 GHz	+5	23 / 26 $\pm$ 2.5	3.5	93 x 65 x 206	1
BLMA 1840-3A	18 ... 40 GHz	+5	23 / 26 $\pm$ 2.5	5	93 x 65 x 206	1
BLMA 2640-M	26 ... 40 GHz	+5	40 / 43 $\pm$ 3	2.7	93 x 65 x 206	1
BLMA 2640-1M	26 ... 40 GHz	+5	38 / 41 $\pm$ 3	3	93 x 65 x 206	1
BLMA 2640-1A	26 ... 40 GHz	+6	20 / 22 $\pm$ 2	4.5	93 x 65 x 206	1
BLMA 2640-3A	26 ... 40 GHz	+10	30 / 32 $\pm$ 2	4	93 x 65 x 206	1
BLMA 2640-4A	26 ... 40 GHz	+10	40 / 42 $\pm$ 2	4	93 x 65 x 206	1
BLMA 2640-5A	26 ... 40 GHz	+10	50 / 52 $\pm$ 2	4	93 x 65 x 206	1

### BLPA / BPA Series

Model	Frequency Range	Output Power $P_p$ min / typ W	Gain typ dB	Harmonics 2nd / 3rd dBc	Line Power W	Dimensions (H, D) 19"-System	Weight kg
BLPA 3050-50	0.3 ... 0.5 GHz	50 / 60	47 $\pm$ 1.5	40 / 40	80	3 HU, 350 mm	25
BLPA 3050-100	0.3 ... 0.5 GHz	100 / 115	50 $\pm$ 1.5	40 / 40	150	3 HU, 350 mm	25
BLPA 3050-250	0.3 ... 0.5 GHz	250 / 280	54 $\pm$ 1.5	40 / 40	250	4 HU, 550 mm	30
BLPA 3050-500	0.3 ... 0.5 GHz	500 / 550	57 $\pm$ 1.5	40 / 40	350	4 HU, 550 mm	40
BLPA 3050-1000	0.3 ... 0.5 GHz	1000 / 1100	60 $\pm$ 1.5	40 / 40	500	4 HU, 550 mm	45
BLPA 3050-2000	0.3 ... 0.5 GHz	2000 / 2200	63 $\pm$ 1.5	40 / 40	750	5 HU, 550 mm	55
BLPA 3050-4000	0.3 ... 0.5 GHz	4000 / 4400	66 $\pm$ 1.5	40 / 40	1000	7 HU, 630 mm	75
BLPA 3050-7000	0.3 ... 0.5 GHz	7000 / 7500	68 $\pm$ 1.5	40 / 40	2000	12 HU, 630 mm	115

Model	Frequency Range	Output Power $P_p$ min / duty W / %	Gain typ dB	Harmonics 2nd / 3rd dBc	Line Power W	Dimensions (H, D) 19"-System	Weight kg
BPA 0911-25	0.9 ... 1.1 GHz	25 / 10	44 $\pm$ 2.5	40 / 40	100	3 HU, 350 mm	15
BPA 0911-50	0.9 ... 1.1 GHz	50 / 10	47 $\pm$ 2.5	40 / 40	175	3 HU, 350 mm	15
BPA 0911-100	0.9 ... 1.1 GHz	100 / 10	50 $\pm$ 2.5	40 / 40	300	3 HU, 350 mm	15
BPA 0911-500	0.9 ... 1.1 GHz	500 / 10	57 $\pm$ 2.5	40 / 40	900	4 HU, 550 mm	25
BPA 0911-1000	0.9 ... 1.1 GHz	1000 / 10	60 $\pm$ 2.5	40 / 40	1500	4 HU, 550 mm	30
BPA 0911-5000	0.9 ... 1.1 GHz	5000 / 10	67 $\pm$ 2.5	40 / 40	3000	8 HU, 550 mm	50
BPA 1114-900	1.15 ... 1.45 GHz	900 / 10	59 $\pm$ 2.5	30 / 30	500	3 HU, 630 mm	22

### BLPA / BPA Series

Model	Frequency Range	Output Power $P_p$ min / duty W / %	Gain typ dB	Harmonics 2nd / 3rd dBc	Line Power W	Dimensions (H, D) 19"-System	Weight kg
BPA 1214-100	1.2 ... 1.4 GHz	100 / 10	50 $\pm$ 2.5	30 / 30	200	3 HU, 350 mm	15
BPA 1214-500	1.2 ... 1.4 GHz	500 / 10	57 $\pm$ 2.5	30 / 30	250	3 HU, 550 mm	18
BPA 1214-1000	1.2 ... 1.4 GHz	1000 / 10	60 $\pm$ 2.5	30 / 30	500	3 HU, 630 mm	22
BPA 1214-1800	1.2 ... 1.4 GHz	1800 / 10	62.6 $\pm$ 2.5	30 / 30	1000	4 HU, 630 mm	35
BPA 1214-3000	1.2 ... 1.4 GHz	3000 / 10	64.8 $\pm$ 2.5	30 / 30	1500	6 HU, 630 mm	40
BPA 1214-5000	1.2 ... 1.4 GHz	5000 / 10	67 $\pm$ 2.5	30 / 30	3000	8 HU, 630 mm	60
BPA 2427-25	2.4 ... 2.7 GHz	25 / 10	44 $\pm$ 2.5	40 / 40	125	3 HU, 350 mm	15
BPA 2427-50	2.4 ... 2.7 GHz	50 / 10	47 $\pm$ 2.5	40 / 40	200	3 HU, 350 mm	15
BPA 2427-100	2.4 ... 2.7 GHz	100 / 10	50 $\pm$ 2.5	40 / 40	350	3 HU, 350 mm	15
BPA 2427-500	2.4 ... 2.7 GHz	500 / 10	57 $\pm$ 2.5	40 / 40	1000	4 HU, 550 mm	25
BPA 2427-1000	2.4 ... 2.7 GHz	1000 / 10	60 $\pm$ 2.5	40 / 40	1700	4 HU, 550 mm	30
BPA 2731-25	2.7 ... 3.1 GHz	25 / 10	44 $\pm$ 2.5	40 / 40	100	3 HU, 350 mm	15
BPA 2731-50	2.7 ... 3.1 GHz	50 / 10	47 $\pm$ 2.5	40 / 40	150	3 HU, 350 mm	15
BPA 2731-100	2.7 ... 3.1 GHz	100 / 10	50 $\pm$ 2.5	40 / 40	250	3 HU, 350 mm	15
BPA 2731-300	2.7 ... 3.1 GHz	300 / 10	54.8 $\pm$ 2.5	40 / 40	500	3 HU, 550 mm	20
BPA 2731-500	2.7 ... 3.1 GHz	500 / 10	57 $\pm$ 2.5	40 / 40	500	3 HU, 550 mm	25
BPA 2731-1000	2.7 ... 3.1 GHz	1000 / 10	60 $\pm$ 2.5	40 / 40	1000	4 HU, 550 mm	30

### TWAP / BPA Series

Model	Frequency Range	Output Power $P_p$ min / Duty W / %	Gain typ dB	Harmonics 2nd / 3rd dBc typ	Line Power VA	Dimensions (H, D) 19"-System	Weight kg
TWAP 0115-10000	1 ... 1.5 GHz	10000 / 1	77.5 $\pm$ 7.5	20 / 20	1300	4 HU, 830 mm	40
TWAP 0103-1000	1 ... 2.5 GHz	100 / 6	67.5 $\pm$ 7.5	5 / 8	730	4 HU, 730 mm	35
TWAP 0103-2000	1 ... 2.5 GHz	200 / 6	70.5 $\pm$ 7.5	7 / 15	1200	4 HU, 730 mm	42
TWAP 1115-2000	1.1 ... 1.5 GHz	2000 / 4	70.5 $\pm$ 7.5	20 / 20	1000	4 HU, 830 mm	40
TWAP 1502-6000	1.5 ... 2 GHz	6000 / 1	75 $\pm$ 7.5	20 / 20	1300	4 HU, 830 mm	40
TWAP 0204-2000	2 ... 4 GHz	2000 / 6	70.5 $\pm$ 7.5	4 / 10	1200	4 HU, 700 mm	35
TWAP 0204-5000	2 ... 4 GHz	5000 / 6	74.5 $\pm$ 7.5	3 / 8	2800	4 HU, 730 mm	35
TWAP 0204-9000	2 ... 4 GHz	9000 / 6	77 $\pm$ 7.5	7 / 12	6000	12 HU, 800 mm	100
TWAP 0208-1500	2.5 ... 8 GHz	1500 / 6	69.3 $\pm$ 7.5	2 / 5	1000	4 HU, 700 mm	35
TWAP 0208-2000	2.5 ... 8 GHz	2000 / 6	70.5 $\pm$ 7.5	2 / 5	1200	4 HU, 700 mm	35
TWAP 0304-9000	2.9 ... 4 GHz	9000 / 4	77.5 $\pm$ 7.5	6 / 15	2000	4 HU, 730 mm	35
TWAP 0408-1800	4 ... 8 GHz	1800 / 6	70 $\pm$ 7.5	7 / 12	1200	4 HU, 630 mm	35
TWAP 0408-4000	4 ... 8 GHz	4000 / 6	73.5 $\pm$ 7.5	4 / 10	2000	6 HU, 630 mm	35
TWAP 0408-7500	4 ... 8 GHz	7500 / 6	73 $\pm$ 4	5 / 20	4000	12 HU, 800 mm	100
TWAP 0811-7000	8 ... 11 GHz	7000 / 5	76 / 83.5 $\pm$ 7.5	8 / 15	2000	4 HU, 730 mm	38
TWAP 0812-2500	8 ... 12.4 GHz	2500 / 6	71.5 $\pm$ 7.5	10 / 15	1600	4 HU, 630 mm	35
TWAP 0812-4000	8 ... 12.4 GHz	4000 / 8	73.5 $\pm$ 7.5	10 / 20	2000	4 HU, 630 mm	40
TWAP 0812-8000	8 ... 12.4 GHz	8000 / 8	76.5 $\pm$ 7.5	15 / 20	4000	12 HU, 800 mm	100
TWAP 0818-1000	8 ... 18 GHz	1000 / 6	67.5 $\pm$ 7.5	3 / 8	1200	4 HU, 630 mm	30
TWAP 0818-1500	8 ... 18 GHz	1500 / 6	69.5 $\pm$ 7.5	7 / 15	1300	4 HU, 630 mm	32
TWAP 0818-2000	8 ... 18 GHz	2000 / 6	68 $\pm$ 5	7 / 15	1300	4 HU, 630 mm	32
TWAP 0818-2500	8 ... 18 GHz	2500 / 6	71.5 $\pm$ 7.5	7 / 15	2000	8 HU, 630 mm	50
TWAP 1218-3000	12 ... 18 GHz	3000 / 6	68.3 $\pm$ 7.5	10 / 15	1800	4 HU, 630 mm	35



**Antennas**

Model	Antenna holders / baluns
VHA 9103 B	Holder / Balun without telescopic dipole elements (for use with Biconical BBA 9106, BBAL 9136, BBAK 9137, BBVK 9238)
HFBA 9122	HF-VHF Broadband balun / holder (0.1)0.15 - 300 (500) MHz especially to measure very high field strength. BBAL 9136, BBA 9106, BBAK 9137, BBVU 9135 or BBUK 9139 biconical elements required
VHBA 9123	Antenna Holder / Balun for Bicon. Broad Band Antenna (e.g BBA), 50/ 200 $\Omega$ , better antenna factor below 50 MHz, also EMV application 100 W
VHBB 9124	Antenna holder / balun 50:200 $\Omega$ , high symmetry, 25 - 300 MHz, 10 W for BBA, BBAL, BBAK, BBVK
VHBC 9133	Antenna holder / 50:200 $\Omega$ , 1 kW for biconical or collapsible elements (BBA, BBAL, BBFA, Triangle, FBAA, FBAB)
VHBD 9134	High power antenna holder / balun 20:200 $\Omega$ , 2.5 kW, 20 - 200 MHz for biconical or collapsible elements BBFA 9146, N-connector
Opt. 7/16	Option : 7/16 connector
VHBD 9134-4	4 kW high power antenna holder / balun 50:200 $\Omega$ , 20 - 200 MHz for BBAL 9136 or BBFA 9146, 7/16-female connector
UBAA 9114	Broadband Balun / Holder 4:1, 30 - 1000 MHz, 5 W, low loss, BBVU, BBUK, BAOC or BBOC elem. Required
UBAA 9115	Broadband Balun / Holder 4:1, 30 - 1000 MHz, 5 W, extremely high symmetry, BBVU, BBUK, BAOC or BBOC elem. Required

Model	Biconical elements
BBA 9106	Biconical Elements, 30 - 300 MHz, requires VHA 9103 B, VHBC, VHBB or VHBA
BBAL 9136	Biconical Elements, 20 - 450 MHz, requires VHA 9103 B, VHBC, VHBB or VHBA
BBAK 9137	Biconical Elements, 45 - 450 MHz broad band, requires VHA 9103, VHBB or VHBA
BBVK 9138	Biconical Elements, 60 - 600 MHz broad band, requires VHA 9103, VHBB or VHBA
BBVU 9135	Biconical Elements, (30)100 - 1000 MHz (like VUBA), for UBAA 9114/9115
BBUK 9139	Biconical Elements, 160 - 1200 MHz broad band (like UBA), for UBAA 9114/9115

Model	Collapsible or open Biconical Elements
BBFA 9146	Large collapsible aluminium Elements with extensions up to 4 m
FBAB 9177	Collapsible Biconical Elements 30-300 MHz (instead of BBA)
FBAL 9178	Large Collapsible Biconical Elements 20-200 MHz (instead of BBAL)
BAOC 9216	Open Conical Elements, 160-1200 MHz broad band, for UBAA 9114/9115
BBOC 9217	Open Conical Elements, (30)100-1000 MHz broad band, for UBAA 9114/9115

Model	Logarithmic Periodic Broadband Antennas
UHALP 9108 A	Log-Periodic Antenna, alum. Tubing, 250 - 2400 MHz, low loss, 1 kW power
VUSLP 9111	Log-Periodic Antenna, alum. Tubing, 200 - 2300(4000) MHz, low loss, 1 kW power
VUSLP 9111 B	Log-Periodic Antenna, alum. Tubing, (180)200 - 3000(4000) MHz, low loss, 1 kW power
VUSLP 9111 E	Log-Periodic Antenna, aluminium tubing, 1 kW power, 70(65)-3000(4000) MHz, Recommended adapter : KG 9201, EN 61000-4-3
VULP 9118 A	Log-Per. Antenna, aluminium tubing, 1 kW power, 180 - 1500(2000) MHz
VULP 9118 B	Log-Per. Antenna, aluminium tubing, 1 kW power, 160 - 1500(2000) MHz
VULP 9118 C	Log-Per. Antenna, aluminium tubing, 1 kW power, 100 - 1400(2000) MHz
VULP 9118 D	Log-Per. Antenna, aluminium tubing, 1 kW power, (80)95 - 1500(1800) MHz
VULP 9118 E	Log-Per. Antenna, aluminium tubing, 1 kW power, 75(50) - 1500 MHz
VULP 9118 F	Log-Per. Antenna, al. tubing, end discs, 1 kW power, 55 - 1800 MHz
VULP 9118 G	Log-Per. Antenna, al. tubing, end discs, 1 kW power, 45 - 1500 MHz
VULP 9118 D/E/F/G special	Nearly identical gain as VULP 9118 D/E/F/G but with reduced width. Extra charge Added to the basic model. Special = folded longest elements
VULP 9118 H	Log-Per. Antenna, aluminium tubing, 1 kW power, (26)30 - 1500(1800) MHz, N-connector gain 6 dBi, VSWR < 3, width 5.2 m, length 4.8 m, weight 35 kg
Opt. WP	Option : grey coating and sealing for outdoor use
USLP 9142	UHF-SHF log-Per. Antenna, 0.7 - 5 (8) GHz
USLP 9143	UHF-SHF log-Per. Antenna, (0.25) 0.3-5 (7) GHz



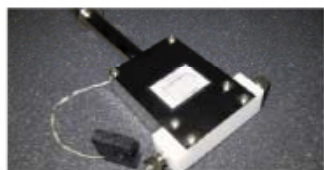
USLP 9143 B	UHF-SHF log-Per. Antenna, (0.18) 0.2-7 (8) GHz
ESLP 9145	UHF-SHF log-Per. Antenna, (0.7) 1-18 (20) GHz, N-connector
XSLP 9142	Dual Polarizer UHF-SHF Log-Per. Antenna, (0.7) 1-18 (20) GHz, N-connector
XSLP 9143	Dual Polarized UHF-SHF Log-Per. Antenna, 300 MHz - 3(5.5) GHz, 50 W

Model	Stacked Logarithmic Periodic Broadband Antennas
STLP 9128 C	Stacked double Log.-Per. Antenna, typ. gain: 9 dBi, alum. Tubing, high power, (150) 200 - 1500 (4000) MHz, N-connector 1 kW
Opt. 7/16	Option: with 7/16-connector 3 kW
Opt. 13-30	Option: with 13-30-connector limited to 2500 MHz but higher power up to 8 kW including adapter similar to AA 9202
STLP 9128 D	Stacked double Log.-Per. Antenna, typ. gain: 9 dBi, alum. Tubing, high power, 80 - 3000 (4000) MHz, N-connector, fast links for quick removal of the rear parts of the antenna. Recommended Adapter: AA 9209
Opt. 7/16	Option: with 7/16-connector 3 kW
STLP 9128 D special	Like STLP 9128 D but with folded longest elements and smaller structure angle, Fast links. Antenna diameter < 150 cm. Recommended Adapter: AA 9209
Opt. 7/16	Option: with 7/16-connector 3 kW
STLP 9128 E	Stacked double Log.-Per. Antenna, typ. gain: 9 dBi, alum. Tubing, high power, (65) 80 - 1500 (3000) MHz, N-connector 1 kW, fastlinks for quick removal of the rear parts of the antenna. Recommended Adapter: AA 9209
Opt. 7/16	Option: with 7/16-connector 3 kW
STLP 9128 E special	Like STLP 9128 E but with folded longest elements and smaller structure angle. Antenna diameter < 150 cm. Fastlinks for quick removal of the rear parts of the antenna. Recommended Adapter: AA 9209
Opt. 7/16	Option: with 7/16-connector 3 kW
STLP 9148	Stacked double Log.-Per. Antenna, typ. gain: 9 dBi (0.7) 1 - 18 (20) GHz, N-connector
STLP 9149	Stacked double Log.-Per. Antenna for IEC 61000-4-3 typ. gain 10.3 dBi, (0,6) 0,7 - 9 (10,5) GHz, N-connector female.
STLP 100-500	Stacked double Log.-Per. Antenna, typ. Gain: 11 dBi, alum. Tubing, high power, (75) 100 - 500 (550) MHz, 13/30 (f)-connector 5 kW, dimensions: 166x178x402 cm, 52 kg

Model	Biconic Logarithmic Periodic Antennas (Hybrid)
VULB 9160	TRILOG Super Broadband test Antenna, (25) 30 - 1000 (1700) MHz, 10 W
VULB 9161	TRILOG Super Broadband test Antenna, 30 - 1000 (2000) MHz, 1 kW
VULB 9161 SE	TRILOG Super Broadband test Antenna, 30 - 1000 (2000) MHz, 1 kW with short Triangle elements, diameter < 150 cm.
VULB 9163	TRILOG Super Broadband test Antenna, (25) 30 - 3000 (4000) MHz, 100 W (200W)
VULB 9165	LOGBICON Super Broadband test Antenna, (20) 30 - 1500 (2000) MHz, 10 W, BBAL Elem.
VULB 9166	LOGBICON Super Broadband test Antenna, 20 - 1500 MHz, 1 kW, BBAL El.
VULB 9168	TRILOG Super Broadb. Test Antenna, (25) 30-1000 (2000) MHz, 10 W, reduced width, diameter < 1.5 m.
Opt. Triext.	Option for VULB 9163, VULB 9161, VULB 9161 SE: angled Triangle Extensions to increase the gain by typ. 6 dB below 70 MHz.



