RLS48 1750A
RLS4817501CACAB000
Redundant Active L-Band Splitter

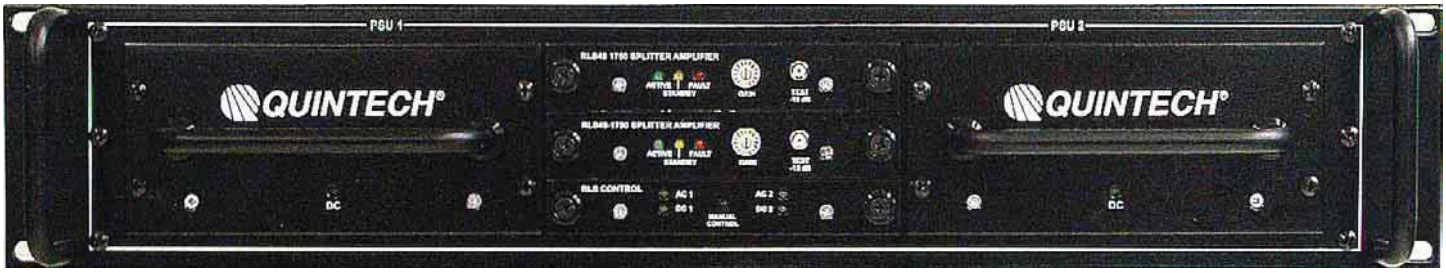
QUALITY MANAGEMENT SYSTEM
CERTIFIED BY DNV
ISO 9001:2000

General Description:
Based on Quintech's RPS series redundant power supplies and the LS2150 series L-Band rack mount splitters, the RLS48 1750A provides an active 48 way redundant splitter operating over the 950-1750 MHz frequency range.

Features:
- Hot-swappable redundant power supply modules
- Hot-swappable redundant splitter/amplifier modules
- 10 dB of gain in 1dB steps via front panel mounted rotary switches
- Current sensing for splitter/amplifier failure
- Redundant backup amplifier replaces failed amplifier in less than 1 µsec
- Front panel mounted LED indicators for power supply and splitter/amplifier status
- Front panel mounted momentary switch for manual switching of redundant splitter/amplifiers
- RS-422 interface for remote switching of splitter/amplifier modules
- Dual AC power supply modules

Specifications:

Ports	1 input / 48 output
Operating Frequency Range	950 -1750 MHz
Impedance:	50 Ω
P1dB (Input):	-10 dBm
Gain (Variable):	0 to 10 dB in 1dB steps
Frequency Response:	± 2.5 dB over the operating frequency range
	± 0.5 dB over any 40 MHz
	± 0.75 over any 72 MHz
Isolation:	18 dB min.
Return Loss:	16 dB min., 18 dB typical
Noise Figure:	≤ 14 dB @ 0 dB gain, ≤ 11 dB @ 10 dB gain
RF Connectors:	BNC, 50 Ω (female)
Power Requirements:	100-240 V~, 50/60 Hz
Power Consumption:	79 W
Redundant Amplifier Switching Speed:	<1 µsec
Phase Differential:	5 degree differential
Nominal Input Level:	-25 dBm
Operating Temperature Range:	0-50° C
Control:	RS-422 via rear panel mounted DB 9 connector. Provides control for remote switching between splitter/amplifier modules. Also provides alarms for PSU and splitter/amplifier failures. Software customer supplied.
Mechanical:	3 RU (3.5" H x 19" W x 20" D)
Weight:	21 lbs. gross (boxed), 15 lbs. net



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Usage Information

Front Panel LEDs

Front panel mounted LED indicators have been included to indicate power supply and splitter/amplifier status. Their meanings are as follows:

DC Power Supply Modules

Green LED on – normal operation
Green LED off – power supply failure

Controller Module

AC1 / AC2

LED green – normal operation
LED off – AC power failure

DC1 / DC2

LED green – DC power supply operating normally
LED red – DC power supply failure

NOTE: In those instances when the green LED goes off on a DC power supply module, its corresponding LED on the controller module will change to red.

Splitter/Amplifier Modules

Green LED on (ACTIVE) – splitter/amplifier module is currently online and is operating normally
Yellow LED on (STANDBY) – splitter/amplifier module is operating normally, but is currently offline and in standby mode
Red LED on (FAILURE) – splitter/amplifier module is offline and is experiencing a failure

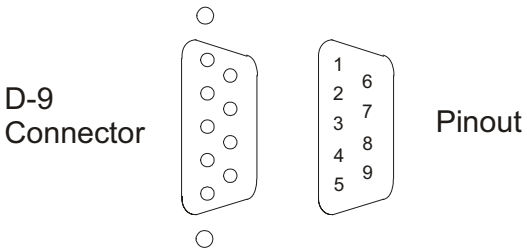
NOTES: Only one splitter/amplifier module can be active at a time; thus, when the ACTIVE (green) LED is lit on one splitter/amplifier module, the STANDBY (yellow) LED will be lit on its redundant splitter/amplifier module and vice versa.

