



DigiSlim

Fiber Optic Video/Audio/Data Transmission System

Installation Instructions

Part Number:

ST-1W1A2C/1A2C-xS

(Video transmitter, 1-channel Audio & 2-channel Contact Closure Transceiver)

SR-1W1A2C/1A2C-xS

(Video receiver, 1-channel Audio & 2-channel Contact Closure Transceiver)

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ST/SR-1W1A2C/1A2C-xS **Fiber Optic Visdeo/Audio/Data Transmission System** **Installation Instructions**

1.0 Product Description

Meridian's product series ST/SR-1W1A2C/1A2C-xS are fiber optic modems that transmit & receive one channel of 10-bit NTSC/PAL video channel (one direction), one uni-directional audio channels and wto channel of bi-directional contact closure over one optical fiber using digital transmission technologies. This product series uses Meridian's standard 1- slot wide chassis mount card assembly and plugs into the following Meridian chassis: SR-500/S, SR-1000, 1000/S, SR-1200/S, SR-1500/S, and SR-2001 & SR-2000 series 19" equipment chassis.

Refer to Appendix 1 at the back of this manual for the module part numbers applicable in this manual.

Both ST and FC optical connectors are supported, depending on the part number. An ST optical interface is available for both multimode and singlemode fiber applications. The FC optical interface is available only for singlemode products. Optional conformal coating provides an additional level of protection from environments with high humidity.

2.0 Installation

Series ST/SR-1W1A2C/1A2C products are one-slot wide cards and, as such, occupy one slot in Meridian's standard chassis (SR-500/S, SR-1000, SR-1000/S, SR-1200/S, SR-1500/S, and SR-2001 & SR-2000 series 19" equipment chassis). To install in these chassis, orient the card with the Meridian logo at the top of the module and slide onto the top and bottom card guides in the chassis. Press securely on the top and bottom of the module to ensure that it is fully seated in the chassis so that the electrical connector mates with the chassis-mounted motherboard. Once installed, manually tighten the two thumbscrews located at the top and bottom of the card. Do not use tools to secure these and do not over tighten.

Note: A fully loaded 19" subrack should have forced-air cooling to avoid excessive heat generation inside the chassis. A fan assembly tray (P/N FA-2000) with three (3) fans is available and should be installed under the 19" SR-2000/1 whenever possible.

3.0 Product Signal Format & Specifications

The ST/SR-1W1A2C/1A2C series products can transmit and receive the following signals:

Signal Type	Channels
NTSC/PAL Video	1
Audio	1
Contact Mapping	2

Refer to Appendix 1 for the product part number and associated functional description. The above number and type of signals will vary based on the product part number.

The tables below identify the specifications for the various signals that these modems transmit/receive.

Video	
Format	NTSC, PAL, SECAM
Voltage/Impedance	1Vp-p, 75 Ohm, 1 .5Vp-p (max)
Differential Gain	<1 %
Differential Phase	<0.7°
SNR	>67dB (weighted)
Return Loss	>30dB
Field Tilt	<0.5%

Audio	
In/Out Impedance	600 Ohm, unbalanced/unbalanced
Frequency Response	10Hz to 20KHz
SNR	>90dB (weighted) @ 1KHz
In/Out Level	-8 to +8 dBm (4Vp-p, max)
THD	<0.01% @ 1KHz
Digitized Resolution	24 bit