VHA 9103 B



VHBA 9123



UHALP 9108 A



ESLP 9145



VULP 9118 E special



VULP 9118 B



XSLP 9142



STLP 9128 C

## Model Biconical Antennas

RS 16	Vertical polarized microwave biconical antenna (0,5) 1 - 6 (8,5) GHz with omni directional H-plane pattern.
RE 1790	Vertical polarized VHF- UHF biconical antenna (170) 230 - 1000 (1100) MHz with omni directional H-plane pattern.
RE 4590	Vertical polarized VHF- UHF biconical antenna (330) 450 - 1000 (1100) MHz with omni directional H-plane pattern.
SBA 9113 B	Small Biconical Antenna 80 MHz - 3 GHz for harmonics measurements acc. To IEC61000-4-3.
SBA 9113	Small biconical microwave antenna 0.5 - 3 GHz, 20 W. CIS/A/648/CDV CISPR 16-1-4 Site evaluation above 1 GHz
420 NJ	Elements for radiated immunity caused by handy transmitters with SBA 9113 or SBA 9113 mini version for the Ford standard RI115.
Opt. Spacer50	Spacer made of Polystyrene to set the 420 NJ test distance to 50 mm.
SBA 9112	Small biconical microwave antenna (1) 3 - 18 GHz, 10 W including transport case. CIS/A/648/CDV CISPR 16-1-4 Site evaluation above 1 GHz
SBA 9119	Small biconical microwave antenna 1 - 6 GHz, 20 W. CIS/A/648/CDV CISPR 16- 1-4 Site evaluation above 1 GHz including transport case.
UBA 9116	Biconical UHF broad band antenna (160) 300 -1000 (1100) MHz
VUBA 9117	Biconical VHF-UHF broad band antenna (30) 150 -1000 MHz

## Model Dipoles

VHA 9103	VHF Half-Wave Dipole with 2 sets of telescopic elements, 30-300 MHz
UHA 9105	Tuneable UHF - Half - Wave Dipole, 300 - 1000 MHz w. telescopic elements
UHA 9125 C	C Tuneable UHF - Half - Wave Dipole with EMI - Balun, 0.75 - 2 GHz with 4 sets of elements, LE = 180, 140, 100, 80 mm.
UHA 9125 D	Tuneable UHF - Half - Wave Dipole with EMI - Balun, 1.0 - 3 (4) GHz with 6 sets of elements, LE = 140, 114, 90, 72, 60, 48 mm

## Model Precision Dipoles

VHAP	VHF Precision Dipole 30-300 MHz, 2 sets of telescopic elements (mostly required in pairs) CISPR 16-1-5.
UHAP	UHF Precision Dipole 300-1000 MHz (VHAP & UHAP mostly required in pairs) CISPR 16-1-5
CCA	Carrying and storing case for 2 x VHAP or 2 x UHAP, cases for other antennas also available.
VHAPA	Calibration adaptor for VHAP Precision Dipoles
UHAPA	Calibration adaptor for UHAP Precision Dipoles

## Model FM and TV bands antenna

FT 01 S	FM broadcast and TV bands antenna, detachable, 47 - 860 (1000) MHz, high directivity
FT 01 UKW	Additional elements for enhanced FM broadcast directivity
NMHA	NMHA Antenna Set to test immunity against handy transmitters according to NISSAN standard. Consists of the following antennas: NMHA 28 Normal mode tuned helical 28 MHz, NMHA 52 Normal mode tuned helical 52 MHz, NMHA 122 Normal mode tuned helical 122 MHz, NMHA 145 Normal mode tuned helical 145 MHz, NMHA 155 Normal mode tuned helical 155 MHz, NMHA 165 Normal mode tuned helical 165 MHz, NMHA 223 Normal mode tuned helical 223 MHz, TQWA 410-455 Tuned Quarter wavelength antenna 410-455MHz, UHA 9125 C Tuned half-wave dipole 0.75-2 GHz, TSA 1270 Tuned Sleeve antenna 1.27 GHz, TSA 1440 Tuned Sleeve antenna 1.44GHz, TSA 1750 Tuned Sleeve antenna 1.75 GHz, TSA 1950 Tuned Sleeve antenna 1.95 GHz and a transport case.
WAND0918	Wireless Immunity "Wand" Antenna acc. to Dell Specification "SYSTEM IMMUNITY TO WIRELESS GSM TEST REQUIREMENT" 800 MHz -2 GHz.

## Model Standard Gain Antennas

SGA....	Standard Gain Antennas, typ. 9.8 dBi gain, 60° pattern, accurately calibrated (2 half-wave dipoles in front of a 1 x 1 reflector, design frequencies approx. 400 - 2800 MHz.
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## Model Broadband Horn Antennas

BBHA 9120 A	Broad-Band Horn Antenna (0.8) 1 - 5 (10) GHz, N-connector
BBHA 9120 B	Broad-Band Horn Antenna 1 - 10 GHz, N-connector
BBHA 9120 C	Broad-Band Horn Antenna 2 - 18 (20) GHz, SMA-connector



BBHA 9120 D	Broad-Band Horn Antenna (0,8) 1 - 18 GHz, N-connector
BBHA 9120 E	Broad-Band Horn Antenna 0.5 - 6 GHz, N-connector
BBHA 9120 F	Broad-Band Horn Antenna 0.2 - 2 GHz, N-connector
Opt. 7/16	Option: with 7/16-connector 3 kW
BBHA 9120 G	Broad-Band Horn Antenna 0.4 - 2.8 GHz, 7/16-connector
BBHA 9120 LF	Broad-Band Horn Antenna 0.7 - 6 GHz, N-connector
BBHA 9120 L3F	Broad-Band Horn Antenna 0.5 - 2.8 GHz, N-connector
BBHA 9170	Broad-Band Horn Antenna 15 - 26.5 (40) GHz, SMA-compatible connector
HA 9250-48	Pyramidal standard gain horn Antenna, 4 - 8 GHz, 7/16-connector, 20 dBi
HA 9250-24	Pyramidal standard gain horn Antenna, 2 - 4 GHz, 7/16-connector, 20 dBi
BBHX 9120 E	Dual polarized Broad-Band Horn Antenna 0.4 - 10 GHz, N-connectors
BBHX 9120 LF	Dual polarized Broad-Band Horn Antenna (0.8) 1 - 8 (10.5) GHz, N-connectors.

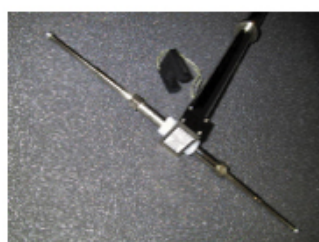
Model	Active Antennas
VAMP 9243	Vertical active rod antenna, 9 kHz - 30 MHz, BNC, reduced noise floor, with mounting nut for AM 9144 and rechargeable battery.
Opt. GP	Option: Aluminium-Groundplane, 0.6 x 0.6 m
Opt. ACS 410	Option: Charger ACS 410
Opt. Divider	Option 20 dB plug in divider to measure high field strength
Opt. CA 9243	Calibration Adapter for VAMP 9243
EFS 9218	Active Electric Field Probe with Biconical Elements, 9 kHz - 300 MHz, 12 $\mu$ V/m - 65 V/m, const. antenna factor typ. 46 dB/m high symmetry, built in rechargeable battery
Opt. ACS 410	Option: Automatic charger ACS 410 for EFS 9218
Opt. PA	Option: built in broadband preamplifier. Antenna factor 20 dB/m, disengageable.
EFS 9219	Active antenna holder, high sensitivity (1 $\mu$ V/m.....3 V/m), 9 kHz-30 MHz, BBUK 9139 biconical elements required.
Opt. Tube	Option: Isolating tube with braid chokes for EFS 9219
Opt. ACS 410	Option: Automatic charger Ansmann ACS 410 for EFS 9219

Model	Passive Rod Antenna
VPMP 9242	Vertical passive rod antenna, 10 - 40 MHz, possible rods: FBAB 9177, FBAL 9178, BBA 9106, BBAL 9136 (have to be ordered extra)
Opt. GP	Option: Aluminium groundplane 0.6 x 0.6 m

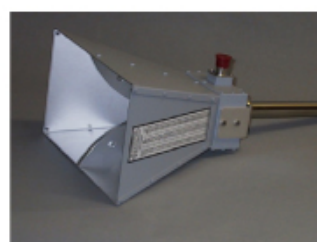
Model	Passive Magnetic Antennas, TX-Loop Antennas
HFRA 5148	Circular Transmitting Loop Antenna diam. 180 mm, 1 turn
HFRA 5150	Transmitting Loop Antenna w. broad band transformers and 50 Ohm load 5 W included (with external dummy load max. 100 W), size 0.6m x 0.6 m, 9 kHz - 30 MHz, 3/8" camera thread
HFRA 5151	same as model 5150, but reduced size 0.45 x 0.45 m
HFRA 5152	Circular Transmitting Loop Antenna diam. 250 mm, DC-3 MHz
HFRA 5153	Circular Transmitting Loop Antenna diam. 180 mm, 0-20 (30) MHz, 5 W
HFRA 5154	Circular Transmitting Loop Antenna diam. 100 mm, 0.1 - 30 MHz, Transformer 50 Ohm, 0.5 W
HFRA 5155	Circular Transmitting VHF - UHF loop antenna, diam. 50 mm,
HFRA 5156	Circular Transmitting Loop Antenna diam. 50 mm, 0-5 MHz, 2 W, 10 turns
HFRA 5157	Circular Transmitting Loop Antenna diam. 50 mm, 0-20(30) MHz, 3 W, 2 turns
HFRA 5158	Circular Transmitting Loop Antenna diam. 180 mm, 0-2 MHz, 5 W, 10 turns
HFRA 5159	Circular Transmitting Loop Antenna diam. 250 mm, 0-0.5MHz, 5 W
HFRA 5170	Cal. Loop 3 W, diam. 100 mm, 0-30 MHz, 1 turn, 250 Ohm



SBA 9113



UHA 9105



BBHA 9120 A



BBHA 9120 C



Model	Passive Magnetic Antennas, RX-Loop Antennas
HFRAE 5160	Receiving VHF - UHF loop antenna, diam. 50 mm, 2-300 MHz, Transformer
HFRAE 5161	HF RX Loop, diam. 100 mm, 70 k-120 MHz, 1 turn, Transformer
HFRAE 5162	VLF-HF RX Loop, diam. 250 mm, 50 k-30 MHz, 1 turn, Transformer

Model	CISPR 15 3-dimensional loop antenna van Veen
HXYZ 9170	3-dimensional large loop antenna, diam. 2 m, acc. EN 55015 / CISPR 15, Socket and Coaxial switch recommended
Socket for HXYZ 9170	Socket and mounting equipment for large loop HXYZ 9170
Coaxial Switch for HXYZ 9170	3 in one coaxial switch for manual / remote operation including cable set (3 BNC cables with braid current blockers) for large loop HXYZ 9170
HFCD 9171	Calibration Balun / Dipole for HXYZ 9170 (recommended accessory: AM 9144)
CDA 9271	Adapter to hold HFCD 9171 on AM 9144, 3/8" female large camera thread.

Model	Active Loop Antennas / Magnetic Field Probes
FMZB 1519	Active magnetic loop antenna acc. to CISPR 16, 9 kHz to 30 MHz, constant antenna factor 20 dB/m, built in rechargeable battery, charger ALCS 2-24A.
HMDA 1545	Handheld magnetic field meter, LCD, acoustic field strength indication with tone generator, 9 kHz- 50 (80) MHz, 200 $\mu$ A/m ... 1 A/m, 6 x Type AA NiMH.
Opt. ACS 410	Option: ACS 410 charger for HMDA 1545
HFS 1546	Active magnetic Field Probe with shielded 50-mm-Loop, 150 kHz - 400 MHz
Opt. ACS 410	Option: ACS 410 charger for HFS 1546
FMZB 1517	Calibrated hand-held Magnetic Loop Antenna, 40 kHz - 30 MHz, 150 mm diam. for EMI Rcvrs. (measures H-field, fictive E-field level up to 20 V/m (53 mA/m), 20 dB/m Antenna Factor)
FMZB 1527	Calibrated hand-held Magnetic Loop Antenna, 9 kHz - 30 MHz, 150 mm diam. for EMI Rcvrs. max. fictive E level 150 V/m (0.4 A/m), AF: 40 dB/m
FMZB 1537	Magnetic field meter 9 kHz - 30 MHz, requires either EHM 1623 or UEW 9210 with EMI-Receiver / Analyzer, max. fictive E level 75 V/m (0.2 A/m).
FMZB 1538	Magnetic field meter 9 kHz - 30 MHz, max. fictive E level 75 V/m (0.2 A/m), separate power supply cable.
FMZB 1547	Magnetic field meter 9 kHz - 30 MHz, 20 A/m, requires UEW 9210 with EMI Receiver / Analyzer
FMZB 1548	Magnetic field meter 9 kHz - 30 MHz, 20 A/m, with separate power supply cable
UEW 9210	DC separator for coaxial power supply of probes FMZB 1537, FMZB 1547
SNU 9211	AC/DC Adaptor / Power supply 220 V AC/15 V DC for UEW 9210, 3.5 mm jack

Model	Helmholtz Coils
HHS 5203-20	Helmholtz Coils, circular, diam. 300 mm, 330 A/m for Calibration or Immunity
HHS 5204-36	Helmholtz Coils, circular, diam. 400 mm, 2500 A/m 150 kHz MIL-STD 461E
HHS 5204-12	Helmholtz Coils, circular, diam. 400 mm, 2500 A/m 500 kHz MIL-STD 461E
HHS 5204	Helmholtz Coils for Calibration purposes, circular, diam. 420 mm, 5 turns f. 60 A/m
HHS 5210	Helmholtz Coils up to 300 A/m constant H field, 1 m x 1 m, 10 turns per coil, EN 61000-4-8, VDE 0847 part 4-8
HHS 5212	Helmholtz Coils up to 250 A/m H field, 1.20 m x 1.20 m, 10 turns.
HHS 5213	Helmholtz Coils 1.25 m x 1.25 m, 50 turns per coil, acc. EN 55103-2 A.2.1.b)
HHS 5215	Helmholtz Coils up to 200 A/m constant H field, 1.5 m x 1.5 m, 10 turns per coil
HHS 5218	Helmholtz Coils up to 126 A/m constant H field, 1.8 m x 1.8 m, 10 turns per coil
HHS 5201-98	Helmholtz Coils circular up to 64 kA/m 200 kHz for DuT size 45 mm.
HHS 5201-6	Helmholtz Coils circular up to 2860 A/m 5 MHz for DuT size 45 mm.
FESP 5132	Radiating loop diam. 12 cm, 20 turns, 15 Hz to 150 kHz, max 15 A, 2x Banana jack 4mm, ISO 11452-8, MIL-STD 461E p. 108, EN 55103 5.18.3.2
FESP 5133	Loop Sensor / Antenna, 36 turns in 4 layers, diam. 133 mm, EN 55103-1 A.2.b), EN 55103-2 A.4.1 0 - 200 kHz, BNC-connector female.
FESP 5133-7/41	Circular shielded loop sensor to determine the magnetic field strength. 36 turns AWG 7/41, diameter 133 mm, distance gauge 7 cm included. MIL 461E RE101 or RS101 alternative test procedures.
FESP 5134	Loop Sensor / Antenna, diam 4 cm, 51 turns, 0 Hz to 150 kHz, electrostatic shielding, BNC jack.
FESP 5135	Radiating coil diam. 0.5 m, 20 turns in one layer, acc. EN 55103-2 A.3.1



