TY-DTMA1800-12-AISG Twin TMA

1 Application

The TYCC TY-DTMA1800-12-AISG Twin TMA is a full band Tower Mounted Amplifier (TMA). The deployment of the small size, weight TMA System will provide enhanced coverage and improved up-link signal quality. Appropriate for new rollouts by optimizing coverage with a reduced number of BTSs or as an upgrade to existing BTSs for enhancing the existing coverage.

Full Band TMA facilitates simplified logistics, especially when the frequency bands are scattered. The unit comprises of high performance filters, dual balanced high linearity low noise amplifiers with circuits for active bias, supervision, alarms and lightning protection circuit. The TYCC TMA design with all active components integrated within the filter body provides an extremely reliable, compact and lightweight TMA solution. The vented enclosure design is employed to prevent the effect of condensation, thereby guaranteeing long, reliable, maintenance-free service in all environmental conditions. These TMAs offer an easy to install, maintenance free, cost effective solution for coverage enhancement and increased quality in mobile communication networks.

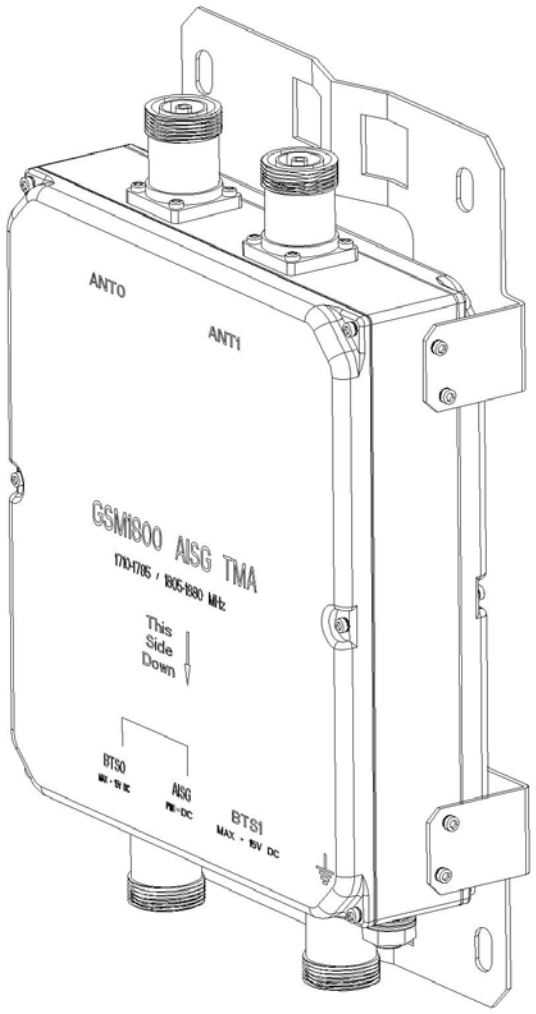

Figure 1 TY-DTMA1800-12-AISG Twin TMA

2 Features

2.1 Compact, low weight, Duplex and full GSM1800 band.

2.2 Very low noise figure design contributes much to improve Base Station receiving sensitivity, expanding the existing coverage.

2.3 Amplify uplink receiving signal level, compensate the RF cable loss and improve weak signal coverage.

2.4 Increase successful call rates, reduce dropped calls, maximize data transmission rate, improve call quality and therefore extend handset battery life.

2.5 Low down handset RF power output, decrease uplink signal interface and clean the RF environment.

2.6 Fail-safe bypass mode.

2.7 High reliability.

2.8 Lighting protected.

2.9 Ideal for X-Pol systems

2.10 Support AISG1.1

3 TECHNICAL CHARACTERISTICS

3.1 RX Channel

Frequency Band	1710～1785MHz
Band Width	75MHz
Gain	12dB±1
Gain Variation over frequency	±0.6 dB max.
Input Intercept Point	15dBm min
Input -1dB compression point	2dBm min
Noise Figure	1.3dB typ
Noise Figure Max, Band edge and temperature	1.8dB max.
Rejection of The filter in front of LNA	≥71dB @1805~1880MHz ≥21dB @DC ~1690MHz
Return Loss, normal mode, all ports	18dB min.
Return Loss, Bypass mode, all ports	14dB min.
Group Delay variation	20 ns max over any 5MHz in Rx band.
Maximum Input Power with no damage	<12 dBm
Insertion Loss, Bypass mode	3.0 dB max.
Impedance	50Ω

