

TMA2105

TWIN TMA 700/850

Designed to be deployed in 700, 850MHz shared antenna systems, the Kaelus TMA2105 provides gain at both the 700MHz and 850MHz uplink bands

FEATURES

- Improved base station sensitivity
- Internal diplexing of the 700MHz and 850MHz bands allows for single ANT and BTS ports
- Fail safe bypass mode with lightning protection
- Rejection of digital TV broadcast channels
- High linearity and low noise performance



TECHNICAL SPECIFICATIONS

BAND NAME	700	850
DOWNLINK		
Passband	768 - 803MHz	875 - 890MHz
Bandwidth	35MHz	15MHz
Insertion loss	0.4dB typical	0.45dB typical
Return loss	18dB minimum	
Group delay variation	40ns maximum across band	30ns maximum across band
Absolute group delay	80ns maximum	
Maximum input power	120W (average) / 1.5kW (PEP)	160W (average) / 3.2kW (PEP)
Intermodulation products	-150dBc maximum with 2 x 20W carriers (in RX band)	-150dBc maximum with 2 x 20W carriers (in RX band)
Nominal propagation delay	52ns	50ns

UPLINK		
Passband	713 - 748MHz	830 - 845MHz
Bandwidth	35MHz	15MHz
Gain	17dB	15.5dB minimum
Gain maximum	18dB	16.5dB
Gain minimum	16dB	14.5dB
Gain variation	±1dB maximum	
Return loss	18dB minimum	
Bypass return loss	12dB minimum	
Bypass loss	2.6dB typical, 3.6dB maximum	3.1dB typical, 3.6dB maximum
Noise figure	1.2dB typical, 1.6dB maximum	1.5dB typical, 2.0dB maximum
Output IP3	+32dBm typical	+32dBm typical
Maximum input power with no damage	+24dBm maximum	+24dBm maximum
Absolute group delay	250ns maximum	350ns maximum
Group delay variation	150ns maximum	200ns maximum
Nominal propagation delay	139ns	216ns
P1dB	+16dBm minimum	
RX in filter rejection @ 50 - 694MHz (DTV)	55dB	55dB
RX in filter rejection 820 - 825MHz (Land mobile radio)	50dB	50dB
RX in filter rejection @ 847.5 - 852MHz (STL)	25dB	25dB
RX out filter rejection @ 50 - 694MHz (DTV)	28dB	28dB

ELECTRICAL	
Impedance	50Ohms
System attenuation	65dB @ 50 - 694MHz (DTV)

POWER SUPPLY AND ALARM (CURRENT WINDOW ALARM MODE, DEFAULT)	
Current window alarm mode (CWA) is the default operating mode and can be configured to specific customer requirements. The F01V1 personality is configured so that both channels are independently powered and monitored via the respective BTS port. The BTS port sinks additional current to indicate an alarm state in its uplink path. Normal operating and alarm current values are configured independently via a field-loadable personality file. Please contact Kaelus for more information.	
DC supply voltage	8.5V to 30V DC, case is DC ground
DC supply voltage via BTS-RF cable	Through BTS connectors
DC supply current, normal mode	150 ± 20mA per port 1.3W @ 8.5V, 4.5W @ 30V typical
DC supply current, alarm mode programmable range	220 ± 20mA per port 3.3W @ 15V per port typical

AISG MODE OF OPERATION (AUTO SELECTED ON VALID AISG 2.0 FRAMES)	
AISG signals can be applied to either BTS1 or BTS2 ports. The TMA2105F01V1-1 unit switches to AISG mode when valid frames are detected on one of the BTS ports. Both LNAs take DC power from the port with AISG frames or, if DC is present on both ports, both channels supply equal power to the TMA2105F01V1-1.	
DC supply voltage	+8.5V to +30V DC
AISG version	2.0 (1.1 optional)
Supply current, AISG mode	220mA @ 8.5V, 70mA @ 30V typical
Voltage drop, BTS to AISG port	1.5V maximum at 2A
Power consumption, AISG mode	1.9W @ 8.5V, 2.1W @ 30V typical
AISG connector, current rating	< 4A peak, 2A continuous, pin 6
Field firmware upgradable	Yes

ANTENNA AISG OOK + DC

When a valid AISG signal is applied to either of the BTS ports, the TMA2105F01V1-1 communicates in AISG mode and applies DC/AISG to the ANT1 port. If a low resistance is detected on ANT1 port, DC/AISG is subsequently disconnected from the ANT1 port. In CWA mode, the autosensing switch is open and no DC will be passed ANT1.

Mode of Operation	Current Draw on ANT1 Port	Assumption	"Autosense + Protection" Switch Status	Comment
AISG or CWA	Current<4A	Device present or open circuit on ANT1 unit in AISG mode	Close	AISG signal (sub-carrier) will be supplied thru to ANT1
AISG or CWA	Current>4A	DC short circuit or low DC resistance present on ANT1 port	Open	Attempt are made periodically to re-connect TMA2105FxxVx-1 will operate in AISG mode.
AISG or CWA	ANY	Unit in CWA mode	Open	No DC will be passed on to ANT1

ENVIRONMENTAL

For further details of environmental compliance, please contact Kaelus.