Model	Antenna Masts / Tripods / Adapters
AM 9104	Detachable Antenna Mast System (glass-fibre tubing) for VHF-UHF Antennas, manual height scanning 0.4 m to 4 m, insulated mast and antenna box with 0°/90° detents, zinc-plated / stainless steel 3-leg mast foot.
Opt. Wheels	Option: Caster Wheels and Brakes for zinc-plated / stainless steel 3-leg mast foot
Opt. GF	Alternative Option: Non metallic (glass-epoxy) mast foot for AM 9104
AM 9144	Glass - Epoxy tube Antenna Mast System, height set by screw 1.2 - 2 m, 3/8" thread on top, zinc-plated / stainless steel 3-leg mast foot.
Opt. GF	Option: Non metallic (glass-epoxy) mast foot for AM 9144
Opt. wheels	Option: Caster Wheels and Brakes for 3-leg mast foot
Opt. short	Option: height set range from 0.90 - 1.60 m (shorter version)
AA 9202	Mast Adapter for AM 9144 with 22 mm hole for most Antenna models, 3/8" and 1/4" camera threads, polarization continuously adjustable.
AA 9202 POM	Non metallic mast adapter for most light weight Antenna models with 22 mm tube, minimizes reflections, 3/8" camera thread, polarization continuously adjustable.
AA 9203	Mast Adapter for AM 9144 with 22 mm hole for most Antenna models, 3/8" and 1/4" camera threads polarization and elevation continuously adjustable
AA 9205	Orthogonal Swivel Adapter for positioning in 3 perpendicular directions. Application: determination of the magnitude of the field strength
AA 9209	Antenna adapter to fix STLP 9128 E, STLP 9128 E special, STLP 9128 D, STLP 9128 D special on AM 9144. Allows antenna rotation without height adjustment. Antenna can be fixed in the center of gravity without any collision with the AM 9144 during polarization change.
KG 9201	Mast Adapter (swivel, 90° vertical/horizontal polarization for AM 9144), for VULP 9118 D,E,F,G and VUSLP 9111 E only
PPS 9208	Pneumatic polarization shifter with 2-way pneumatic cylinder for all Schwarzbeck antennas with 22 mm tube on AM 9144. Compressed air required.
SWHA 9204	Swivel handle for light antennas
EA 9207	Adapter for Schwarzbeck antennas with 22 mm tube on EMCO mast.
TA 9204	Thread Adapter with 3/8" female and 1/4" male threads. Mainly for American antenna brands.
TA 9205	Thread Adapter with 1/4" female and 3/8" male threads. (For camera tripods, not for AM 9144)
TA 9206	Thread Adapter with 3/8" female and 5/8" male threads. (Geodesy)



HFRAE 5160



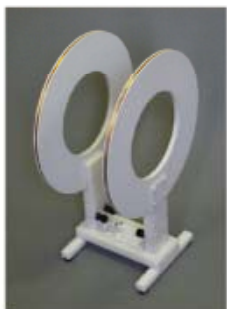
HFRAE 5161



HFRAE 5162



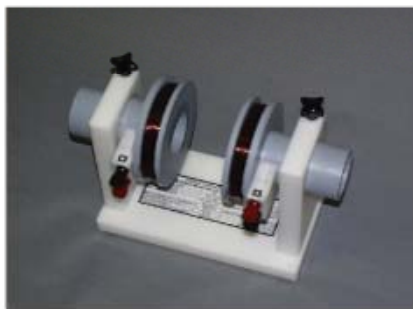
HMDA 1545



HHS 5203-20



HHS 5204-12



HHS 5201-98



FESP 5133

## Model LISN Line Impedance Stabilisation Networks

NSLK 8126	V-LISN, 9 kHz - 30 MHz, 50 $\mu$ H + 5 Ohm    50 Ohm, 250 $\mu$ H isolating choke can be shorted, 4 x 16/25 A, 2 x 16 A Schuko and 4 x 16 A CEKON socket, Artificial Hand.
Opt. rcfm	Option rcfm: Remote Control without power supply for Schwarzbeck receivers
Opt. rcps	Option rcps: Remote Control with built in Power Supply for others than Schwarzbeck receivers
NSLK 8127	V-LISN, 9 kHz - 30 MHz, 50 $\mu$ H + 5 Ohm    50 Ohm, 250 $\mu$ H isolating choke can be shorted, 2 x 16 A Schuko socket, Artificial Hand.
Opt. rcfm	Option rcfm: Remote Control without power supply for Schwarzbeck receivers
Opt. rcps	Option rcps: Remote Control with built in Power Supply for others than Schwarzbeck receivers
Opt. PLC	Option: Power Line Communication, according to EN 50065-1, selectable ranges: 3 - 9 kHz, 9 - 95 kHz, 95 kHz - 30 MHz.
NSLK 8128	V-LISN, 9 kHz - 30 MHz, 50 $\mu$ H + 5 Ohm    50 Ohm, 250 $\mu$ H isolating choke can be shorted, 4 x 32/50 A, 2 x 16 A Schuko and 4 x 32 A CEKON socket, Artificial Hand.
Opt. rcfm	Option rcfm: Remote Control without power supply for Schwarzbeck receivers
Opt. rcps	Option rcps: Remote Control with built in Power Supply for others than Schwarzbeck receivers
NNLK 8121	V-LISN, 9 kHz - 30 MHz, 50 $\mu$ H + 5 Ohm    50 Ohm, 250 $\mu$ H isolating choke, 4 x 50 (100) A, wing terminals (For continuously 100 A add the options cont. high current and cooling fans!)
Opt. rcfm	Option rcfm: Remote Control without power supply for Schwarzbeck receivers
Opt. rcps	Option rcps: Remote Control with built in Power Supply for others than Schwarzbeck receivers
Opt. cont. high current	Option: cont. high current, additional terminals to bypass the 250 $\mu$ H chokes, provides less voltage drop and less heating.
Opt. 400/700 V	Option: 400/700 V Voltage to Neutral / Voltage between lines
Opt. Fans	Option: Cooling Fans
NNLK 8129	V-LISN, (9) 150 kHz - 30 MHz, 50 $\mu$ H    50 Ohm, 4 x 200 (300) A, wing terminals, low voltage drop, High power resistors
Opt. 400/700 V	Option: 400/700 V Voltage to Neutral / Voltage between lines
Opt. rcfm	Option rcfm: Remote Control without power supply for Schwarzbeck receivers
Opt. rcps	Option rcps: Remote Control with built in Power Supply for others than Schwarzbeck receivers
Opt. Fans	Option: Cooling Fans
NNLK 8130	V-LISN, (9) 150 kHz - 30 MHz, 50 $\mu$ H    50 Ohm, 4 x 400 (500) A, wing terminals, low voltage drop, High power resistors, cooling fans.
Opt. rcfm	Option rcfm: Remote Control without power supply for Schwarzbeck receivers
Opt. rcps	Option rcps: Remote Control with built in Power Supply for others than Schwarzbeck receivers
Opt. 400/700 V	Option: 400/700 V Voltage to Neutral / Voltage between lines

## Model Single path LISN (Automotive) CISPR 25 / ISO7637

NNBM 8125	LISN 5 $\mu$ H    50 Ohm, 70 (100) A, single path, with switchable 50 Ohm termination and 10 dB attenuator.
Opt. ISO 7637-2	Option: 1 Mikrofarad capacitor on the mains side switchable. Switched on the LISN conforms to CISPR 25, switched off the LISN is suitable for transient measurements acc. to ISO 7637-2.
NNBM 8126 A	LISN 5 $\mu$ H    50 Ohm, 70 (100) A, DC 500 V, AC 50 Hz 250 V, AC 400 Hz 110 V.
Opt. DO-160	Calibration up to 400 MHz according to DO-160.
NNBM 8126 D	LISN 5 $\mu$ H    50 Ohm, 200 A single path.
NNBM 8126 F	LISN 5 $\mu$ H    50 Ohm, 400 A single path.
NNBM 8126 F HYB	LISN 5 $\mu$ H    50 Ohm, 400 A single path, for hybrid drives.
NNBM 8125 BCI	LISN 5 $\mu$ H    50 Ohm, 70 (100) A single path, no switchable attenuator, switchable 50 Ohm 50 Watt load for bulk-current injection test.
Opt. 200 A	Option: 200 A

## Model Two Path LISN (Automotive) CIPR 25 /ISO 7637

NNBM 8126 G	LISN 5 $\mu$ H    50 Ohm, 70 (100) A, two paths, two BNC-connectors, including 1 ea 50 Ohm dummy load.
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## Model LISN according to MIL 461 MIL 462

NNBL 8225	V-LISN (9) 150 kHz - 100 MHz, 50 $\mu$ H + 5 Ohm    50 Ohm, 20 A, 50 Hz AC 250V, single path, Mil. Std. 461/462.
NNBL 8226	V-LISN (9) 150 kHz - 100 MHz, 50 $\mu$ H + 5 Ohm    50 Ohm, 70 (100) A, 50 Hz AC 250 V, single path, Mil. Std. 461/462.
NNBL 8226-HV	V-LISN (9) 150 kHz - 100 MHz, 50 $\mu$ H + 5 Ohm    50 Ohm, 70 (100) A, 50 Hz AC 800 V, single path, Mil. Std. 461/462.



NNBL 8226-2 V-LISN (9) 150 kHz - 100 MHz, 50  $\mu$ H + 5 Ohm || 50 Ohm, 70 (100) A, 50 Hz, AC 250 V, two path, Mil. Std. 461/462.

### Model

### Universal LISN

NDTV 8160 Universal Delta-, T-, V-LISN

### Model

### ISN / T-Networks

NTFM 8131 T-ISN 150 Ohm asymmetric 50 Ohm unsymmetric, 2-wire, 400 V AC, 9 kHz - 30 MHz, CISPR 22 D1/EN55015-2002  
NTFM 8132 T-ISN 2-wire, 10 kHz - 30 MHz, CISPR 22 D1  
NTFM 8134 4 wire ISN, two unscreened single balanced pairs, CISPR 22 D4  
NTFM 8136 4 wire ISN, two unscreened single balanced pairs, CISPR 22 D2  
NTFM 8138 4 wire T-ISN, two unscreened single balanced pairs, CISPR 22 D3  
NTFM Adapters Adapters e.g. wired for ISDN, 1000BaseT or for self wiring available on request  
PB 44 Precision Balun for LCL-measurements on NTFM 813x

### Model

### Voltage Probes

TK 9417 HF-Probe, 2.5 kOhm  
TK 9420 High-Voltage-Probe, 1.5 kOhm, 4 pF, 9 kHz - 30 MHz, RF < 30 V  
VT 9420 Plug-In divider 1.5 kOhm for TK 9420 probe for determination of disturbance source impedance  
TK 9421 High Power Voltage Probe, 1.5 kOhm, 4 pF, 150 kHz - 30 MHz RF < 100 V  
TK 9422 High Power Voltage Probe, 5 kOhm, 4 pF, (9) 150 kHz - 30 MHz RF < 100 V



NSLK 8126



NSLK 8127



NNBM 8125



NNBM 8126 G



NNLK 8121



TK 9417



VT 9420



NTFM 8132

**Model**
**EMI Receivers**

FCKL 1528	EMI-Receiver acc. CISPR 16-1, 9 kHz - 30 MHz, 5 Detectors: Quasi peak, Peak, Average, CAV, CRMS. Attenuator with 1 dB steps, Protected Input, Automatic Calibration w. built-in Pulse Generator
Opt. IEEE 488	Option: IEEE-488 Interface for use with Schwarzbeck-Software
Opt. XY-Rec.	Option: 25-pin connector on the back side with analogous voltages for frequency and Interference voltage to connect an XY-recorder.
Opt. TG	Option: Built-In Tracking Generator, Output Level 120 dBµV.
Opt. Softw.	Option: Schwarzbeck-Software FCKL for EMI-Measurement
FCVU 1534	EMI-Receiver acc. CISPR 16-1, 20 - 1050 MHz, 5 Detectors: Quasi peak, Peak, Average, CAV and CRMS, Attenuator with 1 dB steps, Protected Input, Automatic Calibration w. built-in Pulse Generator.
Opt. IEEE 488	Option: IEEE-488 Interface for use with Schwarzbeck-Software
Opt. XY-Rec.	Option: 25-pin connector on the back side with analogous voltages for frequency and Interference voltage to connect an XY-recorder.
Opt. TG	Option: Built-In Tracking Generator, Output Level 120 dBµV P.D.
Opt. Softw.	Option: Schwarzbeck-Software FCVU for EMI-Measurement
Opt. PA	Option: Coaxial powered preamplifier 10 dB
FCLE 1535	EMI-Receiver acc. CISPR 16-1, 9 kHz - 3.25 GHz, 5 Detectors: Quasi peak, Peak, Average, CAV and CRMS. Protected Input, Automatic Calibration w. built-in Pulse Generator
Opt. IEEE 488	Option: IEEE-488 Interface for use with Schwarzbeck-Software
Opt. Softw.	Option: Schwarzbeck-Software for FCLE for EMI-Measurement
INES PCI 488	IEEE 488 32-bit PCI-Slot PC Plug-In Card (BKAB 488 necessary)
INES PCMCIA 488	IEEE 488 32-bit PCMCIA (Type II) Plug-In Card for portable Computers (Notebook) including 2 m cable
BKAB 488	IEEE 488 cable, 2 m, necessary for PCI card, not necessary for PCMCIA card

**Model**
**Pulse Generators**

IGUU 2916	Universal Calibration Pulse Generator acc. CISPR 16 for Bands A, B, C, D (9 kHz - 1000 MHz), especially for EMI Receiver Tests (Pulse weighting, Overload), Signal generator 100 kHz, 1 MHz, 10 MHz, 100 MHz (60 dBµV). Pulse Repetition Frequency 0.1 Hz - 200 Hz (20 kHz), Output Level adjustable in 1 dB steps
Opt. IEEE 488	Option: IEEE-488 Interface for IGUU 2916
Opt. RecTest Softw.	Option: Receiver Test Software for IGUU 2916 or 2918 signal generator and EMI receiver to perform an automatic calibration of an EMI receiver acc. to CISPR 16-1-1.
Opt. KU 9616	Option: Coaxial Switching Unit for automatic performance tests with IGUU 2916, N-Connectors female.
IGUU 2918	Calibration-Pulse Generator acc. CISPR 16 for Band A, B, C, D (9 kHz-1000 MHz) To calibrate the pulse response of EMI receivers. Pulse repetition frequency main generator 0.1 - 200 Hz (aux. generator up to 1 MHz) with IEEE-488 Interface.
Opt. RecTest Softw.	Option: Receiver Test Software for IGUU 2916 or 2918 signal generator and EMI receiver to perform an automatic calibration of an EMI receiver acc. to CISPR 16-1-1.
Opt. KU 9618	Option: KU 9618 Coaxial Switching Unit for automatic performance tests with IGUU 2916, N-Connectors female
IGUF 2910	Battery driven High Power Pulse Generator, Pulse Repetition Frequency 300 Hz, weighted CISPR Level 80 dBµV (Quasi peak, 120 kHz IF-BW). Broad band signal source up to 300 (1000) MHz w. 0.5 ns Pulses of 300 V at 50 Ohm
LGA 9802	Automatic Charging Unit 230 V for IGUF 2910

**Model**
**CDN 0.15 - 230 MHz, IEC 1000-4-6, EN 61000-4-6**

L 801 M1	CDN Earth Conductor 240 V, 6 A
L 801 M1 32 A	CDN Earth Conductor 240 V, 32 A
L 801 M2	CDN Mains 2 leads, 16 A, L + N or L1 + L2, 240 V
L 801 M2 / 10kHz	CDN Mains 2 leads, 16 A, L + N or L1 + L2, 240 V, 10 kHz - 80 MHz
L 801 M2 / 50	CDN L1 + L2, 240 V, 50 A
L 801 M2 / 75	CDN L1 + L2, 240 V, 75 A
L 801 M3	CDN Mains 3 leads, 16 A, L + N + PE, 240 V



L 801 M3 / 10 kHz	CDN Mains 3 leads, 16 A, L + N + PE, 240 V, 10 kHz - 80 MHz
L 801 M3 Delta	CDN L1 + L2 + L3, 3 x 400 V, 16 A
L 801 M2 / M3	CDN Mains 3 leads, 16 A, L + N + PE, switchable L + N, 240 V, can be used up to 300 MHz for CISPR 15 CDN-method.
L 801 M4	CDN L1 + L2 + L3 + PE, 3 x 400 V, 16 A
L 801 M4 Delta	CDN L1 + L2 + L3 + N, 3 x 400 V, 16 A
L 801 M5	CDN Mains 5 leads, 16 A, L1+L2+L3+N+PE, 16 A, 3 x 230 / 400 V
L 801 AF 2	CDN Data 2 leads, can also be used for the CDN method up to 300 MHz acc. EN 55015.
L 801 AF 4	CDN Data 4 leads
L 801 AF 8	CDN Data 8 leads
L 801 S1-50	CDN Coaxial 50 Ohm, BNC, N or SMA
L 801 S1-75	CDN Coaxial 75 Ohm, BNC-connector 75 Ohm
L 801 S4	CDN Data 2 twisted pairs screened, D-sub 9 female
L 801 S8	CDN Data 8 leads screened, D-sub 9 female
L 801 S9	CDN Data 9 leads screened, D-sub 9 female
L 801 S15	CDN Data 15 leads screened, D-sub 15 female
L 801 S25	CDN Data 25 leads screened, D-sub 25 female
L 801 T2	CDN Balanced Lines
L 801 T4	CDN Balanced Lines
L 801 T8	CDN Balanced Lines
CR 100	150 W to 50 W Adaptor 0 - 1000 MHz, 1 W, N-female, 4 mm female
CR 100 A	150 W to 50 W Adaptor for CDN, 0 - 500 MHz, 4 W, BNC female, 4 mm female for CDN

Model	Absorbing clamps / braid current blocking Clamps
MDS 21	EMI Absorbing Clamp 30 - 1000 MHz, acc. CISPR 16 for interfering power
MDS 21 B	Same as MDS21 but with silicon coated rolls
EM 101	Current Injection Clamp, 0.15 - 1000 MHz, 100 W, 4 kV max.
CAL EM 101	Calibration Kit for EM 101
EM 101 + TC101	System Injection clamp EM 101 and braid current blocking clamp FTC 101.
FT 14X15	Surface current blocking filter 100 - 1000 MHz
FT 33X15	Surface current blocking filter 10 - 1000 MHz
FT 34X15	Surface current blocking filter 1 - 1000 MHz
FT 32	Surface current blocking filter 0.01 - 1000 MHz
FTC 40X15C	Absorbing Clamp 10 - 1000 MHz
FTC 40X15E	Absorbing Clamp 1 - 1000 MHz, CISPR 22
FTC 101	Surface current blocking filter clamp (in combination w. EM 101)