3.2 TX Channel

Frequency Band	1805～1880MHz
Band Width	75MHz
Insertion Loss	0.6 dB typ., 0.80 dB max.
Return Loss, all ports	18 dB min
Rejection 1710～1785MHz	42dB min
Group Delay variation	45 ns max over any 5MHz in Rx band.
Continuous Average Power	200 W max.
Peak Envelope Power	1.6kW max
Intermodulation, 2x 43 dBm Tx Carriers at BTS port	-110 dBm max. in RX band

3.3 Power Supply and Alarm

DC Supply Voltage	via RF cable at BTS port, +10 to +15 V DC
DC inrush current (at switch-on)	350 mA max per port
Power, AISG mode or two ports CWA mode	2.5W typical at 12Volt
Power, one port CWA mode	1.5W typical

3.4 Current Window Alarm mode

DC on one port only:

DC supply current, normal mode	128 ± 15 mA at 12V DC
DC supply current, minor alarm mode	200 to 250 mA at 12V DC
DC Supply current, major alarm mode	300 to 350 mA at 12V DC

DC on two ports:

DC supply current, normal mode	105 ± 30 mA at 12V DC (operating channels)
DC supply current, minor alarm mode	200 to 250 mA at 12V DC(for faulty channel only)
DC Supply current, major alarm mode	300 to 350 mA at 12V DC(for faulty channel only)

3.5 AISG mode

AISG communications can either use port BTS0 or port BTS1:

Total DC supply current, both LNAs in GAIN mode	210 ± 15 mA
AISG connector current rating	< 4 Amp, pin 1
Voltage drop	1V max
AISG version	1.1
Alarm Messaging	AISG V1.1 Minor and Major TMA alarms
Maximum baud rate	9600bps
Firmware Upgradeable	Yes, via AISG
Connections	Pin1 +12V; Pin2 NC; Pin3 RS485B; Pin4 RS485 GND; Pin5 RS485A; Pin6 NC; Pin7 DC Return; Pin8 NC.

3.6 Environmental

Operating Temperature Range	-40 to +65ºC
Environmental Sealing - Housing	IP66 Ventilated
Environmental Sealing - Connectors	IP67
Enclosure Color	Light Grey
Enclosure Material	Aluminum
EMC/ESD Reference Standard	ETSI EN 301 489-1
ESD Immunity	IEC 61000-4-2, criteria B.
Radiation Immunity	IEC 61000-4-3, criteria A.
Conducted Immunity, EFT	IEC 61000-4-4, criteria B.
Conducted Immunity, .15-80MHz	IEC 61000-4-6, criteria A.
Voltage Dip Immunity	IEC61000-4-11, criteria B.
Lightning Protection, RF ports	±10 kA, 8/20 µs max. shield to body, to IEC61000-4-5; ±8 kA, 8/20 µs max. centre pin to body, to IEC61000-4-5 performance criteria B.
Lightning Protection, AISG port	±5 kA, 8/20 µs max. common mode, RS485 ±3 kA, 8/20 µs max. differential mode, RS485 ±5 kA, 8/20 µs max. common mode, pin 1 ~ pin 7 ±3 kA, 8/20 µs max. differential mode, pin 1 ~ pin 7 performance criteria B
MTBF	>500,000 hours

3.7 Mechanical

Dimensions	243 (H) x 218 (W) x69(D) mm(filter body)
Net Weight	6.2 kg
Gross Weight	7.2 kg
Connectors	DIN 7-16 (F) x 4 long shank
Mounting	Vertical, Pole / Wall