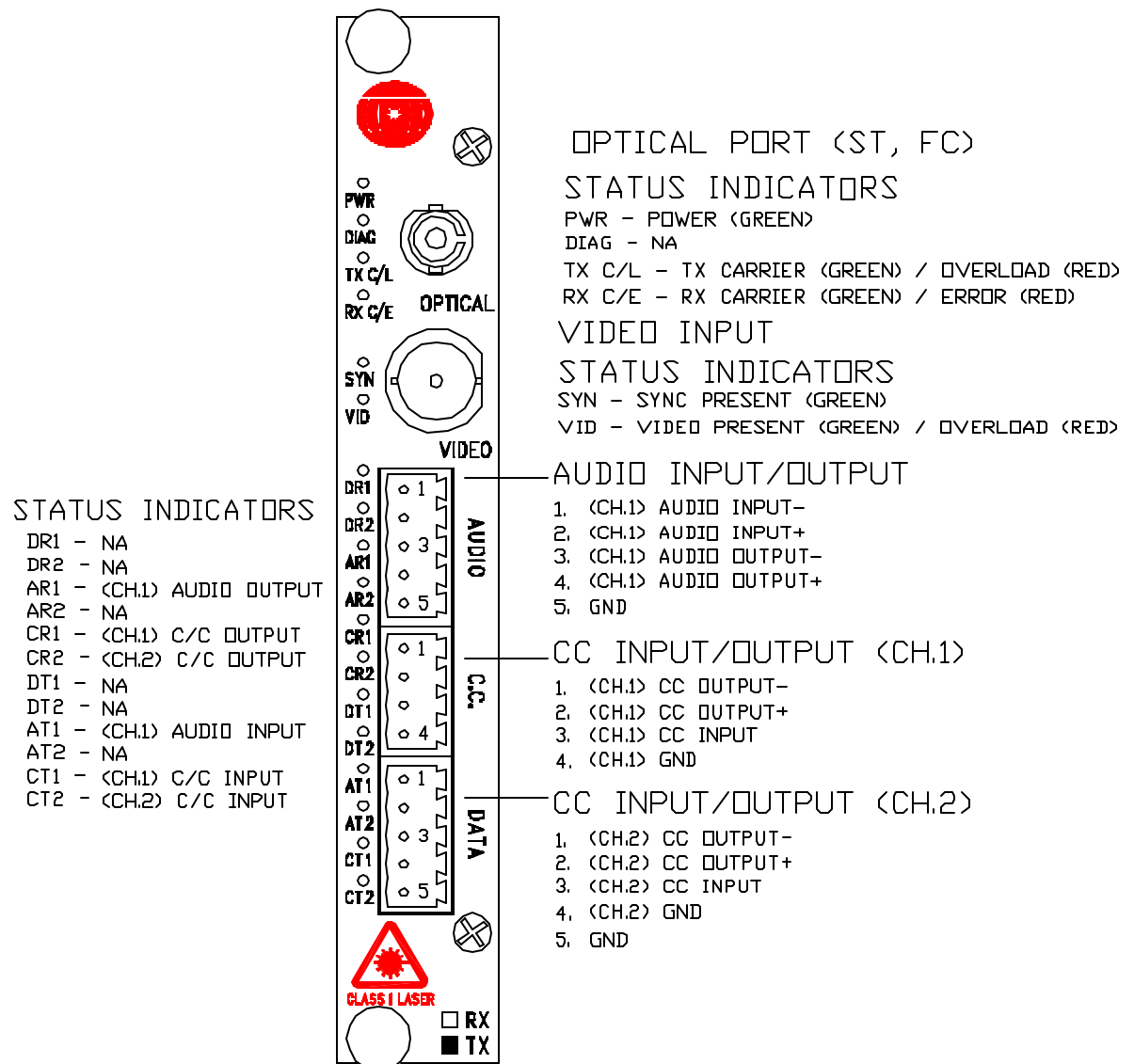
Contact Mapping	
Contact type	Relay, normally-open, normally-closed, jumper selectable, Isolated contacts
Contact rating	0.3amps, 30 VAC/VDC
Contact bounce	5 msec
Max switching rate	10Hz

Connectors	
Video	75 Ohm BNC w/gold center pin
Audio	14 pin terminal strip (one 5 pin connectors)
Contact Mapping	14 pin terminal strip (one 4 & one 5 pin pin connectors)
Optical	Singlemode – ST or FC Multimode - ST