FCLE 1535



IGUU 2916



L 801 M1



L 801 M2



L 801 M3



MDS 21

Model	Accessories
VHIC 9260	Impedance converter acc. CISPR 25 9 kHz - 30 (120) MHz.
Opt. ACS 110	Option: Charger ACS 110 for VHIC 9260.
KU 9608	Symmetrical Bypass switch EN 55015 / CISPR 15
BD 9501	IEEE-488 Bus-Feed through for flange mounting (shielded rooms) (other feed throughs on request)
HPF	High Pass Filter 35 - 1000 MHz, Insertion loss at 27.12 MHz typ. 100 dB
CVP 9222	High Impedance Capacitive Voltage Probe acc. to CISPR 22, EN 55022 C 1.3. Frequency range: 9 kHz - 100 MHz.
Opt. ACS 110	Option: Charger ACS 110 for CVP 9222.
Opt. KA	Option: Calibration Adapter for CVP 9222.
SW 9602	Current Transformer, shielded, 0.01 - 200 MHz, Transfer Impedance: 1 Ohm for wires up to 6.5 mm.
SW 9603	Current Transformer, shielded, 9 kHz - 150 MHz, Transfer Impedance: 1 Ohm for wires up to 14 mm.
SW 9605	Current Transformer Clamp CISPR 22, 9 kHz - 80 MHz, Transfer Impedance: 1 Ohm for wires up to 23 mm.
SW 9606	Current injection clamp for RF current injection into harnesses up to 23 mm diamter, transducer 18 dB.
SY 9501	Balun unsymm. 50 Ohm to symm. 150 Ohm EN 55015, CISPR 15
SY 9223-CISPR 13	Broad band isolation transformer acc. CISPR 13 fig. A.2, 50 Ohm 75 Ohm.
SY 9223-PLC 1	1:1 PLC balun acc. to EN 50065-2-1 2003 + A1:2005 for Immunity against small band disturbance voltage. 3 kHz - 30 MHz, BNC and banana jacks
Opt. 2 $\mu$ F + 50 Ohm	Opt. for SY 9223-PLC: 2 $\mu$ F + 50 Ohm, in isolated housing, banana jacks
VTSD 9561 D	Diode Pulse Limiter + 20 dB Attenuation, fuse lamp, BNC
VTSD 9561 F	Diode Pulse Limiter + 10 dB Attenuation, fuse lamp, BNC
VTSD 9562	Bandpass and Limiter for Partial Discharge Measurements BNC
BBV 9720	Broadband Coaxial Preamplifier 10 dB, 20 MHz - 1 GHz N-male/female, requires EW 9721 or FCVU 1534.
EW 9721	DC-Separator for BBV 9720
BBV 9742	Broadband Coaxial Preamplifier amplification max. 30 dB, 9 kHz - 4 GHz, low noise floor, ESD protected, N-jack N-plug, including power supply.
BBV 9718	Broadband Coaxial Preamplifier typ. 33 dB, 1 - 18 GHz with fixture for 22 mm antenna tube, and N to SMA cable, power supply 12 V 250 mA necessary.
Opt. PS	Option Power supply for BBV 9718 or 9719.
Opt. Battery	Option Rechargeable battery pack for BBV 9718 or 9719.
Opt. ALCS 2-24A	Battery charger ALCS 2-24A for rechargeable battery pack
BBV 9719	Broadband Coaxial Preamplifier typ. 33 dB, 18-26.5 GHz, power supply 12 V 300 mA necessary. Including short cable with SMA plugs to connect the BBV 9719 with the antenna(for example BBHA 9170).
Opt. PS	Option Power supply for BBV 9718 or 9719.
Opt. Battery	Option Rechargeable battery pack for BBV 9718 or 9719.
Opt. ALCS 2-24A	Battery charger ALCS 2-24A for rechargeable battery pack.
WMAX 3436	Low Noise Preamplifier for the WIMAX frequency band 3.4 - 3.6 GHz, gain > 35 dB, high stop band attenuation, Bypass-function, with DC-Separator for 12 V DC.

Model	Fixed Attenuators
DGA 9550 N	10 dB fixed attenuation, 0 - 1000 MHz, N - connectors male / female
DGA 9552 N	Bidirectional Attenuator N-female N-male to 18 GHz, 50 Ohm 5 Watt. Available values: 3 dB, 6 dB, 10 dB, 20, 30, 40 dB.

Model	Reference Radiators
SG 9301	Spectrum Generator 30-1000 MHz, spectrum lines switchable 100 Hz - 1 MHz, N-female connector, charger 230 V AC, main application: reference radiator (antenna required e.g. UBAA 9114 with BBVU 9135)
SG 9302	Comb generator 0.1 - 18 GHz, spectrum lines every 100 MHz, battery driven, including charger.



Model	Field meters
VUFM 1670	E-Field Meter 70 kHz-2.5 GHz, 1 V/m-300 V/m, linear polarized
VUFM 1671	LCD-Display Unit for VUFM 1670 with 5 m fibre optical link, Additional cost for longer fibre
VUFM 1672	LCD-Display Unit VUFM 1672 for E - Field-Meter VUFM 1670 with optical link and IEEE 488 / GPIB - Interface.

Model	Field meters
FS-SET 7100	Near field Probe Set including HFSL, HFSH, EFS and Separator EW and AC/DC Adaptor in storing case.
HFSH 7101	Active Near Field Probe (magnetic) 9 kHz - 30 MHz (EW 7110 required)
HFSH 7102	Active Near Field Probe (magnetic) 4 MHz - 1000 MHz (EW 7110 required)
EFS 7103	Active Near Field Probe (electric) 9 kHz - 1000 MHz (EW 7110 required)
EW 7110	Coaxial DC-Separator for Near Field Probes HFSL, HFSH, EFS
ACDC 7110	AC/DC Adapter for DC-Separator EW 7110

Model	Strip lines
TEMZ 5231	50 Ohm Strip line according to ISO 11452-5 for automotive testing, 4.3 x 1.5 x 0.15 m, N-connectors, wooden base construction and termination required
Opt.Termination	Option: 50 Ohm termination, N-connector, 50 Watt, for TEMZ 5231
TEMZ 5232	90 Ohm Strip line according to ISO 11452-5 for automotive testing, 3.5 x 0.9 x 0.15 m, N-connector, built-in termination 90 Ohm, 50 W, wooden base construction required
TEMZ C25	Open unsymmetrical 90 Ohm - strip line acc. CISPR 25 Ed3 CDV without dummy load.
TEMZ 5233	Closed, unsymmetrical 50 Ohm strip line DC - 420 (600) MHz, Crawford TEM Cell, for E- field probe and H-field probe calibration and for immunity testing. ISO 11452-3, IEEE 1309 und EN 61000-4-20.
TEMZ 5236	Symmetrical Strip line 0.96 x 0.6 x 0.6 m, BNC-connectors, including 4:1 transformer and 50 W dummy load.
TEMZ 5238	Symmetrical strip line acc. to CISPR 20 up to 120 MHz.

# FISCHER CUSTOM COMMUNICATIONS, INC.

## Coupling & Decoupling Networks

### 100 to 200 AMP CDN's

FCC's family of CDN's just got bigger. 100 and 200 AMP CDN's are now available for IEC 1000-4-6 conducted immunity testing from 150 kHz to 80 MHz



Specifications	C Series	S Series	M Series	AF Series	T Series
<b>EUT/AE Port</b>					
AC Voltage	<350 V	<350 V	<480 line to line	<350 V	<350 V
DC Voltage	<600 V	<600 V	<600 V	<600 V	<600 V
Current Rating	1.0 amp	3.0 amp	16 amp to 300 amp*	3.0 amp	3.0 amp
<b>I/O Connectors</b>	BNC	S2 to S50 Centronics, D	Multi Contact Safety Socket	Multi Contact Safety Audio Socket	Multi Contact Safety Socket
<b>Common Mode Impedance at EUT Connector</b>					
150kHz to 26kHz	150±20½	150±20½	150±20½	150±20½	150±20½
26kHz to 80kHz	150±60/-45 ½	150±60/-45 ½	150±60/-45 ½	150±60/-45 ½	150±60/-45 ½
80kHz to 230kHz	150±60/-45 ½	150±60/-45 ½	150±60/-45 ½	150±60/-45 ½	150±60/-45 ½
<b>Disturbance Coupling Circuit</b>					
Frequency Range	150kHz to 230MHz	150kHz to 230MHz	150kHz to 230MHz	150kHz to 230MHz	150kHz to 230MHz
Connector	50 ½ BNC	50 ½ BNC	50 ½ BNC	50 ½ BNC	50 ½ BNC
RF Voltage Level	<40 V	<40 V	<40 V	<40 V	<40 V
<b>Voltage Attenuation generator/EUT</b>	10 dB ±1 dB	10 dB +1 dB/-3	10 dB +1 dB/-3 dB	10 dB +1 dB/-3 dB	10 dB +1 dB/-3 dB
<b>Insertion Loss EUT/AE</b>	<1 dB at 230 MHz	<3 dB up to 20 KHz <10 dB up to 1 MHz <20 dB up to 10 MHz	<0.1 dB up to 400 Hz <8 dB at 10 kHz <45 dB at 150 kHz	<0.5 dB DC to 20 kHz <30 dB at 150 kHz <20 dB at 230 MHz	<8 dB at 150 kHz <20 dB at 1 MHz <30 dB at 2 MHz
<b>Coupling Factor</b>	0 dB ±1 dB	0 dB +dB/-3 dB	0 dB +dB/-3 dB	0 dB +dB/-3 dB	0 dB +dB/-3 dB
<b>Decoupling Attenuation Generator/AE</b>	>50 dB up to 100 MHz  >20 dB at 230 MHz	>50 dB up to 20 MHz  >20 dB at	>50 dB up to 20 MHz  >20 dB at 230 MHz	>50 dB up to 30 MHz  >20 dB at 230 MHz	Unbalanced Attenuation Generator/EUT >70 dB at 150 kHz >60 dB at 1 MHz >40 dB at 10 MHz >35 dB above 20 MHz

**M Series:** The M1 power line CDN is used to couple common mode CW and modulated signals onto single power line systems. The M1 is ideal for automotive systems using the chassis as the DC return. The M2 is commonly used for 2 wire power conductor cables and the M3 is used for two line single phase cables. The M4 is used on three phase power mains and the M5 is used on three phase systems with neutral and protected earth ground conductors. Fischer Custom Communications, Inc. offers more than 15 power line configurations with current rating of 16, 25, 32 50, 100, 200 and 300 amperes.

**T Series:** The T series CDN is used to couple RF CW and modulated signals into balanced or unshielded lines. It permits normal operation of balanced circuits with impedance to 600 W up to 1 MHz and 1000 W impedance up to 100 kHz. It is available in 2, 4 or 8 line configurations.

**S Series:** The S series CDN is used to test shielded cables and is available with 2 pins to 50 pins

**C Series:** The S series CDN is used to couple RF interference signals onto shields of RF coaxial cables.

**AF Series:** The AF series is ideal for unshielded audio cables and is available with 2 pins to 50 pins. This CDN allows 600 W systems to operate normally up to 10 kHz and 1000 W systems to operate up to 5 kHz. It is important to review the impedance and frequency of operation of audio systems to insure there is no influence on the CDN.



## Tem Cells

Electromagnetic (TEM) cells that can be used for both emissions and immunity testing. The patented septum design offers broad frequency response, excellent field uniformity, low VSWR and low Insertion loss.

Models FCC-TEM-JM1 and FCC-TEM-JM2 are ideal for radiated emission testing of semiconductor devices according to SAE 1752/3.

Both the FCC-TEM-JM1 and FCC-TEM-JM2 can be used for immunity testing and require less than 3.7 mW input power to achieve a 10 V/m Electric Field and 37 watts to achieve 1000 V/m Electric Field.



Dual TEM Cell

Specifications	FCC-TEM-JM1	FCC-TEM-JM2	FCC-TEM-JM3
Frequency range	DC - 1,200 MHz	DC - 1,600 MHz	DC - 2,000 MHz
Maximum EUT dimensions (cm)	6×6×1	6×6×1	6×6×1
Maximum VSWR	1.2:1	1.2:1	1.25:1
RF connector	N	N	N
Maximum input power	500 watts	500 watts	500 watts
EUT port dimensions (cm)	9.1×9.1	9.1×9.1	9.1×9.1
Dimensions (cm)	15.2×9.9×33.8	15.2×9.9×33.8	15.2×9.9×33.8

Larger TEM cells are available for EUT dimensions up to 80cm×60cm×30cm

## Magnetic Field Immunity Systems

### IEC 1000-4-8 Magnetic Field Immunity Systems

Magnetic fields generated at AC power mains frequently degrade residential, commercial, industrial and medical electronic equipment. These 50Hz and 60Hz magnetic fields produced in the vicinity of power transformers can cause problems for CRT's, Hall effect sensors and other electronic products. Electronics products can be tested for immunity to power frequency magnetic fields using Fischer Custom Communication, Inc. family of IEC 1000-4-8 magnetic field immunity test systems

Loops from 1 m x 1 m, up to 3 m x 4 m are available along with a proximity array.

Generators are available for 50 Hz and 60 Hz operation that can provide magnetic fields From 1 A/m up to 1000 A/m. Custom generators are available upon request



## Injection Probes

FCC injection probes are currently being used for compliance testing in accord with Mil-Std-461/462, RTCA/DO-160 Section 20 and 22, Bellcore TR-NWT-001 089, SAE J15447, EN 55101-4 and CSEFA-2 Euro-Fighter and other susceptibility



### specifications

Model #	Rated Watts CW	Insertion Loss				
		< or = 6 dB	< or = 10 dB	< or = 15 dB	< or = 20 dB	< or = 25 dB
F-120-1	100			1 MHz - 125 MHz	50 KHz - 150 MHz	25 KHz - 175 MHz
F-120-2	100		500 KHz - 230 MHz	175 KHz - 250 MHz	90 KHz - 275 MHz	50 KHz - 300 MHz
F-120-3	125	500 KHz - 700 MHz	200 KHz - 15 MHz	100 KHz - 150 MHz	60 KHz - 200 MHz	30 KHz - 250 MHz
F-120-3B	100	475 KHz - 1 MHz	200 KHz - 30 MHz	100 KHz - 275 MHz	60 KHz - 300 MHz	40 KHz - 350 MHz
F-120-4	125			120 KHz - 125 MHz	600 KHz - 150 MHz	20 KHz - 175 MHz
F-120-4A	200			60 KHz - 125 MHz	30 KHz - 125 MHz	12 KHz - 175 MHz
F-120-5	100	500 KHz - 1 MHz	200 KHz - 15 MHz	100 KHz - 150 MHz	60 KHz - 200 MHz	30 KHz - 250 MHz
F-120-6	100			3 MHz - 400 MHz	400 KHz - 450 MHz	100 KHz - 500 MHz
F-120-6A	100		300 KHz - 275 MHz	70 MHz - 450 MHz	30 KHz - 475 MHz	13 KHz - 500 MHz
F-120-7	125			400 KHz - 100 MHz	100 KHz - 175 MHz	40 KHz - 190 MHz
F-120-8	200	700 KHz - 100 MHz	300 KHz - 275 MHz	150 KHz - 375 MHz	75 KHz - 400 MHz	40 KHz - 425 MHz
F-120-8A	200		200 KHz - 125 MHz	70 KHz - 155 MHz	35 KHz - 165 MHz	20 KHz - 175 MHz
F-120-8B	200		350 KHz - 475 MHz	200 KHz - 520 MHz	110 KHz - 540 MHz	60 KHz - 550 MHz
F-120-9	100		120 KHz - 230 MHz	50 KHz - 275 MHz	25 KHz - 300 MHz	13 KHz - 325 MHz
F-120-9B	100		150 KHz - 80 MHz	50 KHz - 200 MHz	25 KHz - 275 MHz	15 KHz - 300 MHz

## Monitor Current Probes



Model	ZΩ <sup>1</sup>	dBΩ <sup>1</sup>	Connector	DC-60 Hz	400 Hz	RF(CW)	Pulse <sup>2</sup>	Frequency
F-10	0.25	-12	N	350	350	100	100	10 Hz - 2 MHz
F-10-1	0.03	-30	N	100	50	25	500	10 Hz - 2 MHz
F-10A	0.25	-12	N	350	350	100	100	10 Hz - 2 MHz
F-10A-1	0.03	-30	N	100	50	25	500	10 Hz - 2 MHz
F-12	0.32	-10	N	350	350	100	100	10 Hz - 3 MHz
F-14	0.12	-18	N	400	400	50	500	10 Hz - 500 kHz
F-14-1	0.023	-33	N	400	400	25	500	10 Hz - 500 kHz
F-14-C	0.03	-30	N	100	50	10	100	10 Hz - 2 MHz
F-14A	0.12	-18.5	N	400	400	50	500	10 Hz - 500 kHz
F-14A-1	0.03	-30.5	N	400	400	25	500	10 Hz - 500 kHz
F-16	4	12	N	400	400	50	300	10 Hz - 70 MHz
F-16-1	0.5	-6	N	400	400	3	300	10 Hz - 70 kHz
F-16A	4	12	N	800	400	3	300	10 Hz - 70 MHz
F-16A-1	0.5	-6	N	800	400	3	300	10 Hz - 70 kHz
F-16M	0.5	-6	N	100	100	2	50	100 Hz - 50 MHz
F-33-1	5	14	BNC*	100	100	10	50	10 kHz - 250 MHz
F-33-2	1	0	BNC*	100	100	2	50	1 kHz - 250 MHz
F-33-3	4	12	BNC*	100	100	10	50	1 kHz - 200 MHz
F-33-4	1	0	BNC*	100	100	2	50	1 kHz - 100 MHz
F-33-5	1.3	2.3	SMA	25	25	10	50	10 kHz - 140 MHz
F-33-6	0.8	-2	SMA	5	5	1	10	1 kHz - 200 MHz
F-35	1	0	N	350	200	3	100	100 Hz - 100 MHz
F-35A	1	0	N	350	200	3	100	100 Hz - 100 MHz
F-35A-FW	1	0	BNC*	350	400	2	100	10 Hz - 50 MHz
F-35-1	0.15	-16.5	N	350	100	6	500	10 kHz - 100 MHz
F-40	1	0	N	350	350	100	200	100 Hz - 20 MHz
F-40-5	0.1	-20	N	1000	1000	100	5,000	10 kHz - 50 MHz
F-42	6	15.5	N	350	350	50	100	1 kHz - 100 MHz
F-43	12	4	N	100	100	50	100	100 Hz - 100 MHz
F-50	9	19	BNC*	300	300	20	50	100 kHz - 500 MHz
F-51	10	20	N	350	350	50	100	10 Hz - 500 MHz
F-52	10	20	N	350	350	50	100	10 kHz - 500 MHz
F-55	1	0	N	350	350	3	100	10 Hz - 500 MHz
F-55A	0.1	-20	N	350	350	10	100	1 kHz - 500 MHz
F-61	16	24	BNC*	200	200	20	50	1 Hz - 1 GHz



