

L-Band IF transceiver

Low power Ku-Band 6900 series

SPECIFICATIONS

LOW POWER BLOCK UP CONVERTER

IF Input	
Frequency range	950 to 1700 MHz
6904, 6908CE	950 to 1700 MHz
6908SE	950 to 1450 MHz
Impedance	50 Ω
Connector	N female
VSWR	1.5:1 maximum
Gain specification	
Gain @ 0 dB attenuator setting	
6904	67 dB nominal
6908CE/SE	70 dB nominal
Transmit attenuator	0, 2, 4, 8 and 12 dB settings
Gain flatness	
6904, 6908CE	±0.75 dB maximum, 40 MHz
	±1.5 dB maximum, full band
6908SE	±1.5 dB maximum, 40 MHz
	±2.5 dB maximum, full band
Gain stability	
over any 50°C range	
6904	±1.0 dB maximum
6908CE/SE	±1.5 dB maximum
over -40°C to +55°C	
when frequency set	
6904	±1.25 dB maximum
6908CE/SE	±2.0 dB maximum
when frequency not set	
6904	±2.0 dB maximum
6908CE	±3.0 dB maximum
6908SE	±4.0 dB maximum
RF output	
Frequency range	
6904, 6908CE	13.75 to 14.5 GHz
6908SE	14.0 to 14.5 GHz
Connector	PBR120 flange (WR75) with 4.2 mm through holes
VSWR	
6904, 6908CE	1.5:1 maximum
6908SE	2.0:1 maximum
Power @ 1 dB GCP	
6904, 4 W	+36.0 dBm minimum
6908CE, 8 W	+39.0 dBm minimum
6908SE, 8 W	+39.0 dBm typical
Carrier to intermodulation ratio	
(two carriers, each @ 6 dB OPBO from 1 dB GCP)	
6904	-26 dBc minimum
6908CE/SE	-25 dBc minimum
Output power meter	
Range	P1dB down to P1dB - 14 dB
Absolute accuracy	
when frequency set	±1.0 dB maximum
when frequency not set	
6904, 6908CE	±2.0 dB maximum
6908SE	±4.0 dB maximum
Relative accuracy	
when frequency set	±0.5 dB maximum
when frequency not set	
6904, 6908CE	±1.0 dB maximum
6908SE	±2.0 dB maximum
Modes	CW, burst with adjustable threshold

Spurious output	
CE compliance (6904, 6908CE)	Meets EN 301 428 with 54 dBi antenna gain
Spurious	-50 dBc maximum @ 3 dB OPBO
Harmonics	-60 dBc maximum @ 3 dB OPBO
Phase noise (SSB)	
100 Hz	-63 dBc/Hz maximum
1 kHz	-73 dBc/Hz maximum
10 kHz	-83 dBc/Hz maximum
100 kHz	-93 dBc/Hz maximum
Frequency reference	
Frequency	10 MHz
Level	-5 to +5 dBm
Input connector	Multiplexed on the transmit IF
Frequency conversion	
LO frequency	15450 MHz
Sense	Spectrum inverting
Power supply options	
24 V nominal (6904)	19 to 35 V DC via transmit IF connector
48 V nominal (6904, 6908CE/SE)	42 to 60 V DC via transmit IF connector
Monitor and control (FSK)	
Mode	FSK modulation
Protocol	User selectable
Data format	User selectable
Connector	Multiplexed on the transmit IF
Data transmitter	
Frequency	650 kHz ±1%
Deviation	60 kHz ±1%
Sense	+60 kHz = mark, -60 kHz = space
Output level	-3 dBm nominal
Start tone time	10 ms minimum
Data receiver	
Nominal frequency	650 kHz
Locking range	±30 kHz
Input sensitivity	-15 dBm minimum
Monitoring and control (digital)	
Interfaces	RS232, RS485 (4-wire, 2-wire strapable)
Data format	
RS232	9600 bit/s, 8 bits no parity, 1 stop bit, ASCII protocol
RS485	User selectable format and protocol
Connector	MIL-C-26482 12-14S socket
Monitoring and control functions	
Serial interface functions:	Power amplifier on, Output power, Temperature, Fault status, Model number, Serial number, Software version, Transmit frequency, Transmit attenuator, Burst threshold, Packet address, Packet protocol
Other monitoring functions:	Loss of lock causes alarm contact closure, reduces BUC current drain by >50% and attenuates RF output by >60 dB. LED indicators for: Power on, Transmit on and BUC fault
Power consumption	
6904	80 W maximum
6908 CE/SE	115 W maximum

LOW NOISE BLOCK CONVERTER

Indicative specifications.

