

TMA2094

TWIN TMA 700, LOWPASS

Designed to be deployed in 700, 850/900MHz shared antenna systems, the Kaelus TMA2094 provides gain at the 700MHz uplink band while allowing 850/900 services to pass through to the antenna thereby saving OPEX and CAPEX.

FEATURES

- Improved base station sensitivity through gain in 700Mhz band
- Bypass for 850/900 bands with internal diplexing of the 807-960 and 700MHz bands
- Rejection of digital TV broadcast channels
- Hardware and software configuration using AISG "Personality" upload
- Fail safe bypass mode with lightning protection
- High linearity and low noise performance



TECHNICAL SPECIFICATIONS

700MHZ DOWNLINK (TX) PATH	
Passband	768 - 803MHz
Bandwidth	35MHz
Return loss	18dB minimum
Insertion loss	0.2dB typical, 0.4dB maximum
Group delay variation	70ns maximum
Absolute group delay	80ns maximum
Maximum input power with no damage	150W (average) / 1.5kW (PEP)
Intermodulation @ antenna ports	-150dBc maximum in RX band with 2 x 20W carriers
700MHZ UPLINK (RX) PATH	
Passband	713 - 748MHz
Bandwidth	35MHz
Nominal gain	16dB minimum
Gain variation over frequency, temperature	± 1dB maximum
Noise figure	1.2dB typical, 1.6dB maximum
Return loss	18dB minimum operating, 12dB minimum in bypass mode
Bypass loss	2.5dB typical, 3.2dB maximum
Group delay variation	150ns maximum
Absolute group delay	250ns maximum
Output IP3	+30dBm typical
Maximum input power with no damage	12dBm maximum
700MHZ UPLINK AWS (TX) PATH	
RX in filter rejection	50dB @ 50 - 694MHz

850 - 900MHZ BYPASS PATH

Passband	807 - 960MHz
Return loss	18dB minimum
Insertion loss	0.2dB typical, 0.4dB maximum
Group delay variation	30ns maximum
Absolute group delay	40ns maximum
Maximum input power with no damage	160W (average) / 1.5kW (PEP)
Intermodulation @ antenna ports	-150dBc maximum in RX band with 2 x 20W carriers

ELECTRICAL

Impedance	50ohms
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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 TMA2094F01V2-1 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 TMA2094F01V2-1.

DC supply voltage	+8V 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	IEC60130-9, 8-pin female, < 4A peak, 2A continuous, pin 6
Field firmware upgradable	Yes

AUTOSENSING FUNCTION ON ANT 1 PORT (AISG MODE ONLY)

When a valid AISG signal is applied to either of the BTS ports, the TMA2094F01V2-1 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
CWA mode	Any	Unit in CWA mode	Open	No DC will be passed on to ANT1
AISG mode	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 mode	Current >4A	DC short circuit or low DC resistance present on ANT1 port	Open	Attempts are made periodically to re-connect. TMA2094FxxVx-1 will operate in AISG mode.

ENVIRONMENTAL

For further details of environmental compliance, please contact Kaelus.