F-62	13	22	BNC*	200	200	20	50	10 MHz - 1GHz
F-65	1	0	N	350	350	3	100	100 kHz - 1 GHz
F-65A	0.1	-20	N	350	350	10	100	10 kHz - 1 GHz
F-70	1	0	N	350	350	3	100	1 kHz - 100 MHz
F-71	8	18	N	200	200	25	50	10 kHz - 500 MHz
F-72	5	14	N	350	350	100	100	100 Hz - 100 MHz
F-72-1	0.15	-16	N	350	150	12	500	100 Hz - 100 MHz
F-72-2	0.005	-46	N	200	70	60	5,000	100 Hz - 100 MHz
F-73	2	6	N	350	350	200	200	10 Hz - 30 MHz
F-75	1	0	N	350	350	3	100	10 kHz - 500 MHz
F-80	5	14	N	350	350	100	100	1 kHz - 100 MHz
F-80-1	1	0	N	350	350	2	100	1 kHz - 100 MHz
F-81	1	0	N	350	350	100	100	100 Hz - 10 MHz
F-2000	16	24	SMA	100	100	10	50	10 MHz - 3 GHz

Model	Z <sub>t</sub> Ω <sup>1</sup>	dBΩ <sup>1</sup>	Connector	DC-60 Hz	400 Hz	RF(CW)	Pulse <sup>2</sup>	Frequency
F-32-9B	3.2	10	SMA	100	100	10	100	100 kHz - 300 MHz

#### Clip-on Miniature Probes

Model	Z <sub>t</sub> Ω <sup>1</sup>	dBΩ <sup>1</sup>	Connector	DC-60 Hz	400 Hz	RF(CW)	Pulse <sup>2</sup>	Frequency
F-36-1	4	12	SMA	20	20	1	10	100 kHz - 200 MHz
F-36-2	1	0	SMA	20	20	1	10	1 kHz - 200 MHz
F-36-4	22	27	SMA	20	20	1	10	1 kHz - 1 GHz

#### Clip-on Miniature Probes

Model	Z <sub>t</sub> Ω <sup>1</sup>	dBΩ <sup>1</sup>	Connector	DC-60 Hz	400 Hz	RF(CW)	Pulse <sup>2</sup>	Frequency
F-90	0	-22	N	5000	300	10	200	10 kHz - 1 MHz
F-91	1	3	N	5000	300	20	200	1 MHz - 100MHz
F-92	1	-1	BNC	5000	300	10	200	10 MHz - 400 MHz
F-96	1	2	SMA	10	10	10	100	1 MHz - 450 MHz
F-97	0	-7	SMA	10	10	10	100	10 MHz -1.5 GHz

Maximum primary current (Amperes)

1. Probes calibrated with 50 ± j0W Load Impedance

2. Depends upon the pulse width and pulse repetition rate



# SEIBERSDORF LABORATORIES

Antennas & CalStan.....

## Antennas

### Precision Omnidirectional Dipoles 1- 18 GHz

The Precision Omnidirectional Dipoles POD 16 and POD 618 are fully compliant to CISPR 16 - 1 - 4 for site validation above 1 GHz.

The POD 16 and POD 618 are precision broadband dipole antennas with conically shaped radiation elements covered by an RF-transparent radome. This rugged construction enables excellent dipole-like radiation pattern up to 18 GHz.

#### • Applications

#### Site validation

Broadband field strength monitoring

#### • Technical Data POD 16

Frequency Range 1 GHz - 6 GHz

Beamwidth (3 dB) > 65°

H-Plane anisotropy < ± 0.8 dB

Max. input power 30 dBm

Connector type SMA

#### • Technical Data POD 618

Frequency Range 6 GHz - 18 GHz

Beamwidth (3 dB) > 60°

H-Plane anisotropy < ± 0.8 dB

Max. input power 30 dBm

Connector type SMA

### Precision Reference Dipole PRD

Highly accurate reference for antenna calibrations, site validations and EMC conformance tests according to ANSI C63.4, ANSI C63.5, CISPR 16-1, CISPR/A/244/FDIS.

Uncertainty in the antenna factors : less than 0.15 dB (95.5 %) at the resonance frequency.

Balun unbalance : less than ± 2°, ± 0.2 dB

Balun thru calibration kit for easy self-calibration of balun losses for NSA validation measurements.

#### • Package includes

- 2 baluns, connector SMA(f), 30 MHz -1 GHz
- 2 mounting bases 30 - 250 MHz
- 2 mounting bases 300 - 1000 MHz
- Antenna elements ( 4 of each ) of the frequencies 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 120, 125, 140, 150, 160, 175, 180, 200, 250, 300, 400, 500, 600, 700, 800, 900, 1000 MHz
- Dipoles for any other frequency available
- Carrying case

#### • Windows based Software ANTENNA

- Automatic, numerical calculations of site attenuation and antenna factors in free-space or above ground plane.
- Detailed installation and operating instructions
- Files with dipole models

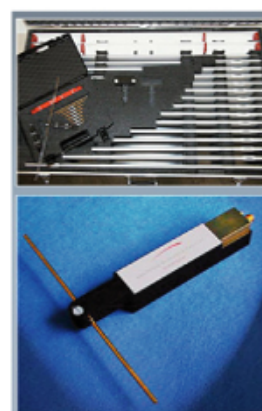
### Precision Biconical Antenna PBA 320

Highly Accurate Antenna for :

- Site validation measurements according to EN 50147-2 and ANSI C63.4
- All purposes of broadband precision field-strength measurements

#### • Technical Data for PBA 320

- Frequency range : 30 - MHz - 200 MHz
- Power handling : max. 20 dBm input
- Symmetry : better than ± 0.2 dB
- Antenna width : 126 cm
- Support length : 20 cm
- Connector type : N-female





### Precision Conical Dipole PCD 3100

Highly Accurate Reference Antenna for :

- Site validation measurements according to CISPR 16 - 1 - 4 in fully anechoic rooms
- Accurate RF radiation safety measurements (e.g. broadcast stations)
- All purposes of broadband precision field-strength measurements.

#### • Technical Data for PCD 3100

Frequency Range 30 MHz - 1 GHz  
Power handling : max. 30 dBm input  
Dimensions : Antenna width : 21 cm total  
Support length : 12.7 cm  
Symmetry : better than  $\pm 0.15$  dB  
Connector type : SMA (f)



### Precision Conical Dipole PCD 8250

Highly Accurate Antenna for :

- Exposure evaluation next to mobile communication facilities (e.g. GSM and UMTS base stations)
- Accurate RF radiation safety measurements (e.g. nearby broadcast stations or in buildings)
- All kinds of field strength measurements where high precision, a wide frequency range and small antenna dimensions are required.
- Measurements according to our Field Nose method

#### • Technical Data for PCD 8250

- Frequency range : 80 MHz - 3 GHz
- Dimensions : Antenna width : 13 cm
- Support length : 12.7 cm
- Balun symmetry : better than  $\pm 0.15$  dB
- Sensitivity : 0.8 mV/m at 80 MHz  
0.1 mV/m at 600 MHz  
0.2 mV/m at 900 MHz  
0.4 mV/m at 1800 MHz  
1.1 mV/m at 2500 MHz

- Connector type : SMA (f)



### CalStan 10.0 - RF Measurement Software

Introduction

CalStan 10.0 is a software tool for automation of radio frequency (RF) calibrations and measurements. Measurements are performed by controlling devices via GPIB interface; measured values are read and evaluated.

The purpose of the software is to perform calibrations and validations of equipments, such as antennas, cables, test sites and test setups.

Every measurement type is implemented as a plug-in to the base application.

This way the software can be extended to new functionalities.

Similar approach is used by implementation of device drivers, so the support for new measurement equipment can be added on customer request.

#### • Available Measurement Plug-ins

- Site VSWR Measurement according to CISPR 16 - 1 - 4 ed. 2.0 Feb 2007
- NSA Measurement in semi anechoic chambers
- NSA Measurement in fully anechoic rooms
- Cable loss



## PONTIS

EMC products.....

### Cameras

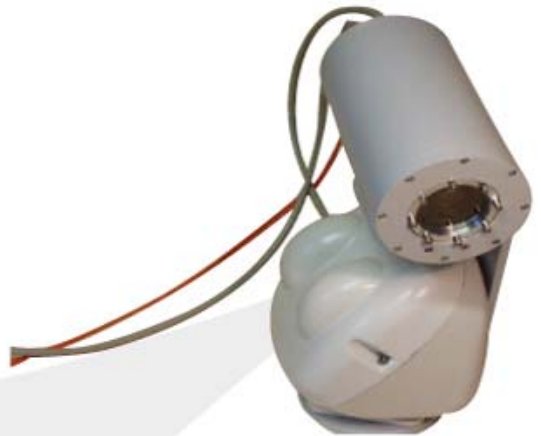
#### EMC hardened camera Cam8 series

##### • Features

- Compatible with Camera-Network-Controller Con8 series
- RF-Immunity 200 V/m up to 18GHz
- Automatic / manual focus
- Image stabilizer
- Compact housing (Ø 100 mm x 190 mm)

##### • Technical Data

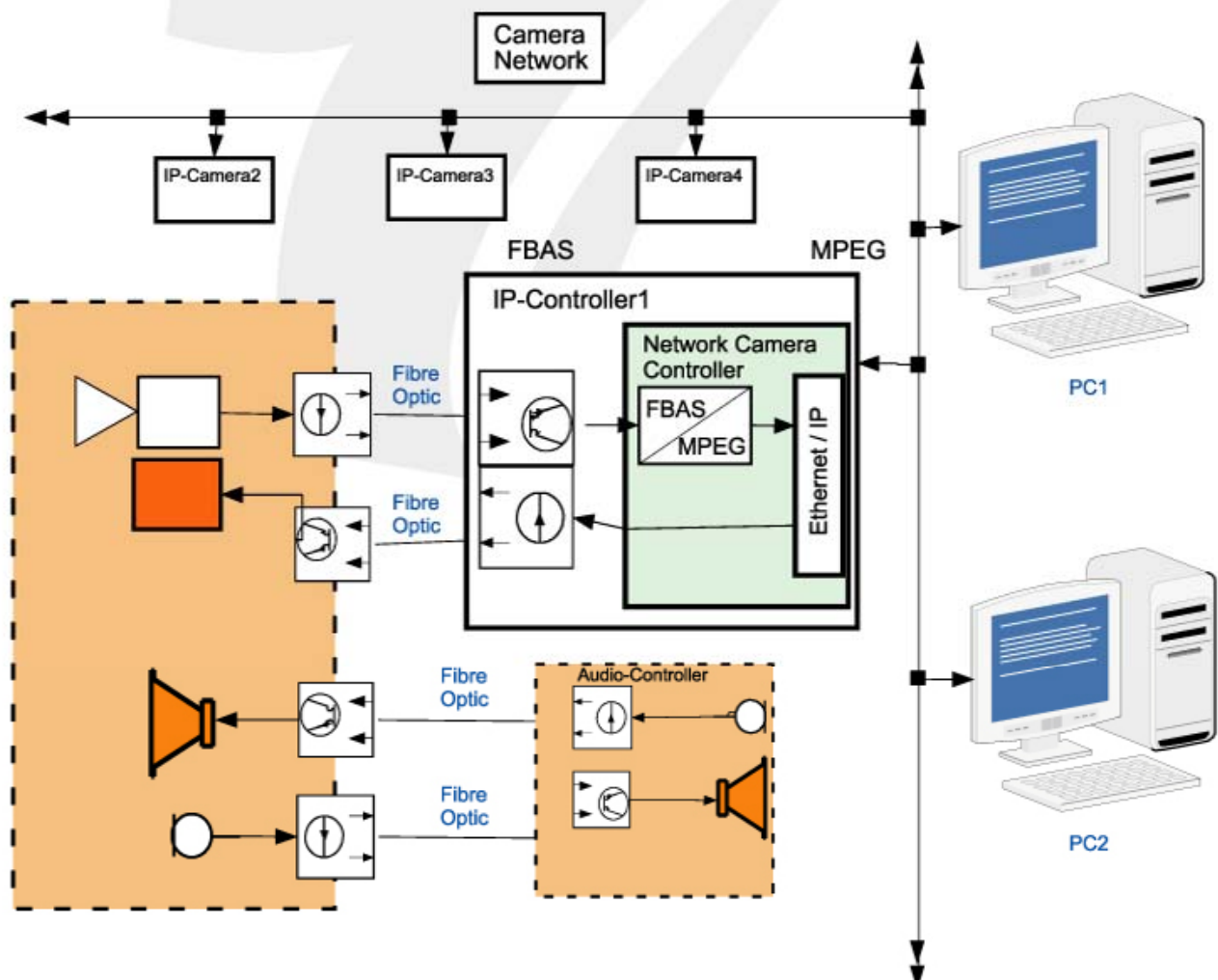
- 1/4" Super HAD Chip
- PAL standard
- Resolution min. 460 TV-lines
- Optical 26-times zoom
- Focal length 3.5 - 91mm



#### Network camera Cam 8 system

##### • Benefits

- Access and control the camera via PC from any place in the network
- Control multiple cameras from one PC
- Copy live pictures easily to your documentation
- Set alarm regions that alert when anything happens
- Save video sequences for documentation





## Cam 100Pxxx series

### Model type :

Cam100P551, Cam100P201, Cam100P202

### • Features

- Iris automatic / remote controllable
- Available with 20 times, 55 times or customizer lenses
- Close-up lenses for minimal object distance
- Immunity 200 V/m from 20 MHz to 1 GHz in accordance with MIL-STD 462D
- Solid housing



### • General technical data

- Video signal system
- Scanning system
- Image device
- Resolution
- Effective pixel count
- S / N ratio
- Minimum object illumination
- White balance
- Camera controlling
- Video link
- Command link
- Glass fibre
- Operating environment
- Operating humidity
- External dimensions (without lens)
- Case
- Colour
- Weight

PAL-System (colour)  
 2:1 interlaced  
 1/3" - Exwave HAD- CCD - interface  
 480 TV-lines, horizontal  
 752 (H) x 582 (V)  
 min. 50 dB  
 0.7 Lux at F1.2 (50 IRE)  
 automatic white balance  
 microprocessor controlled  
 analog, 860 nm infrared LED  
 digital with IR TTL receiver  
 50/125 m glass fibre with ST-patches  
 -10 to +50 C  
 20 to 85 % RH  
 $\phi$  220 x 550 Length  
 Aluminium chromate, 7 mm  
 light grey varnished (RAL 7035)  
 max. 16 kg, depending on the lens type

### • Available versions (for example)

#### Cam100P201 with 20-times Zoom 1/3" - lens

Focal Length		9.0 ~ 180 mm
Iris Range		F1.2 ~ 510
Min. Object distance		2.2 m
Operation Mode	Iris	Automatic
	Focus	Motorized
	Zoom	Motorized
Angle of View	Horizontal	38 12 ~ 1 54
	Vertical	30 17 ~ 1 32
Filter Size		$\phi$ 95.0 mm, P=1.0 mm

## Cam 90Pxxx series

### Model type :

Cam90P061, Cam90P062, Cam90P102, Cam90P104, Cam90P151, Cam90P152, Cam90P153, Cam90P154

### • Features

- Iris automatic / remote controllable
- Available with 6-times, 10-times, 15-times or customized lenses
- Close-up lenses for minimal object distance 30 cm, 50 cm, 100 cm, available
- Immunity 200 V/m from 20 MHz to 1GHz in accordance with ISO 11452-2  
200 V/m from 1 GHz to 18 GHz in accordance with MIL-STD 462D
- Solid housing



### • General technical data

- Video signal system
- Scanning system
- Image device
- Resolution
- Effective pixel count
- S / N ratio
- Minimum object illumination
- White balance
- Camera controlling
- Video link
- Comand link
- Glass fibre
- Operating environment
- Operating humidity
- External dimensions (without lens)
- Case
- Colour
- Weight

PAL-System (colour)  
2:1 interlaced  
1/3" - Exwave HAD- CCD - interface  
480 TV-lines, horizontal  
752 (H) x 582 (V)  
min. 50 dB  
0.7 Lux at F1.2 (50 IRE)  
automatic white balance  
microprocessor controlled  
analog, 860 nm infrared LED  
digital with IR TTL receiver  
50/125 m glass fibre with ST-patches  
-10 to +50 C  
20 to 85 % RH  
φ 130 x 320 Length  
Aluminium chromate, 7 mm  
light grey varnished (RAL 7035)  
ca. 4.4 kg

### • Available versions (for example)

#### Cam90P061 with 6-times Zoom 1/3" - lens

Focal Length	6.3 ~ 38 mm
Iris Range	F1.2 ~ 360
Min. Object distance	1.8 m
Operation Mode	Iris
	Automatic
	Motorized
Angle of View	Horizontal
	Vertical
	42 36 ~ 7 41
Filter Size	32 36 ~ 5 49
	φ 49.0 mm, P=0.75 mm



## Cam 31Pxx series

### Model type :

Cam31P01.....Cam31P09

### • Features

- Immunity 200 V/m up to 18 GHz
- Customized lenses possible : Supports lenses with auto-iris
- Compact housing