Temperature range	-10°C to +55°C +14°F to +131°F
Ingress protection	IP67
Altitude	2,600m 8,530ft
Lightning protection	IEC61312-1, RF: ±5kA maximum (8/20us), AISG: ±2kA maximum (8/20us)
MTBF	>1,000,000 hours
Compliance	EMC:EN301 489, ETSI EN 300 019 class 4.1, RoHS

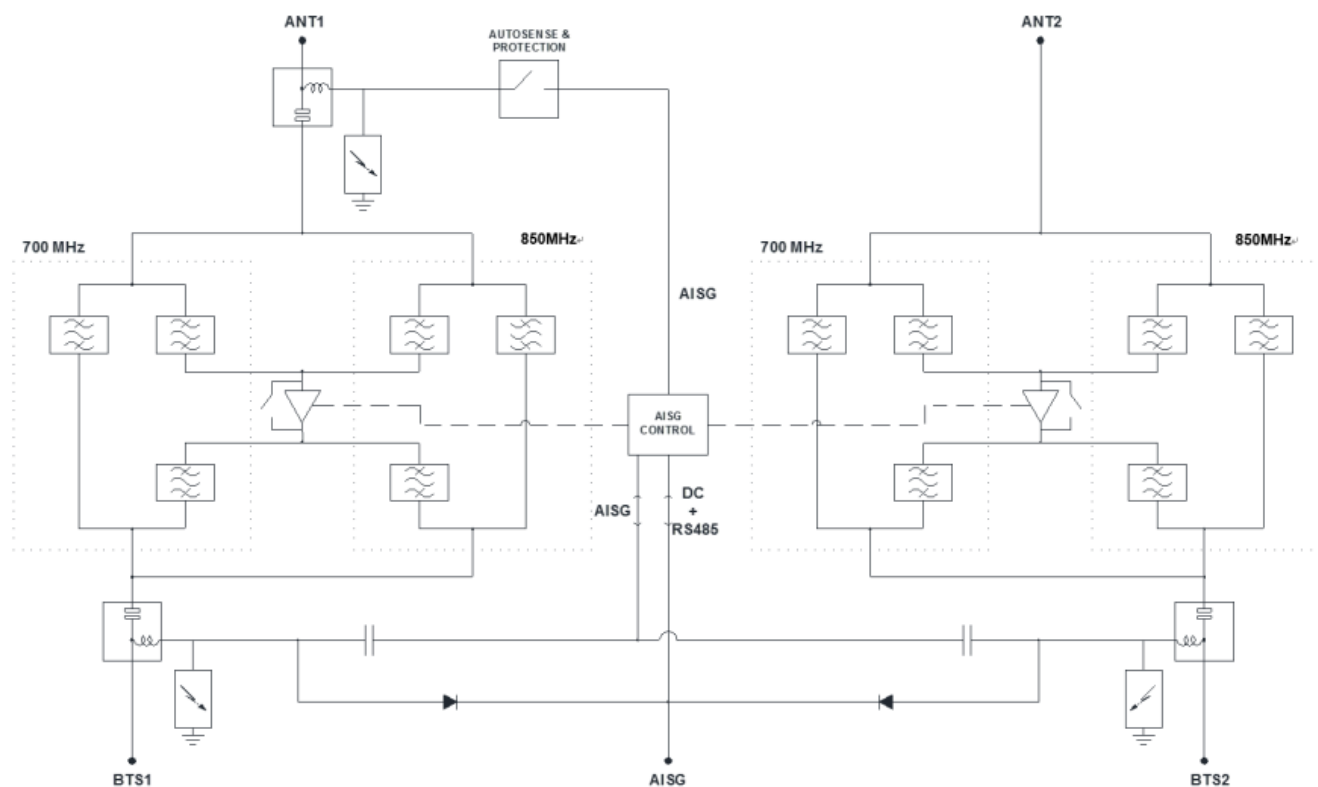
MECHANICAL

Dimensions H x D x W	457 x 275 x 208mm 18 x 10.8 x 8.2in
Weight	25kg 55lbs estimate
Finish	Powder coated, light grey (RAL7035)
Connectors	DIN 7-16 (F) x 4 long neck, AISG (F) x 1
Mounting	Pole/wall bracket supplied with two metal clamps 55-178mm diameter poles

ORDERING INFORMATION

PART NUMBER	CONFIGURATION	OPTIONAL FEATURES	CONNECTORS
TMA2105F01V1-1	TWIN 2 in / 2 out	AISG + DC pass through to ANT1	DIN 7-16 (F)

ELECTRICAL BLOCK DIAGRAM



MECHANICAL BLOCK DIAGRAM