4.0 Connector Pin Assignment

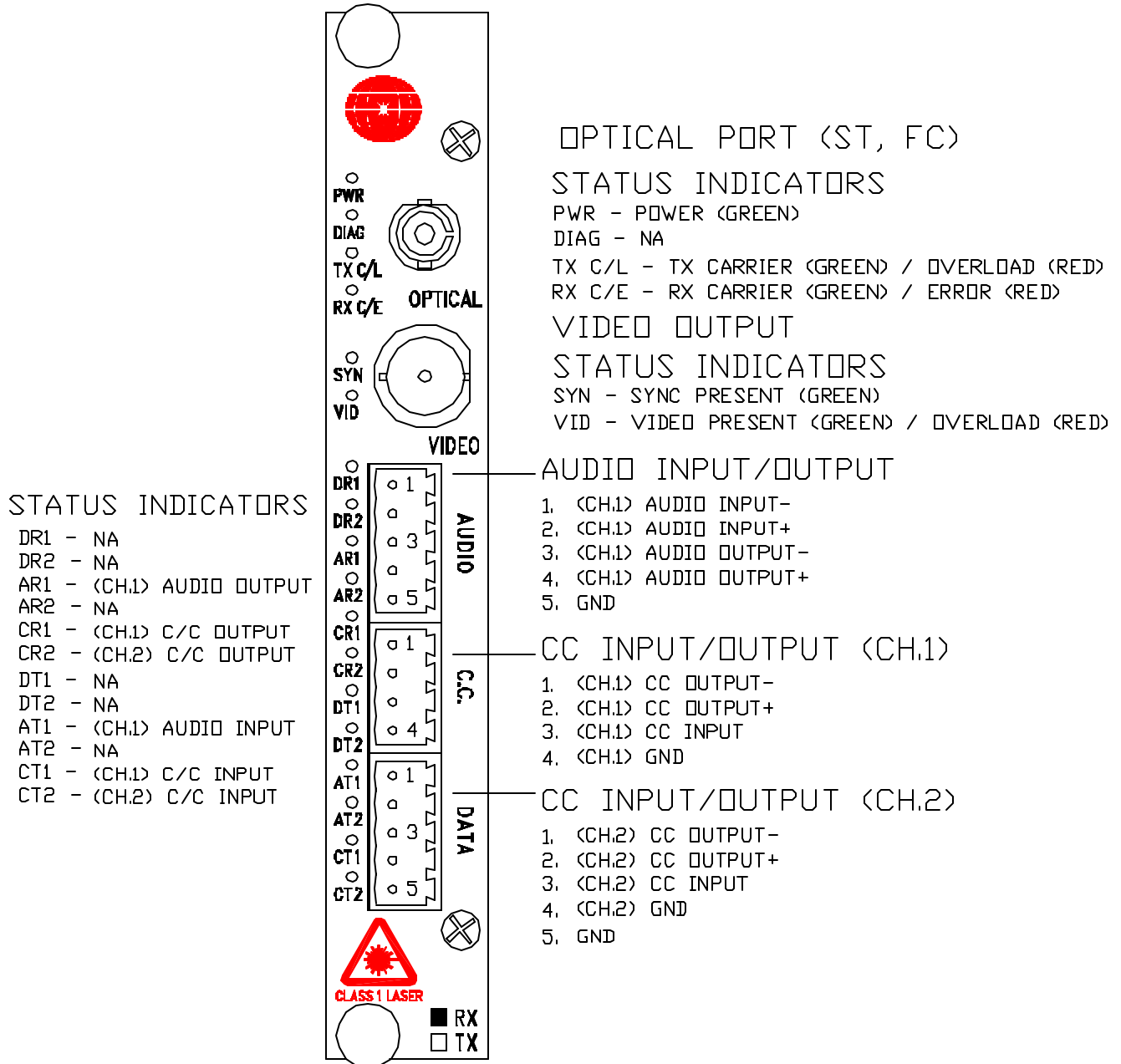
The one 14-pin screw connectors on the front of the module are used for the Audio interfaces and Contact Closure. The diagrams below indicate the video, audio input/output & contact closure input/output connection terminals.

ST-1W1A2C/1A2C-XS PINOUT DIAGRAM



SR-1W1A2C/1A2C-XS

PINOUT DIAGRAM



5.0 Signal Conditioning Switch/Jumper Settings

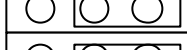
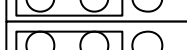
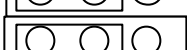
The sections below illustrate how to change the various audio impedance and contact mapping conditions.

5.1 Audio Impedance & Contact Mapping Selection jumpers

Audio Impedance - The input/Output impedance of each of the audio channels can be changed between 600 Ohm balanced and 47K Ohm unbalanced. The default impedance is 600 Ohm.

Contact Mapping - The output state of each of the contacts can be changed from Normally-Open (NO) to Normally-Closed (NC) by properly selecting the jumpers. A NO contact (output side) closes when the contact input on the input module's side is closed to ground. The default contact setting is NO (normally-open).

