

RF POWER AMPLIFIER

BSU

APPLICATIONS

- Telemetry and Data Links
- Avionics and Marine applications

KEY FEATURES

- frequency ranges: 130-180MHz
320-410MHz / 380-480MHz
- fully programmable via serial interface
- industrial temperature range / altitude unlimited
- ruggedized / shock proof design for harsh environments
- software controlled protection against over-temperature and antenna mismatch (infinite short / open output)



Dimensions
140mm x 80mm x 20mm

SPECIFICATIONS

GENERAL

Description	RF Power Amplifier
Device Type	BSU

RF SECTION

Frequency Range (version U)	390 to 470MHz
Usable Range (decreased rf power)	380 to 480MHz
Frequency Range (version V2)	320 to 410MHz
Frequency Range (version K)	130 to 180MHz
Antenna Output Impedance	50Ω (max.VSWR = 2:1)
RF power input	10mW (10dBm -1/+3dB)
RF power output (Version P10)	10W (40dBm)
RF power output (Version P20)	20W (43dBm)
Harmonic & Spurious Rejection	-70dBc (minimum)

SYSTEM CHARACTERISTICS

Isolation	none isolated power supply input (RF ground & digital return & DC power return connected to case)
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PROTECTION SYSTEM

Antenna Mismatch Protection	no damage into infinite VSWR all phases (software controlled)
Overtemperature Protection	automatic derating

OUTPUTS

Status Output	H=O.K. / L=warning/error
RF Level Monitor Output	from internal directional coupler (forward port value)

INPUTS

Standby Switch	High/open=ON / Low=Standby
RF Amplifier Gain Switch	High/open=normal / Low=Amp.-off
RF Power High/Low Switch	High/open=Value(H) / Low=Value(L) (programmable rf power values)

POWER SUPPLY

Supply Voltage Range	11.6 to 14.0 Vdc (10V @ decreased rf power)
Supply Current (Version P10)	max. 3.5A @ 10W
Supply Current (Version P20)	max. 4A @ 10W max. 6A @ 20W
Overvoltage Protection	+15/-17Vdc
Reverse Polarity Protection	max. -17 Vdc (no time limit)

ESD PROTECTION

Peak Voltage (IEC 1000-4-2)	± 8kV (contact discharge)
Peak Voltage (MIL 883C-3015.7)	± 15kV
Peak Current (Supply Voltage)	100A (8/20μs)
Peak Current (all other I/O pins)	20A (8/20μs)

ENVIRONMENTAL

Operating Temperature	-40°C to +85°C (case temp.)
Humidity	≤ 95% RH
Altitude	unlimited
Vibration (random)	0.1g ² /Hz (20Hz-2kHz)
Vibration (sine)	20g (20Hz-2kHz)
Shock (½ sine)	100g peak (11ms)

PHYSICAL CHARACTERISTICS

Dimensions (excluding connectors)	140 x 80 x 20 mm
Weight	365g
Supply/Signal Connector (J1)	DSUB-15-HighDensity male AMP/TYCO AMPLIMITE HD-20
RF Connectors (J2 & J3)	2xSMA femal optional 2xBNC or 2xTNC

Ordering Code Example: BSU-U-P20 = UHF Amplifier 390-470MHz / 20W

INTERFACE CONNECTIONS

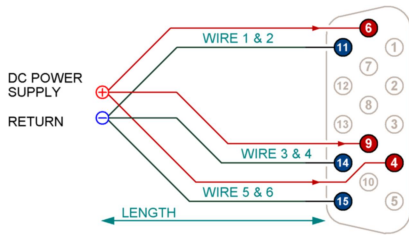


Fig.1
Power Supply
Connection

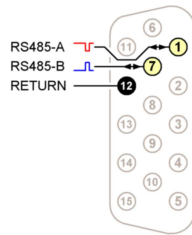


Fig.2
Control Interface
using RS485

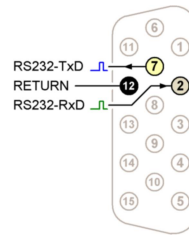


Fig.3
RS232 Interface
(option -232 only)

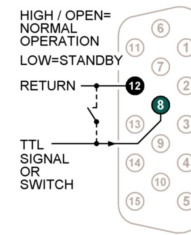


Fig.4
Standby Input
(internal Pullup)

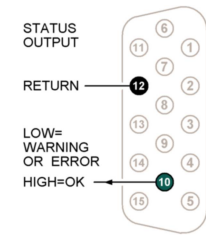


Fig.5
Status Output
(HIGH = O.K.)