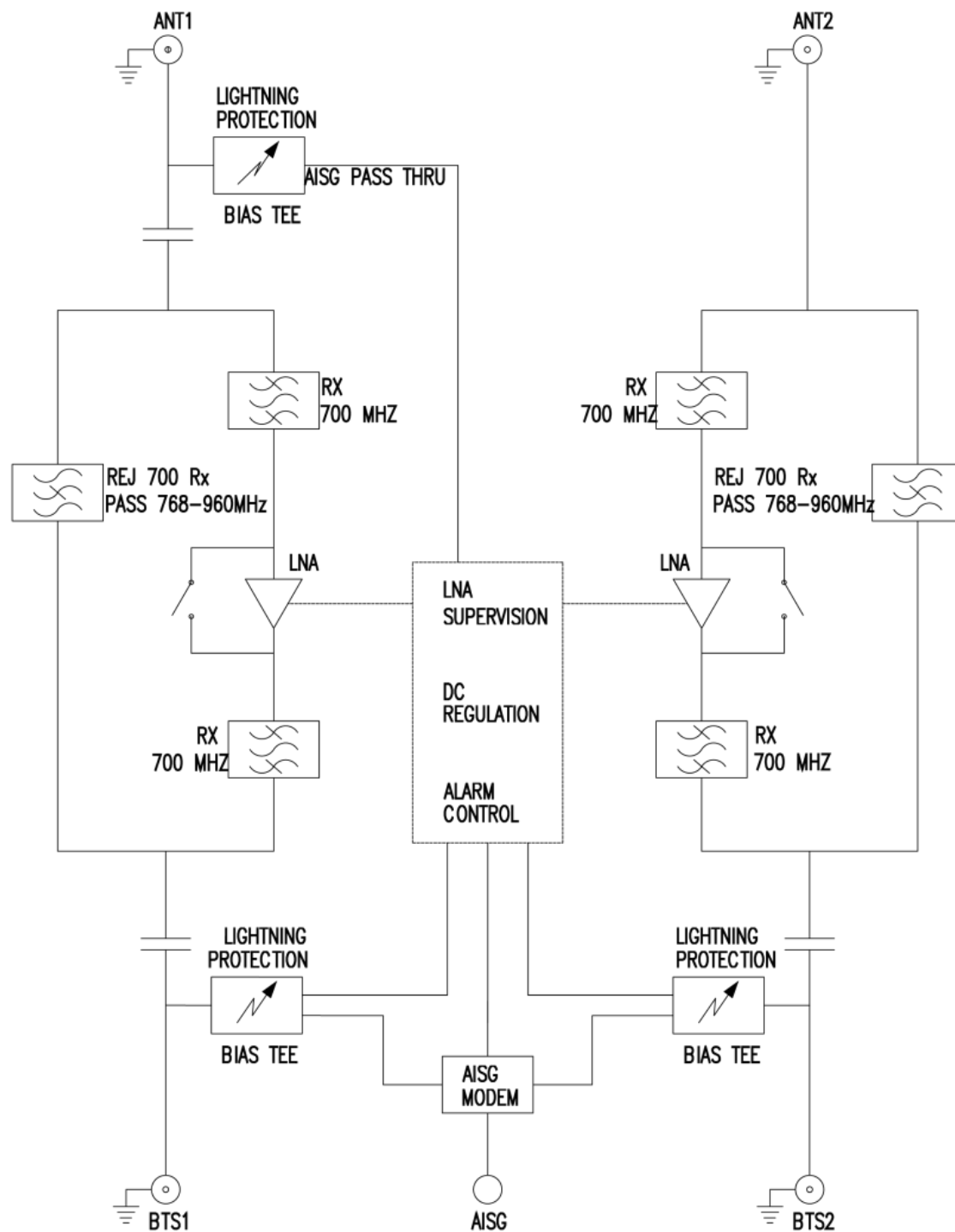
Temperature range	-10° to +55°C -5° to +131°F
Ingress protection	IP67
Altitude	2,600m 8,530ft maximum
Lightning protection	IEC61312-1, RF: ±5kA maximum (8/20us), AISG: ±2kA maximum (8/20us)
MTBF	>1,000,000 (hours)
Compliance	EMC:EN301 489, ETSI EN 300 019 class 4.1, RoHS

MECHANICAL	
Dimensions H x D x W	380 x 160 x 180mm 14.96 x 6.3 x 7.1in (excluding brackets and connectors)
Weight	16kg 35.27lbs
Finish	Painted, 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 45-178mm diameter poles

ORDERING INFORMATION

PART NUMBER	CONFIGURATION	OPTIONAL FEATURES	CONNECTORS
TMA2094F01V2-1	TWIN 2 in / 2 out	STANDARD	DIN 7-16 (F)

ELECTRICAL BLOCK DIAGRAM



MECHANICAL BLOCK DIAGRAM