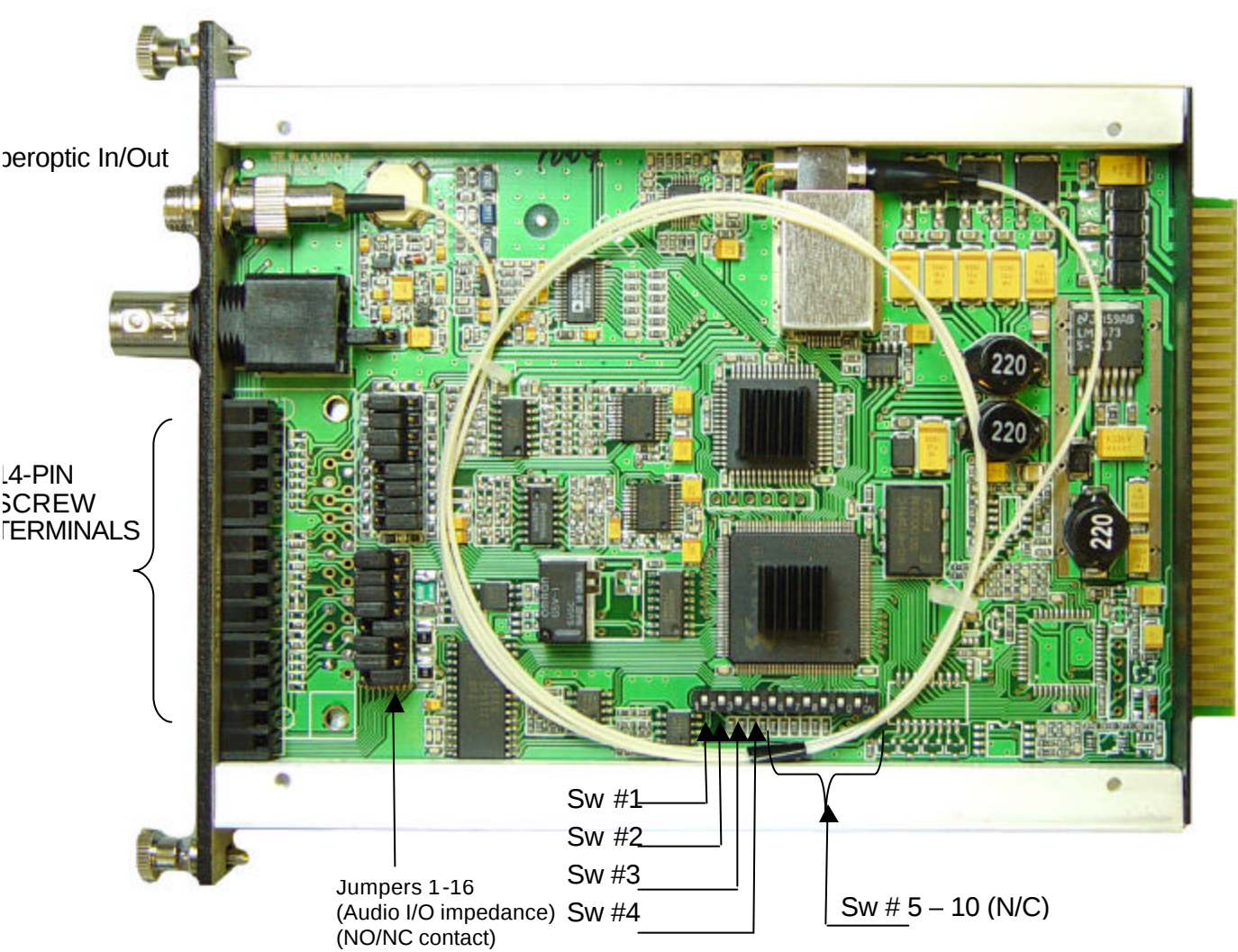
There are sixteen (16) 3-pin jumpers located directly behind the 14 pin screw terminal front-panel mounted connector. The top 10 jumpers are used to select the Input/Output Audio Impedance and the power-on state of the contacts (NO or NC). The illustration below describes the function of each of these 16 jumpers. The jumpers are shown in their default condition.

Jumper 1		Audio Ch 1 (-) (OUT) – 600 Ohm / Low Z
Jumper 2		Audio Ch 1 (+) (OUT) – 600 Ohm / Low Z
Jumper 3		N/A
Jumper 4		N/A
Jumper 5		N/A
Jumper 6		N/A
Jumper 7		Audio Ch 1 (+) (IN) – 47KOhm / 600Ohm
Jumper 8		Audio Ch 1 (-) (IN) – 47KOhm / 600Ohm
Jumper 9		Contact Ch 2 (OUT) – Normally Open (NO) - default
Jumper 10		Contact Ch 1 (OUT) – Normally Open (NO) - default
Jumper 11		N/A
Jumper 12		N/A
Jumper 13		N/A
Jumper 14		Reserved
Jumper 15		Reserved
Jumper 16		N/A

5.2 Data Format Selection

A group of 10 switches is located on the bottom center of the module’s circuit card (see figure below). The left three (3) switches control the data format that is transmitted/received. These switches on both the ST & SR modules must be set the same in order to have proper data communications format between them. The figure and table below illustrates these switch locations on the board and how they are configured for the proper data format options. The factory-supplied default setting is for RS-232 data for both data channels (Switches #1-3 ON).