### • General technical data

- Video signal system
- Scanning system
- Image device
- Resolution
- Effective pixel count
- S / N ratio
- Minimum object illumination
- Video link
- Glass fibre
- Operating environment
- Operating humidity
- External dimensions (without lens)
- Case
- Colour
- Weight

PAL-System (monochrome)  
 2:1 interlaced  
 1/3" CCD - interline  
 min. 410 TV-lines, horizontal  
 500 (H) x 582 (V)  
 min. 48 dB  
 0.05 Lux at F1.4  
 analog, 860 nm infrared LED  
 50/125 m glass fibre with ST-patches  
 -10 to +50 C  
 20 to 85 % RH  
 120 x 60 x 100 mm (L x W x H)  
 Aluminium chromate, 3 mm  
 Silver  
 ca. 1200 g

### • Available versions (for example)

#### Cam31P01 with lens-Nr.01

Focal Length		2.8 mm
Iris Range		F1.2 ~ close
Min. Object distance		0.3 m
Operation Mode	Iris	Manual
	Focus	Manual
	Zoom	-
Angle of View	Horizontal	94 18 ~ 71 32
	Vertical	32 36 ~ 5 49

## Cam 20Nxx series

### Model type :

Cam20N036, Cam20N023, Cam20N060, Cam20N080, Cam20N160, Cam20N250

### • Features

- Immunity 200 V/m up to 18 GHz
- Standard lens with  $f=5.6$  mm
- Lenses with different fixed focuses are available
- Small camera housing



### • General technical data

- Video signal system
- Scanning system
- Image device
- Resolution
- Effective pixel count
- S / N ratio
- Minimum object illumination
- White balance
- Video link
- Glass fibre
- Operating environment
- Operating humidity
- External dimensions (without lens)
- Case
- Colour
- Weight

NTSC-System (colour)  
 2:1 interlaced  
 1/3" HAD, CCD - interline  
 min. 410 TV-lines, horizontal  
 768 (H) x 494 (V)  
 min. 45 dB  
 5 Lux at F1.4  
 automatic white balance  
 analog, 860 nm infrared LED  
 50/125 m glass fibre with ST-patches  
 -10 to +50 C  
 20 to 85 % RH  
 120 x 60 x 100 mm (L x W x H)  
 Aluminium chromate, 3 mm  
 Silver  
 ca. 1200 g

### • Available versions (for example)

#### Cam20N036 with lens-Nr.023

Focal Length	2.3 mm
Iris Range	F=4
Angle of View	Horizontal 92 26



## Controllers

### Con 4xxx

The video controllers of this series serve to operate cameras of the series 7 and 9 without aperture control



#### • Features

- Various versions for operating 1-6 cameras available
- Additional video outputs per camera input are possible (video splitter)

#### • Technical data

- Functions
- Camera controlling
- Video link
- Command link
- Glass fibre
- Operating environment
- Operating humidity
- Housing

Pan, Tilt, Zoom, Focus, On/Off (Stand-By)  
microprocessor

analog, 860 nm infrared LED

digital, infrared TTL-transmitter

50/125 m glass fibre with ST-connectors

-10 to +50 C

20 to 85 % RH

small desktop unit 2U x 235 x 370

(H x W x D mm)

or

2U x 450 x 370

19" unit

3U x 450 x 370

### Con 5xxx

The controllers of the series 5 are designed for combined video/audio systems.

All our cameras without remote controllable aperture (Cam 7 and Cam 9) fit to these controllers.



#### • Features

- Integrated intercom system with automatic gain control
- Various versions for operating 1-6 cameras available
- Additional video outputs per camera input possible (video splitter)

#### • Technical data

- Functions
- Camera controlling
- Video link
- Command link
- Audio link
- Glass fibre
- Operating environment
- Operating humidity
- Housing

Pan, Tilt, Zoom, Focus,  
camera On/Off (Stand-By)

Audio On/Off

Push-to-talk-button

microprocessor

analog, 860 nm infrared LED

digital, infrared TTL-transmitter

analog, 860 nm infrared LED

PIN photodiode

50/125 m glass fibre with ST-connectors

-10 to +50 C

20 to 85 % RH

small desktop unit

2U x 235 x 370

(H x W x D mm)

or

2U x 450 x 370

19" unit

3U x 450 x 370

### Con 6xxx

The camera controllers Con 6 series are designed for the operation of the professional camera series 9 with aperture control. Zoom, focus the motion of the pan/tilt are remote controlled. Additionally it is possible to remote control the functions auto tracing white balance (ATW), automatic gain control (AGC) and sharpness(DEF).



#### • Features

- Background illuminated LCD-display
- Various version for operating for operating 1-6 cameras available
- Additional video outputs per camera input possible (video splitter)

#### • Technical data

##### - Functions

- Camera controlling
- Video link
- Command link
- Audio link

- Glass fibre
- Housing

Pan, Tilt, Zoom, Focus,  
Camera On/Off (Stand-By)  
Iris Auto/Manual  
Auto tracing white balance (ATW)  
Automatic gain control (AGC)  
Sharpness (DEF) : On/Off  
microprocessor  
analog, 860 nm infrared LED  
digital, infrared TTL-transmitter  
analog, 860 nm infrared LED  
PIN photodiode  
50/125 m glass fibre with ST-connectors  
3U x 450 x 370 (H x W x D mm)

### Con 7xxx

The controllers of the series 7 are designed for combined video/audio systems.

Only our cameras with remote controllable aperture (Cam9) fit to these controllers. Zoom, focus and the motion Of the pan/tilt are remote controlled. Additionally it is possible to remote control the functions auto tracing white balance (ATW), automatic gain control (AGC) and sharpness (DEF)



#### • Features

- Background illuminated LCD-display
- Various versions for operating 1-6 cameras available
- Additional video outputs per camera input possible (video splitter)
- Integrated intercom system with automatic gain control

#### • Technical data

##### - Functions

- Camera controlling
- Video link
- Command link
- Audio link

- Glass fibre
- Housing

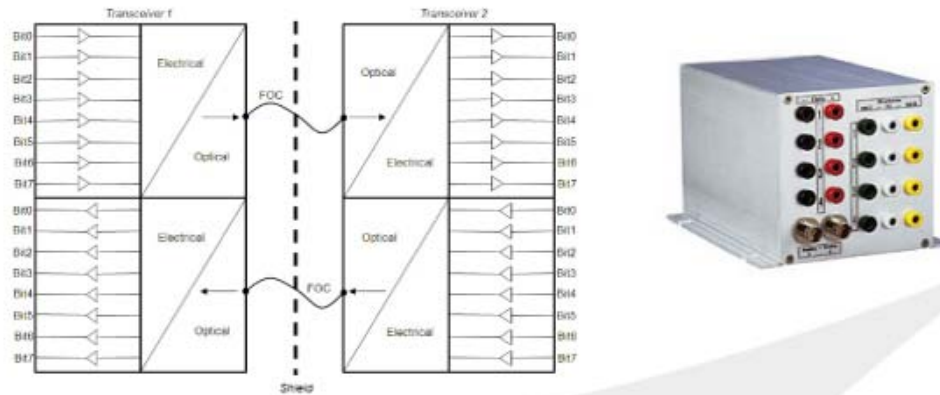
Pan, Tilt, Zoom, Focus,  
camera On/Off (Stand-By)  
Audio On/Off  
Push-to-talk-button  
microprocessor  
analog, 860 nm infrared LED  
digital, infrared TTL-transmitter  
analog, 860 nm infrared LED  
PIN photodiode  
50/125 m glass fibre with ST-connectors  
3U x 450 x 370 (H x W x D mm)



FIBO

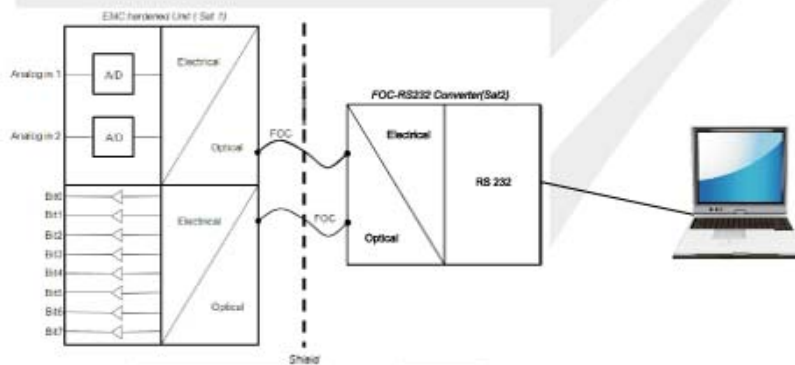
**Model type - fo88TTL**

: FO transmission for TTL-signal unity 200 V/m, 8 TTL inputs, 8 TTL outputs



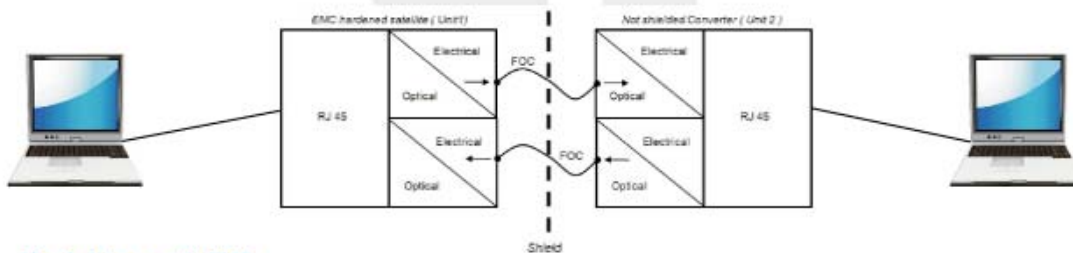
**Model type - foCMU**

: FO Interface for controlling and monitoring, immunity 200 V/m 4 TTL inputs, 4 TTL outputs, 2 analog inputs



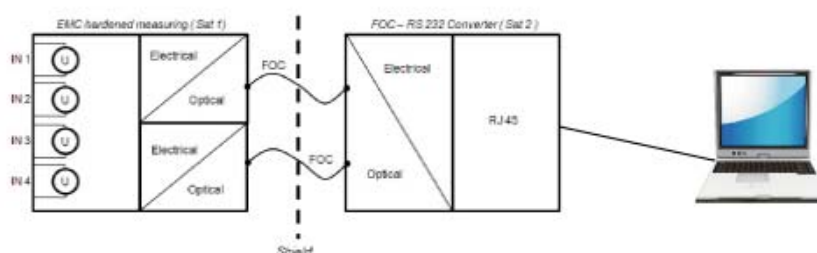
**Model type - foEthernet**

: FO Interface for Ethernet-Interface, immunity 200 V/m, transfer rate 10/100/1000 Mbit/s



**Model type - foMM**

: FO Multimeter, immunity 200 V/m 4 selectable inputs



## Rosenberger

Test, Measurement & Calibration.....

### Test & Measurement kits

#### Coaxial Calibration Kits

Connector Series	Frequency Range	Ordering Number Full	Ordering Number Industrial	Ordering Number LRL / TRL
RPC-N, 50 $\Omega$	DC - 18.0 GHz	05 CK 100-150	05 CK 10A-150	05 CK 120-150
RPC-N, 75 $\Omega$	DC - 4.0 GHz	P5 CK 100-170	P5 CK 10A-170	P5 CK 120-170(TRL)
RPC-TNC	DC - 18.0 GHz	06 CK 100-150	06 CK 10A-150	-
RPC-7	DC - 18.0 GHz	07 CK 100-150	07 CK 10A-150	07 CK 120-150
RPC-SP (BMA)	DC - 22.0 GHz	10 CK 100-150	-	10 CK 120-150(TRL)
RPC-3.50	DC - 26.5 GHz	03 CK 100-150	03 CK 10A-150	03 CK 120-150
RPC-2.92	DC - 40.0 GHz	02 CK 100-150	02 CK 10A-150	02 CK 120-150
RPC-2.40	DC - 50.0 GHz	09 CK 100-150	09 CK 10A-150	09 CK 120-150
RPC-1.85	DC - 65.0 GHz	08 CK 100-150	08 CK 10A-150	08 CK 120-150
RPC-1.00	DC - 110.0 GHz	-	-	01 CK 120-150
7-16	DC - 8.0 GHz	60 CK 100-150	60 CK 10A-150	60 CK 120-170
BNC, 50 $\Omega$	DC - 4.0 GHz	51 CK 100-150	51 CK 10A-150	-
F	DC - 4.0 GHz	74 CK 100-150	74 CK 10A-170	74 CK 120-170(TRL)
QMA	DC - 18.0 GHz	28 CK 100-150	-	-
SMP	DC - 18.0 GHz	-	19 CK 10A-150	-
SnapN	DC - 11.0 GHz	-	53 CK 10A-150	-
FAKRA-RF	DC - 6.0 GHz	59 CK 100-150	-	-



#### RPC-N, 50 $\Omega$ Calibration Standards Electrical Specifications (for example)


Devices	Parameters	Specifications	Frequency range in GHz
Open circuits (male and female)	Return Loss	$\leq 0.10$ dB	DC to $\leq 4$
		$\leq 0.20$ dB	$> 4$ to $\leq 18$
	Deviation from Nominal Phase	$\leq 1.5^\circ$	DC to $\leq 4$
Short circuits (male and female)	Return Loss	$\leq 0.10$ dB	DC to $\leq 4$
		$\leq 0.15$ dB	$> 4$ to $\leq 18$
	Deviation from Nominal Phase	$\leq 1.2^\circ$	DC to $\leq 4$
Broadband loads (male and female)	Return Loss	$\geq 45$ dB	DC to $\leq 4$
		$\geq 30$ dB	$> 4$ to $\leq 18$
	Resistance	$50 \Omega \pm 0.25 \Omega$	DC
Sliding loads (male and female)	Power Handling	$\leq 0.5$ W ( $0^\circ$ to $50^\circ\text{C}$ )	DC to 18
	Return Loss	$\geq 35$ dB	$\geq 2$ to $\leq 18$
Precision air lines	Return Loss	$\geq 40$ dB	$\geq 0.3$ to $\leq 4$
		$\geq 35$ dB	$> 4$ to $\leq 18$
	Characteristic Impedance	$50 \Omega \pm 0.25 \Omega$	$\geq 0.3$ to $\leq 18$
Adaptors, phase matched	Return Loss	$\geq 36$ dB	DC to $\leq 4$
		$\geq 30$ dB	$> 4$ to $\leq 18$
	Accuracy of Electrical Length	$\pm 0.07$ mm ( $\pm 1.5^\circ$ at 18 GHz)	DC to 18



## Verification Kits

Connector Series	Frequency Range	Ordering Number ull
RPC-N, 50 $\Omega$	DC - 18.0 GHz	05 CK 200-150
RPC-7	DC - 18.0 GHz	07 CK 200-170
RPC-3.50	DC - 26.5 GHz	03 CK 200-150
RPC-2.92	DC - 40.0 GHz	02 CK 200-150

### RPC-N, 50 $\Omega$ Electrical Specifications (for example)

Devices	Parameters	Specifications	Frequency range in GHz
20 dB Attenuator (male and female)	Return Loss	$\geq 32$ dB $\geq 26$ dB	DC to $\leq 4$ > 4 to $\leq 18$
	Insertion Loss	20 dB $\pm$ 0.30 dB 20 dB $\pm$ 0.50 dB	DC to $\leq 4$ > 4 to $\leq 18$
40 dB Attenuator (male and female)	Return Loss	$\geq 32$ dB $\geq 23$ dB	DC to $\leq 4$ > 4 to $\leq 18$
	Insertion Loss	40 dB $\pm$ 0.50 dB 40 dB $\pm$ 1.00 dB	DC to $\leq 4$ > 4 to $\leq 18$
50 $\Omega$ Air line (male and female)	Return Loss	$\geq 40$ dB $\geq 30$ dB	0.3 to $\leq 4$ > 4 to $\leq 18$
	Insertion Loss	$\leq 0.08$ dB $\leq 0.15$ dB	DC to $\leq 4$ > 4 to $\leq 18$
	50 $\Omega$ Air line Outer Conductor Diameter Length Inner Conductor Diameter Length	7.000 mm $\pm$ 0.005 mm 100.00 mm + 0.02 mm 3.040 mm $\pm$ 0.010 mm 100.00 mm + 0.02 mm	
25 $\Omega$ Mismatch air line (male and female)	25 $\Omega$ Air line Outer Conductor Diameter Length Inner Conductor Diameter	7.000 mm $\pm$ 0.005 mm 100.00 mm + 0.02 mm 3.040 mm $\pm$ 0.010 mm	
	- 50 $\Omega$ Section - 25 $\Omega$ Section Length	4.615 mm $\pm$ 0.010 mm	
	- Total	100.00 mm + 0.02 mm	
	- 25 $\Omega$ Section	75.00 mm $\pm$ 0.05 mm	

## Gauge Kits

Connector Series	Ordering Number Full
RPC-N, 50 $\Omega$	05 GK OKS-000
RPC-N, 75 $\Omega$	P5 GK OKS-000
RPC-TNC	06 GK OKS-000
RPC-7	07 GK OKS-000
RPC-3.50 / RPC-2.92	03 GK OKS-000
RPC-2.40 / RPC-1.85	08 GK OKS-000
RPC-1.00	01 GK OKS-000
RPC-7-16	60 GK OKS-000

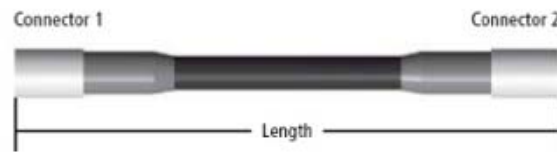


### RPC-N, 50 $\Omega$ Mechanical Specification

Mechanical data	Ordering Number Full
Gauge range	$\pm 500$ $\mu$ m
Gauge scale gradation	1 $\mu$ m
Gauge accuracy	5 $\mu$ m
Gauge block flatness	$\leq 2$ $\mu$ m
Gauge block surface finish	$\leq 0.2$ $\mu$ m