Input	
Frequency range	
Band 1	10.95 to 11.7 GHz
Band 2	11.7 to 12.2 GHz
Band 3	12.25 to 12.75 GHz
Interface	PBR120 flange (WR75)
VSWR	2.5:1 typical
Noise temperature	75 K @ 25°C maximum
Gain specification	
Gain	60 dB nominal
Gain flatness	±2.0 dB maximum full band
Output	
Frequency range	950 to 1450/1700 MHz
1 dB GCP	0 dBm minimum
Impedance	50 Ω (75 Ω optional)
Connector	N female (F female optional)
VSWR	2:1 typical
Frequency reference	
Frequency	10 MHz
Level	-5 to +5 dBm
Connector	Multiplexed on the receive IF
DC power	
Voltage	+15 to +24 V DC
Current	450 mA maximum
Connector	Multiplexed on the receive IF

IF INTERFACE UNIT

Transmit and receive IF paths	
Frequency range	950 to 1750 MHz
Impedance	50 Ω (75 Ω LNB Rx IF input)
VSWR	1.7:1 maximum
Insertion loss	1 dB maximum
Flatness	±0.25 dB over 950 to 1750 MHz
Connectors	
Modem Rx and Tx IF	SMA female
BUC Tx IF	N female
LNB Rx IF	F female
Signals on transmit IF output	
DC power	48 V ±1 V @ 1.8 A maximum
10 MHz reference	0 dBm nominal
FSK M&C	-2 dBm nominal
Signals on receive IF output	
DC power	18 V ±1 V @ 0.7 A maximum
10 MHz reference	0 dBm nominal
Reference characteristics	
Frequency	10 MHz sine wave
Stability over -5°C to +50°C	±5 x 10 ⁻⁸ maximum
Aging	1 x 10 ⁻⁷ /year maximum
Phase noise (SSB)	
100 Hz	-140 dBc/Hz maximum
1 kHz	-150 dBc/Hz maximum
10 kHz	-160 dBc/Hz maximum
100 kHz	-160 dBc/Hz maximum

External reference Input

Frequency	10 MHz sine wave
Level	0 ±2 dBm
Impedance	50 Ω
Connector	BNC female

FSK communications

Mode	Compatible with BUC
Supported standards	RS232, RS485

Fault reporting

Transmit path current drain	<0.4 A or >2.25 A = fault
Receive path current drain	<100 mA or >800 mA = fault

Mains power

Voltage	115/230 V AC -15%/+20%
Frequency	47 to 63 Hz
Current	0.5 A nominal

Front panel indicators

Summary Alarm, Fan, BUC, LNB, Internal Reference, External Reference

Rear panel connectors

Transmit IF In, Transmit IF Out, Receive IF In, Receive IF Out, External 10 MHz input, RS232 (DB9), RS485 (DB15), Aux I/O (DB9), IEC mains input and Earthing terminal

ENVIRONMENTAL

Operating temperature range

Outdoor modules	-40°C to +55°C
IF Interface Unit	-5°C to +50°C

Relative humidity

Outdoor modules	100%
IF Interface Unit	95% non-condensing

Cooling

6904	Convection
6908CE/SE	Forced air
LNB	Convection
IF Interface Unit	Forced air

Weatherproofing

6904, 6908CE/SE	Sealed to 34 kPa
LNB	Weatherproof
IF Interface Unit	For indoor use only

PHYSICAL

Size	
6904	355 mm L x 185 mm W x 95 mm H
6908CE/SE	355 mm L x 185 mm W x 130 mm H
LNB	150 mm L x 70 mm W x 50 mm H
IF Interface Unit	220 mm L x 483 mm W x 44 mm H
Weight	
6904	6 kg
6908CE/SE	6.5 kg
LNB	0.5 kg
IF Interface Unit	3 kg
Mounting	
6904, 6908CE/SE	Feed mount standard
	Boom mounting kit optional
LNB	Feed mount
IF Interface Unit	19" rack mount



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