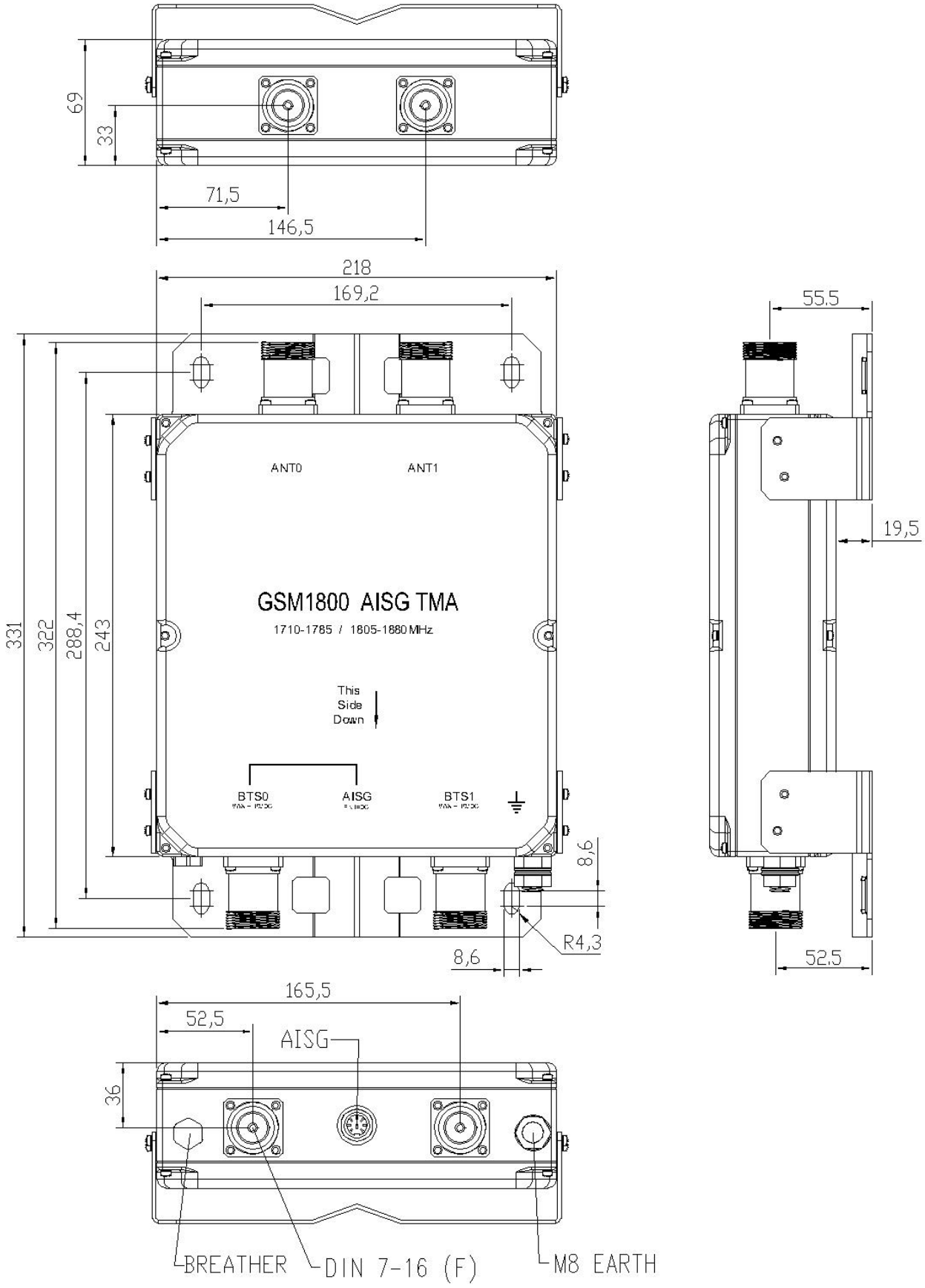

Figure 2 TYT-DTMA1800-12-AISG Dimension