## Test Cables



### Test Cables

Ordering Number	Return Loss	Frequency (GHz)	Length (mm)	Cable	Connector 1	Connector 2
xVA26-3.50m-3.50f-60	≥ 26 dB @ DC to 4 GHz ≥ 20 dB @ 4 GHz to 26.5 GHz	DC to 26.5	600	RTK 162	RPC-3.50 male 03 S 123-2U7S3	RPC-3.50 female 03 K 123-2U7S3
xVA26-Nm-Nm-60	≥ 28 dB @ DC to 4 GHz ≥ 20 dB @ 4 GHz to 18 GHz	DC to 18	600	RTK 162	RPC-N 50 Ω male 05 S 123-2U7S3	RPC-N 50 Ω male 05 S 123-2U7S3
xVA26-PC7-PC7-60	≥ 28 dB @ DC to 4 GHz ≥ 20 dB @ 4 GHz to 18 GHz	DC to 18	600	RTK 162	RPC-7 07 P 123-2U7S3	RPC-7 07 P 123-2U7S3
xVA26-TP-3.50-60	≥ 26 dB @ DC to 4 GHz ≥ 20 dB @ 4 GHz to 26.5 GHz	DC to 26.5	600	RTK 162	RPC-3.50 ruggedized female 03 KR 123-2U7S3	RPC-3.50 male and female 03 S 123-2U7S3 03 K 123-2U7S3
xVA26-TP-N-60	≥ 28 dB @ DC to 4 GHz ≥ 20 dB @ 4 GHz to 18 GHz	DC to 18	600	RTK 162	RPC-3.50 ruggedized female 03 KR 123-2U7S3	RPC-N 50 Ω male and female 05 S 123-2U7S3 05 K 123-2U7S3
xVA26-TP-PC7-60	≥ 28 dB @ DC to 4 GHz ≥ 20 dB @ 4 GHz to 18 GHz	DC to 18	600	RTK 162	RPC-3.50 ruggedized female 03 KR 123-2U7S3	RPC-7 07 P 123-2U7S3
xVA26-TP-W-60	≥ 26 dB @ DC to 4 GHz ≥ 20 dB @ 4 GHz to 26.5 GHz	DC to 26.5	600	RTK 162	RPC-3.50 ruggedized female 03 KR 123-2U7S3	RPC-SL 26.5 GHz female 04 K 123-2U7S3
xVA40-TP-2.92-60	≥ 26 dB @ DC to 4 GHz ≥ 17 dB @ 4 GHz to 40 GHz	DC to 40	600	RTK 106	RPC-2.92 ruggedized female 02 KR 123-2U1S3	RPC-2.92 male and female 02 S 123-2U1S3 02 K 123-2U1S3
xVA40-TP-W-60	≥ 26 dB @ DC to 4 GHz ≥ 17 dB @ 4 GHz to 40 GHz	DC to 40	600	RTK 106	RPC-2.92 ruggedized female 02 KR 123-2U1S3	RPC-SL 40 GHz female P4 K 123-2U1S3
VA41-TP-2.40-60	≥ 26 dB @ DC to 4 GHz ≥ 17 dB @ 4 GHz to 40 GHz	DC to 40	600	RTK 106	RPC-2.40 ruggedized female 09 KR 123-2U1S3	RPC-2.40 male and female 09 S 123-2U1S3 09 K 123-2U1S3
xVA41-TP-2.92-60	≥ 26 dB @ DC to 4 GHz ≥ 17 dB @ 4 GHz to 40 GHz	DC to 40	600	RTK 106	RPC-2.40 ruggedized female 09 KR 123-2U1S3	RPC-2.92 male and female 02 S 123-2U1S3 02 K 123-2U1S3
xVA41-TP-W-60	≥ 26 dB @ DC to 4 GHz ≥ 17 dB @ 4 GHz to 40 GHz	DC to 40	600	RTK 106	RPC-2.40 ruggedized female 09 KR 123-2U1S3	RPC-SL 40 GHz female P4 K 123-2U1S3
xVA50-TP-2.40-60	≥ 26 dB @ DC to 4 GHz ≥ 17 dB @ 4 GHz to 50 GHz	DC to 50	600	RTK 126	RPC-2.40 ruggedized female 09 KR 123-2U1S3	RPC-2.40 male and female 09 S 123-2U8S3 09 K 123-2U8S3
VA75-Nm-Nm-60	≥ 28 dB @ DC to 3 GHz ≥ 23 dB @ 3 GHz to 4 GHz	DC to 4	600	RG 216/U	RPC-N 75 Ω male P5 S 123-320CS	RPC-N 75 Ω male P5 S 123-320CS





## Test Devices

### Open - Short - Load

#### RPC- N 50Ω Open - Short - Load

Ordering Number	Remarks	Return Loss	Power
05 12L-000-S3	Open circuit	≤ 0.01 dB @ DC to 4 GHz ≤ 0.20 dB @ 4 GHz to 18 GHz	
05 12S-000-S3	Short circuit	≤ 0.01 dB @ DC to 4 GHz ≤ 0.15 dB @ 4 GHz to 18 GHz	
05 150-C10-S3	Broadband load	≥ 45 dB @ DC to 4 GHz ≥ 30 dB @ 4 GHz to 18 GHz	0.5 W

#### RPC- N 75Ω Open - Short - Load

Ordering Number	Remarks	Return Loss	Power
P5 12L-000-S3	Open circuit	≤ 0.07 dB @ DC to 4 GHz ≤ 0.10 dB @ 4 GHz to 18 GHz	
P5 12S-000-S3	Short circuit	≤ 0.07 dB @ DC to 4 GHz ≤ 0.10 dB @ 4 GHz to 18 GHz	
P5 150-C10-S3	Broadband load	≥ 40 dB @ DC to 4 GHz ≥ 36 dB @ 4 GHz to 18 GHz	0.5 W

#### RPC- N 3.50Ω Open - Short - Load

Ordering Number	Remarks	Return Loss	Power
03 12L-000-S3	Open circuit	≤ 0.10 dB @ DC to 4 GHz ≤ 0.20 dB @ 4 GHz to 26.5 GHz	
03 12S-000-S3	Short circuit	≤ 0.10 dB @ DC to 4 GHz ≤ 0.15 dB @ 4 GHz to 26.5 GHz	
03 150-000-D3	Broadband load	≥ 40 dB @ DC to 4 GHz ≥ 30 dB @ 4 GHz to 26.5 GHz	0.5 W

### Sliding Loads

#### RPC- N 50Ω Sliding Load

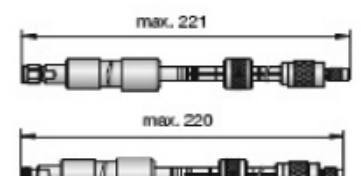
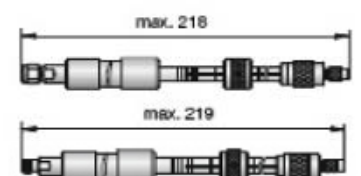
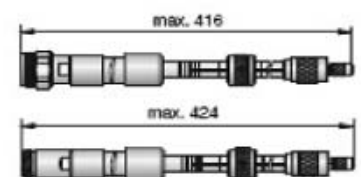
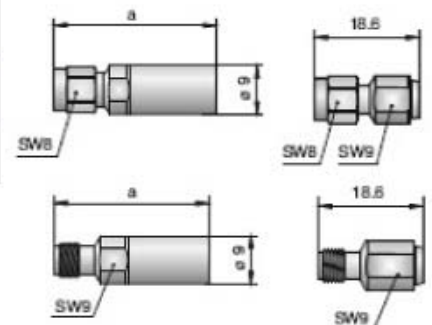
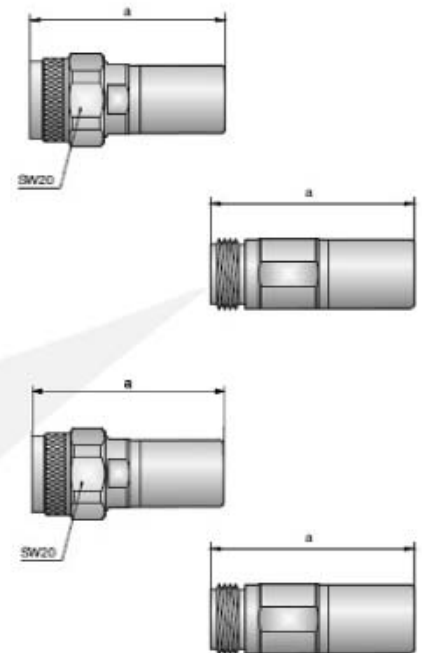
Ordering Number	Remarks	Return Loss
05S 150-G300	RPC-N 50 Ω male	≥ 35 dB @ 2 GHz to 18 GHz
05K 12S-G300	RPC-N 50 Ω female	≥ 35 dB @ 2 GHz to 18 GHz

#### RPC- 3.50 Sliding Load

Ordering Number	Remarks	Return Loss
03S 150-G300	RPC-3.50 male	≥ 26 dB @ 2 GHz to 4 GHz ≥ 32 dB @ 4 GHz to 26.5 GHz
03K 150-G300	RPC-3.50 female	≥ 26 dB @ 2 GHz to 4 GHz ≥ 32 dB @ 4 GHz to 26.5 GHz

#### RPC- 2.92 Sliding Load

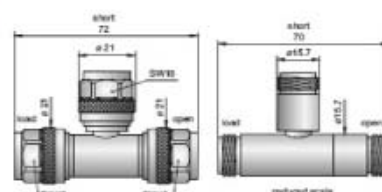
Ordering Number	Remarks	Return Loss
02S 150-G300	RPC-2.92 male	≥ 28 dB @ 4 GHz to 8 GHz ≥ 32 dB @ 8 GHz to 40 GHz
02K 150-G300	RPC-2.92 female	≥ 28 dB @ 4 GHz to 8 GHz ≥ 32 dB @ 8 GHz to 40 GHz



## T-Calibration Adaptor

### Open - Short - Load

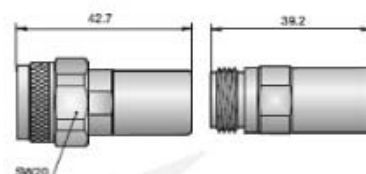
Ordering Number	Remarks	Return Loss
53S 34R-MS0 N3G300	male-male-male	Open/Short $\leq 0.1 \text{ dB @ DC to 4 GHz}$  Load $\leq 42 \text{ dB @ DC to 2.5 GHz}$ $\leq 38 \text{ dB @ 2.5 GHz to 4 GHz}$



## Mismatches

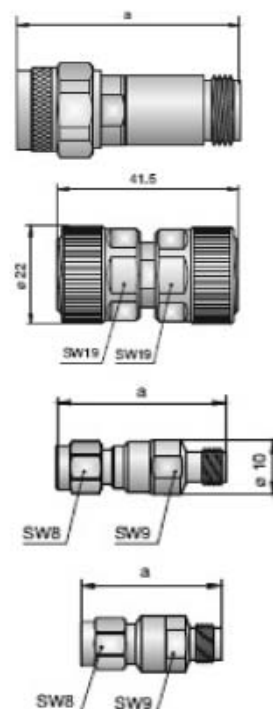
### RPC-N 50 Ω Mismatches

Ordering Number	Remarks	VSWR	Power
05S 150-055 S3	RPC-N 50 Ω male Impedance 55 Ω	$1.1 \pm 0.04 \text{ @ DC to 12.4 GHz}$ $1.1 \pm 0.06 \text{ @ 12.4 GHz to 18 GHz}$	1 W



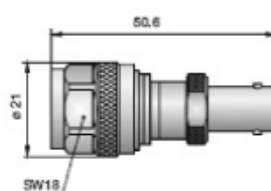
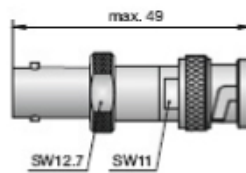
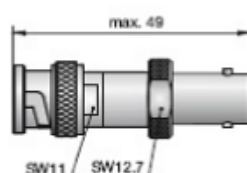
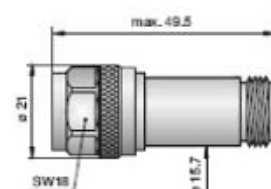
## 50 Ω Attenuators

Type	Attenuation (dB)	Range	Power (W)
RPC-N	1, 2, 3, 6, 10, 20, 30, 40	DC to 18 GHz	0.5, 2, 5, 10, 20
RPC-7	20, 40	DC to 18 GHz	0.5
RPC-3.5	3, 6, 10, 20, 30, 40	DC to 26.5 GHz	0.5, 2
RPC-2.92	3, 6, 10, 20, 30, 40	DC to 40 GHz	0.5
RPC-1.85	3, 6, 10, 20, 40	DC to 65 GHz	0.5
SMP	3, 6, 10, 20, 30	DC to 18 GHz	0.5
QMA	3, 6, 10, 20, 30	DC to 6 GHz	2
SMA	3, 6, 10, 20, 30, 40	DC to 18 GHz	2
BNC	3, 6, 10, 20, 30, 40	DC to 2 GHz	3
BNC 75 Ω	3, 6, 10, 20, 30, 40	DC to 2 GHz	3



## 50 Ω Attenuators

Type	Attenuation (dB)	Range	Power (W)
N 50Ω male - N 75 Ω female	5.72	DC to 2 GHz	2
N 50 Ω male - BNC 75 Ω female	5.72	DC to 2 GHz	1
BNC 50 Ω male - BNC 75 Ω female	5.72	DC to 2 GHz	1
BNC 50 Ω female - BNC 75 Ω male	5.72	DC to 2 GHz	1

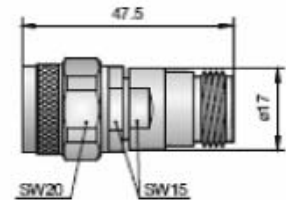




## DC Block

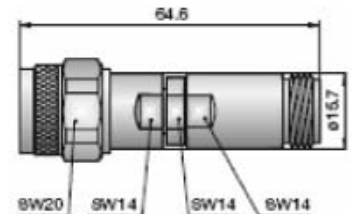
### DC-Block RPC-N 50 $\Omega$ male - female

Ordering Number	Return Loss	Insertion Loss
05 DS 121-K00 S3	$\geq 25$ dB @ 3 MHz to 18 GHz	< 1 dB @ 3 MHz to 18 GHz



### DC-Block RPC-N 75 $\Omega$ male - female

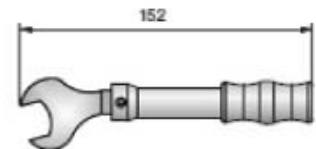
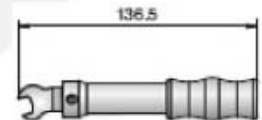
Ordering Number	Return Loss	Insertion Loss
P5 DS 121-K01 CS	$\geq 25$ dB @ 4 MHz to 1 GHz	< 1 dB @ 4 MHz to 1 GHz



## Tools

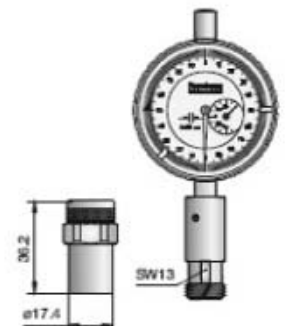
### Torque Wrench

Ordering Number	Remarks
01 W 021-100	Flat 6 mm - 35 Ncm torque for RPC-1.00
04 W 021-100	Flat 18 mm - 2 Ncm torque for RPC-SL 26.5 GHz RPC-SL 40 GHz



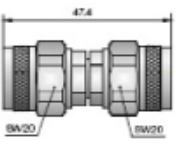
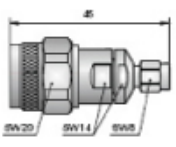
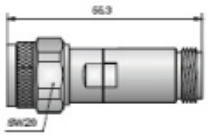
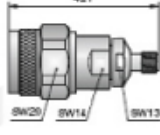
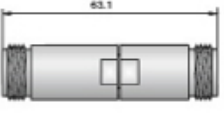
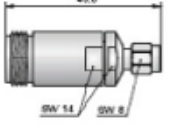
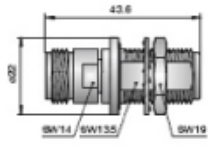
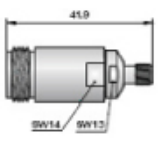

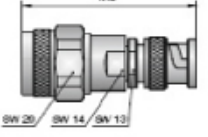
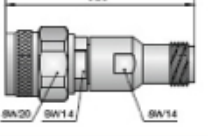
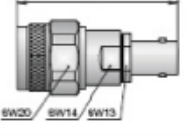

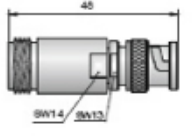
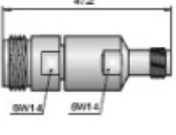
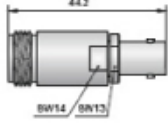
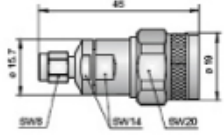
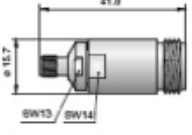
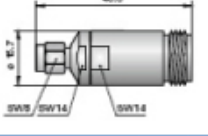
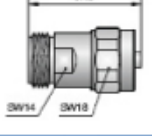
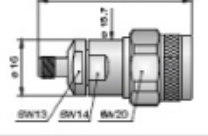
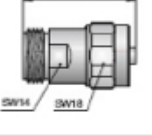
### Gauges

Ordering Number	Remarks
05 W 00S-000	Compatible to male connectors for RPC-N 50 $\Omega$



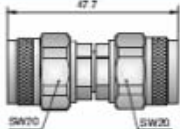
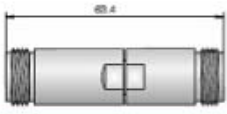
## Adaptors