Control Port

The RLS48 1750A provides the ability to remotely switch the splitter/amplifier modules via the RS-422 CONTROL port. In order to communicate with the RLS48 1750A, the following communications parameters must be in effect:

Baudrate - 19200 bps
Data - 8 bits
Parity - none
Stop - 1 bit

Pinouts for the CONTROL port are as follows:



Pin 1 - DC common
Pin 2 - not used
Pin 3 - Noninverting TX
Pin 4 - Noninverting RX
Pin 5 - DC common
Pin 6 - Inverting TX
Pin 7 - not used
Pin 8 - not used
Pin 9 - Inverting RX

Gain Control

The RLS48 1750A provides the ability to adjust the amplifier gain by 10 dB in 1 dB steps via the rotary switches located on the front of the splitter/amplifier modules. Each rotary switch is labeled 0 through F with position 0 representing 1 dB of gain and position A representing 10 dB of gain. Positions B through F are not used and will also indicate a gain setting of 10 dB.

Manual Control

The RLS48 1750A provides the ability to manually control the active/standby status of the splitter/amplifier pair. Pressing the MANUAL CONTROL button on the front of a splitter/amplifier module will place that module into STANDBY mode and will cause the redundant splitter/amplifier module to switch to ACTIVE mode.

Remote Control Interface

The RLS48 1750A can be accessed remotely via the CONTROL port by issuing simple commands from a PC-based command line or terminal interface. Currently, the remote control protocol offers 4 different commands which allow you to perform such actions as:

- inquire about the operational status of the RLS
- retrieve information about the firmware version
- perform remote switching of the splitter/amplifier modules

Commands

The specific command types that can be issued to the RLS48 1750A are:

S1 - Request the current status of the splitter/amplifier module pair
T1 - Force the splitter/amplifier module pair to switch between ACTIVE and STANDBY
F - Retrieve the CPU card firmware version

To issue one of these commands, simply type the one or two character command in the terminal interface or command line interface window and press enter. The RLS48 1750A will respond with a single line response that reflects the desired status or action.

Each response line has the following basic structure:

<unit-model>,<command-echo>,<response>

where:

<unit-model>	identifies the product model with which you are communicating
<command-echo>	echoes the same command that was entered
<response>	is comprised of four numeric characters that reflect the desired action / status

Response Codes

Each response code component is comprised of 4 numeric characters (ex. ABCD), where each character position reflects a particular piece of status information. Table 1 identifies the possible numeric values that may appear in each character position and their respective meanings.

Table 1.

Command	Character Position	Value	Meaning
S1/T1	A	0	Splitter/Amp Mod. 1 Offline, SplitterAmp Mod. 2 Offline
		1	Splitter/Amp Mod. 1 Online, Splitter/Amp Mod. 2 Offline
		2	Splitter/Amp Mod. 1 Offline, Splitter/Amp Mod. 2 Online
		3	Splitter/Amp Mod. 1 Online, Splitter/Amp Mod. 2 Online
S1/T1	B	0	Splitter/Amp Mod. 1 in Fault Mode, Splitter/Amp Mod. 2 in Fault Mode
		1	Splitter/Amp Mod. 1 Current Normal, Splitter/Amp Mod. 2 in Fault Mode
		2	Splitter/Amp Mod. 1 in Fault Mode, Splitter/Amp Mod. 2 Current Normal
		3	Splitter/Amp Mod. 1 Current Normal, Splitter/Amp Mod. 2 Current Normal
S1/T1	C	1	Splitter/Amp Mod. 1 in Primary Mode, Splitter/Amp Mod. 2 in Standby Mode
		2	Splitter/Amp Mod. 1 in Standby Mode, Splitter/Amp Mod. 2 in Primary Mode
S1/T1	D	1	Power Supply Mod. 1 good, Power Supply Mod. 2 failure
		2	Power Supply Mod. 1 failure, Power Supply Mod. 2 good
		3	Power Supply Mod. 1 good, Power Supply Mod. 2 good

Examples

Command	Response
S1	RLS1750,S1,3323
T1	RLS1750,T1,3313
F	MODEL RLS1750 FIRMWARE 070814_RLS_CPU_002