Channel 1	RS-232	RS-422	RS-485 (4-wire)	RS-485 (2-wire)
Switch #1	1	0	1	1
Switch #2	1	0	0	0
Switch #3	1	1	1	0
Switch #4 - #10	N/A	N/A	N/A	N/A



1-Slot Module Data Format Selection Switch & Jumper Location

6.0 SpectraView™ Network Diagnostics

This module series is equipped with Meridian's SpectraView network diagnostics that continuously monitors the fiber system and associated equipment to provide real-time information regarding the integrity of the system.

SpectraView 1.0 supports the following diagnostic functions:

1. Fiber continuity
2. Presence/loss of video

Notification and identification of faults for the above conditions is automatically displayed on the monitor connected to the video output on the receiver module.

The table below lists the detected faults and associated alert messages that are displayed on the monitor:

Fault	Video Display Message
Broken optical fiber between Tx & Rx units	"Fiber Broken"
Loss of video signal at CCTV (Tx) side	"Video Lost"

In addition to the loss of video on the monitor, these messages alert the operator as to the cause of the associated video loss. Upon receiving one of these messages, the operator should inform their technical service center to remedy the situation.

7.0 Optical Specifications

The table below lists the optical specifications for both singlemode and multimode fiber applications.

Optical Specifications						
Fiber Type/Size (um)	Optical Output (dBm)	Rx Sensitivity (dBm)	Optical Budget (dB)	Wavelength (nm)	Optical connector	Optical Dynamic Range (dB)
Multimode (FP Laser) 62.5/125	-6	-26	20	1300	ST	24
Singlemode (FP Laser) 9/125	-6	-26	20	1310	ST, FC	24

8.0 Product Part Numbers

See Appendix 1 for a listing of the product part numbers and their description that pertain to this document.

9.0 Troubleshooting

Below is a listing of several problems that may arise during the installation & operation of the modules. If you are having difficulty installing or operating the modules please refer to this list below.

- Problem:** *Module does not fit in chassis slots*
Action: Check module orientation. Meridian “Globe” must be oriented on the top left hand side of the module. Make sure the card guides in the chassis are aligned with the extrusion on the module
- Problem:** *Card power LED does not light when power to the module/subrack is applied or power indicator turns on and off*
Action: Check power supply to ensure that it is plugged in and turned on. If flashing continues, move module to another chassis or location in the same chassis, if available.
- Problem:** *No video at output of module*
Action: Check the SpectraView display on the monitor for an indication of what the problem may be. Also, check to ensure that the video channel-specific LEDs are on (Green). Also, check to ensure that the optical LEDs are ON. If no video is still present, check to ensure that the monitor is ON and the video cable is connected to the correct video port on the Rx module.
- Problem:** *Video image is dark*
Action: Check the iris control on the camera to ensure that it is open to the proper amount for the conditions.
- Problem:** *Video image is too bright and appears overexposed*
Action: Check the Video overload indicator on the Rx module. If it is Red, the video signal level is too high and the CCTV iris should be checked to ensure that it is open properly for the conditions.
- Problem:** *No or distorted Audio*
Action: Check to ensure that the audio input/output connections are correct and that the Input/Output impedance jumpers are set correctly. The I/O impedance of each audio channel can be set independently so be sure to check that the appropriate channel is configured properly.
- Problem:** *Contact closure not working*
Action: Input side – Ensure that the input contact is connected between the appropriate input connection and ground
Output side – Ensure that the terminal device is connected to the proper output contact pinouts and that the individual contact channel jumpers are set to the appropriate normally-open or normally-closed position

If the problem still persists after reviewing the above items, please contact Meridian technical support (516-285-1000).

Appendix 1 – Applicable Part Number Variations

Transmitter Part #	Receiver Part #	# of Video Channels	# of Audio Channels	# of Contact Channels	Optical Connector	Description
ST-1W1A2C/1A2C-2R	SR-1W1A2C/1A2C-2R	1	1	2	ST	Tx/Rx, multimode, rack mount
ST-1W1A2C/1A2C-5R	SR-1W1A2C/1A2C-5R	1	1	2	FC	Tx/Rx, singlemode, rack mount
ST-1W1A2C/1A2C-5RST	SR-1W1A2C/1A2C-5RST	1	1	2	ST	Tx/Rx, singlemode, rack mount