### Series RPC-N, 50 $\Omega$

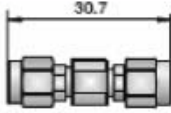

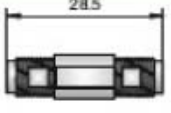
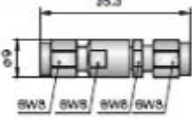
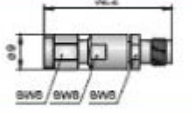
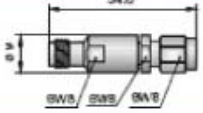
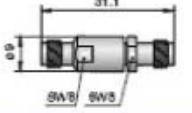
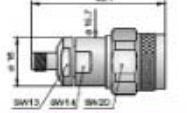
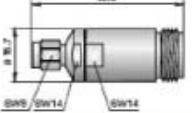
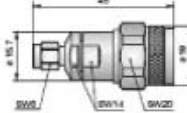
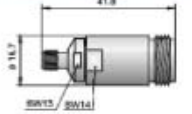
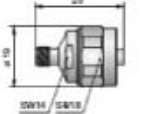
Type		Type	
RPC-N 50 $\Omega$ male - male		RPC-N 50 $\Omega$ male - SMA male	
RPC-N 50 $\Omega$ male - female		RPC-N 50 $\Omega$ male - SMA female	
RPC-N 50 $\Omega$ female - female		RPC-N 50 $\Omega$ female - SMA male	
RPC-N 50 $\Omega$ female - female		RPC-N 50 $\Omega$ female - SMA female	
RPC-N 50 $\Omega$ male - RPC-TNC male		RPC-N 50 $\Omega$ male-BNC 50 $\Omega$ male	
RPC-N 50 $\Omega$ male - RPC-TNC female		RPC-N 50 $\Omega$ male-BNC 50 $\Omega$ female	
RPC-N 50 $\Omega$ female - RPC-TNC male		RPC-N 50 $\Omega$ female-BNC 50 $\Omega$ male	
RPC-N 50 $\Omega$ female - RPC-TNC female		RPC-N 50 $\Omega$ female-BNC 50 $\Omega$ female	
RPC-3.50 male - RPC-N 50 $\Omega$ male		RPC-3.50 female-RPC-N50 $\Omega$ female	
RPC-3.50 male - RPC-N 50 $\Omega$ female		RPC-N 50 $\Omega$ female- RPC-SL 26.5 GHz male, max. Frequency 18 GHz	
RPC-3.50 female - RPC-N 50 $\Omega$ male		RPC-N 50 $\Omega$ female- RPC-SL 40 GHz male, max. Frequency 18 GHz	



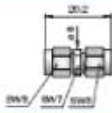
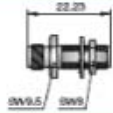
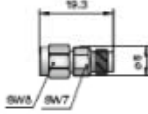
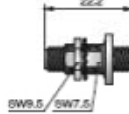

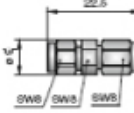
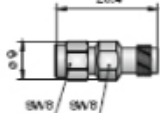
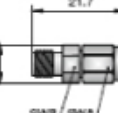
## Series RPC-N, 75 Ω

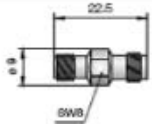

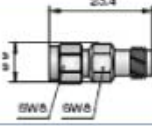
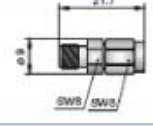
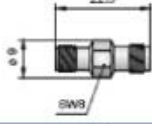
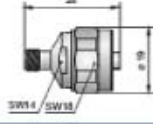
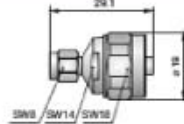
Type		Type	
RPC-N 75 Ω male - male, calibration adaptor		RPC-N 75 Ω female - female, calibration adaptor	

## Series RPC-3.50

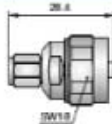

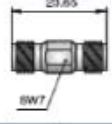
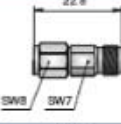
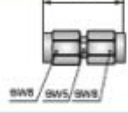

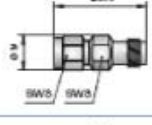

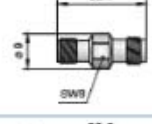
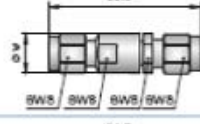
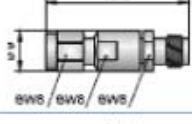
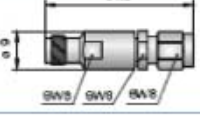
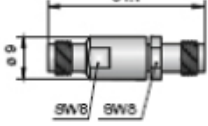
Type		Type	
RPC-3.50 male - male		RPC-3.50 male - female	
RPC-3.50 female - female		RPC-3.50 male - RPC 2.40 male	
RPC-3.50 male - RPC 2.40 female		RPC-3.50 female - RPC 2.40 male	
RPC-3.50 female - RPC 2.40 female		RPC-3.50 male - RPC-N 50 Ω male	
RPC-3.50 male - RPC-N 50 Ω female		RPC-3.50 female - RPC-N 50 Ω male	
RPC-3.50 female - RPC-N 50 Ω female		RPC-3.50 female - RPC-SL 26.5 GHz male	

## Series RPC-2.92

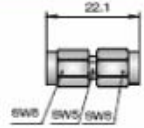
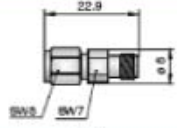
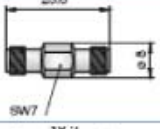
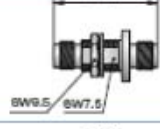
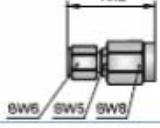
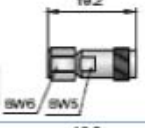
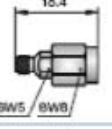
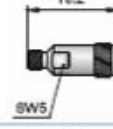
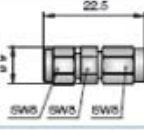
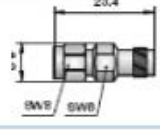
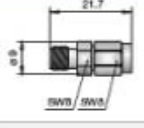
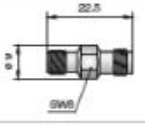
Type		Type	
RPC-2.92 male - male		RPC-2.92 female - female, hexagonal flange	
RPC-2.92 male - female		RPC-2.92 female - female, round flange, hermetic sealed	
RPC-2.92 female - female		RPC-2.92 male - RPC-1.85 male	
RPC-2.92 male - RPC-1.85 female		RPC-2.92 female - RPC-1.85 male	

RPC-2.92 female - RPC-1.85 female		RPC-2.92 male - RPC-2.40 male	
RPC-2.92 male - RPC-2.40 female		RPC-2.92 female - RPC-2.40 male	
RPC-2.92 female - RPC-2.40 female		RPC-2.92 male - RPC-SL 40 GHz male	
RPC-2.92 female - RPC-SL 40 GHz male			

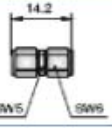
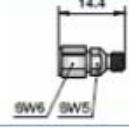
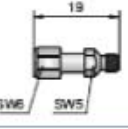
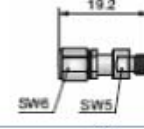
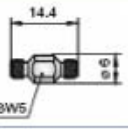
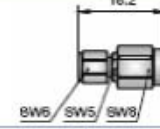
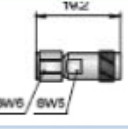
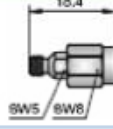
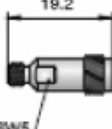
## Series RPC-2.92

Type		Type	
RPC-2.40 male - RPC-SL 40 GHz male		RPC-2.40 female - RPC-SL 40 GHz male	
RPC-2.40 female - female		RPC-2.40 male - female	
RPC-2.40 male - male		RPC-2.92 male - RPC-2.40 male	
RPC-2.92 male - RPC-2.40 female		RPC-2.92 female - RPC-2.40 male	
RPC-2.92 female - RPC-2.40 female		RPC-3.50 male - RPC 2.40 m	
RPC-3.50 male - RPC 2.40 female		RPC-3.50 female - RPC 2.40 male	
RPC-3.50 female - RPC 2.40 female			

## Series RPC-1.85

Type		Type	
RPC-1.85 male - male		RPC-1.85 male - female	
RPC-1.85 female - female		RPC-1.85 male - male	
RPC-1.00 male - RPC-1.85 mal		RPC-1.00 male - RPC-1.85 female	
RPC-1.00 female - RPC-1.85 male		RPC-1.00 female - RPC-1.85 female	
RPC-2.92 male - RPC-1.85 male		RPC-2.92 male - RPC-1.85 female	
RPC-2.92 female - RPC-1.85 male		RPC-2.92 female - RPC-1.85 female	

## Series RPC-1.00

Type		Type	
RPC-1.00 male - male,		RPC-1.00 male - female	
RPC-1.00 male - female		RPC-1.00 male - female,	
RPC-1.00 female - female		RPC-1.00 male - RPC-1.85 male	
RPC-1.00 male - RPC-1.85 female		RPC-1.00 female - RPC-1.85 male	
RPC-1.00 female - RPC-1.85 female			



## Microwave High performance Cables

### Introduction

Rosenberger RTK-FLEX is a complete range of high performance flexible microwave cables built by Rosenberger. The entire RTK-FLEX product line is constructed using a low or ultra low density PTFE dielectric offering excellent loss characteristics, outstanding phase stability, and unsurpassed flexibility compared to standard flexible cables - all without sacrificing mechanical integrity.

#### Microwave cable for almost any application:

- Versatile Low Loss cables offer outstanding performance in almost any environment
- Ultra Low Loss cables have the lowest insertion loss available to 18, 26.5, and 40 GHz
- Miniature cables are a superior alternative to traditional RG or semi-rigid cables
- Ultralight cables provide up to 25% weight savings for spaceflight applications

#### Key features:

- Low SWR (1.25:1 to 40 GHz typical)
- Excellent shielding effectiveness
- Precision phase matching
- Araconw® outer shield for superior weight savings on Ultralight cables



RTK-FLEX high performance cable assemblies are manufactured by Rosenberger under the guidance of our Engineering staff. Every cable assembly is tested and supplied with a Return Loss and Insertion Loss plot.

RTK-FLEX is designed to minimize both reflective and transmission losses while maximizing phase and amplitude stability.

This is accomplished by carefully controlling all materials and processes used to manufacture the cable. Following is a description of the typical cable construction. Many other designs are available to meet your unique requirements.



## Cable Selection Guide

In order to simplify the cable selection process, individual cables have been grouped into product families. Most flexible cable users want minimal insertion loss consistent with smallest size and weight without sacrificing flexibility. Other parameters will influence price and performance. Use the table and information below to select the cable that best suits your needs.

- Cables with stranded center conductors tend to be more phase stable with flexure
  - Cables with solid center conductors tend to be more amplitude stable with flexure
  - In comparison to other product families, the Low Loss cables are the most durable and robust
  - For applications up to 26.5 GHz, start with the Low Loss L4 cable
  - If the cable will be used in a test lab environment, consider the Low Loss L5 due to its longer flex life and better phase stability with flexure
  - If lower insertion loss is required up to 26.5 GHz, Ultra Low Loss U4 or U3 should be chosen
- If the application is less than 18 GHz, choose the Ultra Low Loss U6 or U5

		RTK-Flex		Low Loss					Low Halogen	
Part Number		R-Flex405	R-Flex402	RTK125	RTK106	RTK107	RTK161	RTK162	RTK161P	RTK162P
Impedance	Ohms	50								
Max. Frequency	GHz	18		50	40	26.5				
Nominal OuterDiameter	mm	2.54	4.12	3.18	3.73	3.73	5.33	5.33	5.60	5.60
Center Conductor	Solid	×	×	×	×		×		×	
	stranded					×		×		×
Max. Insertion Loss (dB/m)	1GHz	0.70	0.40	0.49	0.39	0.53	0.26	0.36	0.26	0.36
	5GHz	1.94	1.18	1.11	0.88	1.18	0.60	0.79	0.60	0.79
	10GHz	2.43	1.49	1.61	1.31	1.71	0.92	1.18	0.92	1.18
	18GHz	3.60	2.23	2.23	1.81	2.36	1.28	1.64	1.28	1.64
	26.5GHz	-	-	2.76	2.23	2.92	1.61	2.03	1.61	2.03
	40GHz	-	-	3.48	2.85	-	-	-	-	-
	50GHz	-	-	3.97	-	-	-	-	-	-
Power Handling	Watts(CW) at 10 GHz	58	120	105	150	129	286	248	286	248
Nominal Weight	Grams/meter	19.4	43.3	26.2	36.1	36.1	65.6	65.6	66.0	66.0
Static BendRadius	mm	6.35	12.70	5.08	6.35	6.35	9.65	9.65	9.65	9.65
Detailed Information	page	12-13		14-15					16-17	

## Cable Selection Guide

- For applications greater than 26.5 GHz but less than 40 GHz, start with the Low Loss L2 cable  
If lower loss is required, choose the Ultra Low Loss U2 cable
- For applications up to 50 GHz, use the Low Loss L1 cable
- If size and flexibility are critical, consider the Low Loss L3 or Ultra Low Loss U1 cables
- If the application is for a fixed installation, consider the Miniature cables due to their cost/size/performance ratio
- The Low Halogen polyurethane jacketed cables are also good choices for applications requiring high abrasion resistance We recommend these cables as Standard Test Cables

		Ultra Low Loss						RGtype		
Part Number		RTK041	RTK040	RTK052	RTK050	RTK080	RTK081	RG142B/U	RG223/U	RG214/U
Impedance	Ohms	50								
Max. Frequency	GHz	18	40	26.5		18		5		
Nominal OuterDiameter	mm	3.61	3.61	5.00	5.21	7.44	7.90	4.95	5.40	10.80
Center Conductor	Solid		×		×		×	×	×	
	stranded	×		×		×				×
Max. Insertion Loss (dB/m)	1GHz	0.39	0.36	0.30	0.26	0.20	0.16	0.42	0.46	0.27
	5GHz	0.86	0.75	0.64	0.52	0.42	0.34	1.10	1.11	0.66
	10GHz	1.25	1.08	0.98	0.76	0.62	0.49	-	-	-
	18GHz	1.67	1.48	1.31	1.05	0.85	0.69	-	-	-
	26.5GHz	-	1.81	1.61	1.28	-	-	-	-	-
	40GHz	-	2.23	-	-	-	-	-	-	-
	50GHz	-	-	-	-	-	-	-	-	-
Power Handling	Watts(CW) at 10 GHz	161	172	281	328	540	643	260*	75*	100*
Nominal Weight	Grams/meter	29.5	32.8	59.1	65.6	121.4	137.8	64	60	196
Static BendRadius	mm	9.65	9.65	12.70	12.70	19.05	31.75	25	27	55
Detailed Information	page	18-19						20		

The power rating of RG type cable is at 2.5GHz



## Cable Selection Guide

Design and materials of all connectors and connector parts conform to MIL-C-39012. The RTK-FLEX connectors have been optimized to achieve the lowest possible SWR across the bandwidth.

In addition, the patented connector attachment has been designed to provide high reliability and withstand heavy stress. The connector body, dielectric, and center contact are completely captivated guaranteeing the cable assembly will keep its excellent properties even after hard use.

	Maximum Frequency (GHz)	RTK 125	RTK 106 RTK 107	RTK 161 RTK 162 RTK 161P RTK 162P	RTK 050 RTK 052	RTK 040 RTK 041	RTK 080	RTK 081
2.4 mm Plug	40/50	×	×			×		
Testport 2.4 Plug	40/50							
2.4 mm Jack	40-50	×	×			×		
Testport 2.4 Jack	40/50	×	×					
2.92 mm Plug (K)	40	×	×			×		
2.92mm Right Angle plug(K)	40		×			×		
2.92mm Jack (K)	40		×			×		
Testport 2.92mm Jack(K)	40		×					
3.5mm Plug	26.5			×	×			
3.5mm Elbow Right Angle Plug	26.5		×	×	×			
Testport 3.5mm Plug	26.5			×	×			
3.5mm Jack	26.5		×	×	×			
Testport 3.5mm Jack	26.5			×	×			
SMA Plug	18		×	×	×		×	×
SMA Right Angle Plug	18		×	×	×			
SMA Elbow Right Angle Plug	18			×	×		×	×
SMA Jack	18		×	×	×	×		×
Precision N Plug	18			×	×	×	×	×
Precision N Jack	18			×	×			×
Precision N Right Angle plug	18			×	×		×	×
Precision 7mm	18		×	×	×		×	×
Precision TNC Plug	18			×	×			×
Precision TNC Right Angle Plug	18							
Precision TNC Jack	18							×
Precision SP (BMA) Plug	22		×		×			×
Precision SP (BMA) Jack	22				×			
BNC Plug	4			×				
N Plug	12.4			×				×
N Jack	12.4			×				
N Elbow Right Angle Plug	12.4			×				
7/16 Plug	8.3			×				×
7/16 Jack	8.3			×				×

## Armor Selection Guide

Most RTK-FLEX cable assemblies are available with armor. The armor extends life and adds additional physical protection. The standard armors are detailed below. Additional armor types are also available.

	RTK 125 RTK 106 RTK 107 RTK 040 RTK 041	RTK 161/RTK 161P RTK 162/RTK 162P RTK 050 RTK 052	RTK 080 RTK 081
Diameter (mm)	8.89	10.41	13.46
Min. Bend Radius (mm)	12.70	25.40	38.10
Max. Temperature	80 °C	80 °C	80 °C
Crush Resistance (N/mm)	79.4	79.4	79.4



	RTK 125 RTK 106 RTK 107 RTK 040 RTK 041	RTK 161/RTK 161P RTK 162/RTK 162P RTK 050 RTK 052	RTK 080 RTK 081
Diameter (mm)	7.11	9.65	12.45
Min. Bend Radius (mm)	38.10	50.80	50.80
Max. Temperature	165 °C	165 °C	165 °C
Cush Resistance (N/mm)	74.1	74.1	74.1



	RTK 125 RTK 106 RTK 107 RTK 040 RTK 041	RTK 161/RTK 161P RTK 162/RTK 162P RTK 050 RTK 052	RTK 080 RTK 081
Diameter (mm)	13.7		
Min. Bend Radius (mm)	Depends on cables		



	RTK 125 RTK 106 RTK 107 RTK 040 RTK 041	RTK 161/RTK 161P RTK 162/RTK 162P RTK 050 RTK 052	RTK 080 RTK 081
Diameter (mm)	10.0	10.0	14
Min. Bend Radius (mm)	44.0	44.0	50
Max. Temperature	100 °C	100 °C	100 °C
Cush Resistance (N/mm)	74	74	74



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