It is recommended to use separate wire pairs for the three power supply connections to guarantee best current distribution between the paralleled connector pins. Each length of this wires should be exactly the same.

TYPICAL CHARACTERISTICS

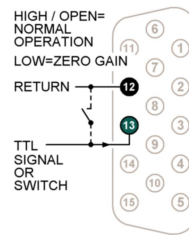
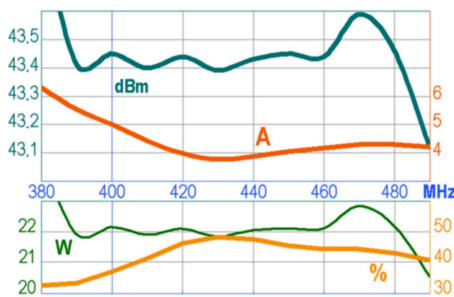


Fig.6
Gain Switch
(internal Pullup)

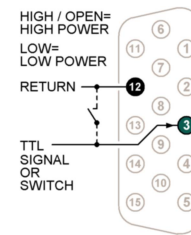


Fig.7
Power Switch
(internal Pullup)

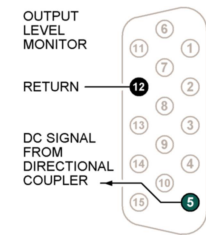
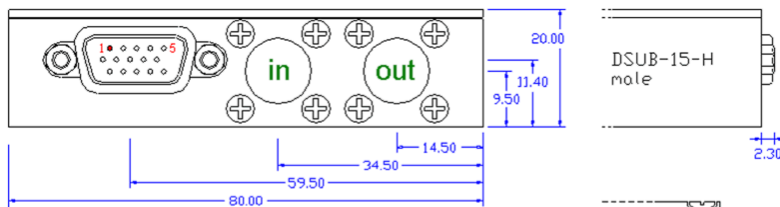


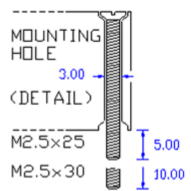
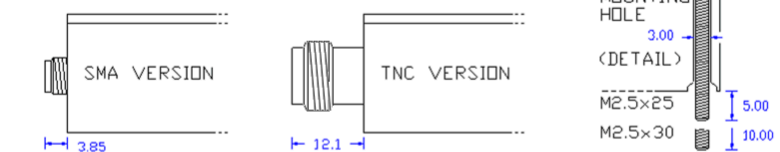
Fig.8
Output Level
Monitor

Pin 8 = LOW (Standby): amplifier OFF; controller and communication interface OFF; Pin 10 = LOW;
Pin 13 = LOW (Zero Gain): amplifier OFF; controller and communication interface active; Pin 10 = LOW;
Pin 3 = HIGH (High Power): amplifier nominal value = (preprogrammed) HIGH value, e.g. 20W;
Pin 3 = LOW (Low Power): amplifier nominal value = (preprogrammed) LOW value, e.g. 5W;
Output Pin 10 = HIGH (Status = O.K.): forward power within nominal range; reflected power below warning trip point; base plate and controller PCB temperature within allowed operating range; supply voltage between 10 to 14V; input level >7dBm; all self-test results = O.K.;



OUTLINE DRAWING

Sizes in mm



DSUB Connector Pin Description

SIGNAL	PIN	FUNCTION
PINP	06	DC Power Input (+)
PRET	11	DC Power Return
SERA	01	Serial Port RS485-A
SERB	07	Serial Port RS485-B
SRET	12	Serial + Signal Return
	02	do not connect
STBY	08	On/Standby Input (internal Pullup)
PWON	13	Power-on(H) / -off(L) (internal Pullup)
HILO	03	Power High(H) / Low(L) (internal Pullup)
PINP	09	DC Power Input (+)
PRET	14	DC Power Return
PINP	04	DC Power Input (+)
XSTA	10	Status Output
PRET	15	DC Power Return
XSIG	05	Power Level Output