

fiberplex
TECHNOLOGIES, LLC

USER MANUAL

TIA-530 / MIL-188-114 Oscilloscope Monitor Panel

CMP-530

Warning for Your Protection

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, tripod, bracket, or table specified by the manufacturer, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

The apparatus shall not be exposed to dripping or splashing. No objects filled with liquids, such as vases or drink cups, shall be placed on the apparatus.

“WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.”

General Installation Instructions

Please consider these general instructions in addition to any product-specific instructions in the “Installation” chapter of this manual.

Unpacking

Check the equipment for any transport damage. If the unit is mechanically damaged, if liquids have been spilled or if objects have fallen into the unit, it must not be connected to the AC power outlet, or it must be immediately disconnected by unplugging the power cable. Repair must only be performed by trained personnel in accordance with the applicable regulations.

Installation Site

Install the unit in a place where the following conditions are met:

- The temperature and the relative humidity of the operating environment must be within the specified limits during operation of the unit. Values specified are applicable to the air inlets of the unit.
- Condensation may not be present during operation. If the unit is installed in a location subject to large variations of ambient temperature (e.g. in an OB-van), appropriate precautions must be taken.
- Unobstructed air flow is essential for proper operation. Ventilation openings of the unit are a functional part of the design and must not be obstructed in any way during operation (e.g. - by objects placed upon them, placement of the unit on a soft surface, or improper installation of the unit within a rack or piece of furniture).
- The unit must not be unduly exposed to external heat sources (direct sunlight, spot lights).

Ambient Temperature

Units and systems by FiberPlex are generally designed for an ambient temperature range (i.e. temperature of the incoming air) of +5...+40 °C. When rack mounting the units, the following facts must be considered:

- The permissible ambient temperature range for operation of the semiconductor components is 0 °C to +70 °C (commercial temperature range for operation).
- The air flow through the installation must allow exhaust air to remain cooler than 70 °C at all times.
- Average temperature increase of the cooling air shall be about 20 °C, allowing for an additional maximum 10 °C increase at the hottest components.

If the cooling function of the installation must be monitored (e.g. for fan failure or illumination with spot lamps), the exhaust air temperature must be measured directly above the modules at several places within the enclosure.

Grounding and Power Supply

Grounding of units with mains supply (class I equipment) is performed via the protective earth (PE) conductor integrated in three pin Phoenix™ connector. Units with battery operation (< 60 V, class III equipment) must be earthed separately. Grounding the unit is one of the measures for protection against electrical shock hazard (dangerous body currents). Hazardous voltage may not only be caused by defective power supply insulation, but may also be introduced by the connected audio or control cables.

This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. If the attachment plug needs to be changed, refer servicing to qualified personnel.

Warranty, Service and Terms and Conditions of Sale

For information about Warranty or Service information, please see our published 'Terms and Conditions of Sale'. This document is available on fiberplex.com or can be obtained by requesting it from clients@fiberplex.com or calling 301.604.0100.

Disposal

Disposal of Packing Materials

The packing materials have been selected with environmental and disposal issues in mind. All packing material can be recycled. Recycling packing saves raw materials and reduces the volume of waste. If you need to dispose of the transport packing materials, recycling is encouraged.

Disposal of Used Equipment

Used equipment contains valuable raw materials as well as substances that must be disposed of professionally. Please dispose of used equipment via an authorized specialist dealer or via the public waste disposal system, ensuring any material that can be recycled has been. Please take care that your used equipment cannot be abused. After having disconnected your used equipment from the mains supply, make sure that the mains connector and the mains cable are made useless.

Disclaimer

The information in this document has been carefully checked and is believed to be accurate at the time of publication. However, no liability is assumed by FiberPlex for inaccuracies, errors, or omissions, nor for loss or damage resulting either directly or indirectly from use of the information contained herein.

Introduction

The CMP-530 connects between the DCE and DTE of TIA-530 or MIL-188-114 balanced serial interfaces, allowing connection of low impedance test equipment such as oscilloscopes for analog signal analysis of the digital signal interfaces without loading the interfaces. A third DB-25 interface allows connection of other user equipment directly to the interface connections.

All 25 pins between the DCE and DTE interfaces are passed through the device passively, so the connected communication interface operates even with no power applied to the CMP-530. High impedance buffers recreate the signals levels on four 50 ohm BNC output jacks allowing the user to monitor and troubleshoot the Receive Data (RD) and Receive Timing (RT) lines from the DCE, the Transmit Data (TD) from the DTE as well as either the Send Timing (ST) from the DCE or Terminal Timing (TT) from the DTE (switch selectable), supporting all synchronous timing configurations.

Front panel switches associated with each BNC select a differential analysis (A+B) or the individual A or B leads of each signal.

Loading on TD, RD, RT, TT, and ST signals for levels between -12 and +12 volts is greater than 100k ohms. For signals outside of these limits, diode protection devices will load with 1k ohms to the respective exceeded voltage on the particular line. All other signals on the interface are not used by the CMP-530 and have no loading.

The front panel DB-25 monitor port has no buffering or protection devices and is directly connected to the TD, TT, RD, RT and ST lines between the DCE and DTE connectors. The user must ensure any connected devices do not adversely affect the equipment connected to the DCE or DTE interfaces, or any expected measurement at the BNC outputs. No other signals are available on the front panel monitor port.

Key Features

- Compliant with EIA-530 interface specifications.
- Monitored signals; Send Data, Send Timing, Receive Data, Receive Timing. Both lines of each balanced circuit are available for monitoring signal quality.
- A selector switch allows oscilloscope monitoring of either the Send Timing, or the Terminal Timing signal path.
- Another selector switch allows viewing of the A lead, the B lead, or the A + B signals.

Getting Started

Initial Inspection

Immediately upon receipt, inspect the shipping container for damage. The container should be retained until the shipment has been checked for completeness and the equipment has been checked mechanically and electrically. If the shipment is incomplete, if there is mechanical damage, or if the unit fails to operate notify FiberPlex and make the shipping materials available for the carrier's inspection.

Features

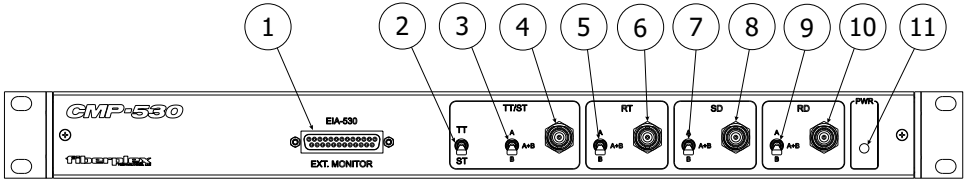


Figure 1: CMP-530 Front Panel

- 1 **External Monitor Port** – DB-25 connector for connection of other user equipment for monitoring. See pinouts below.
- 2 **TT/ST Selector Switch** – Two (2) position toggle switch. Selects between Terminal Timing and Send Timing to be presented on adjacent BNC.
- 3 5 7 9 **Signal Selection Switch** – Three (3) position toggle switch. Used to select a differential analysis (A+B) or the individual A or B leads of each signal.
- 4 **TT/ST Signal Connector** – BNC connector, 50 ohm.
- 6 **Receive Timing Signal Connector** – BNC connector, 50 ohm.
- 8 **Send Data Signal Connector** – BNC connector, 50 ohm.
- 10 **Receive Data Signal Connector** – BNC connector, 50 ohm.
- 11 **Power Indicator** – LED illuminates when the unit is energized.

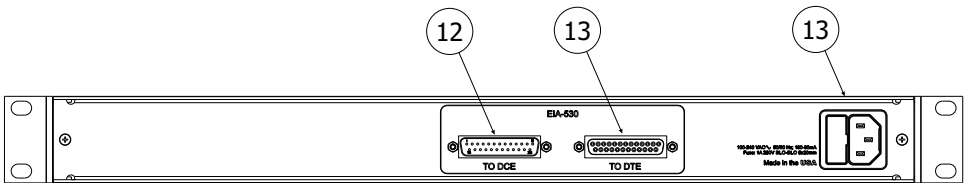
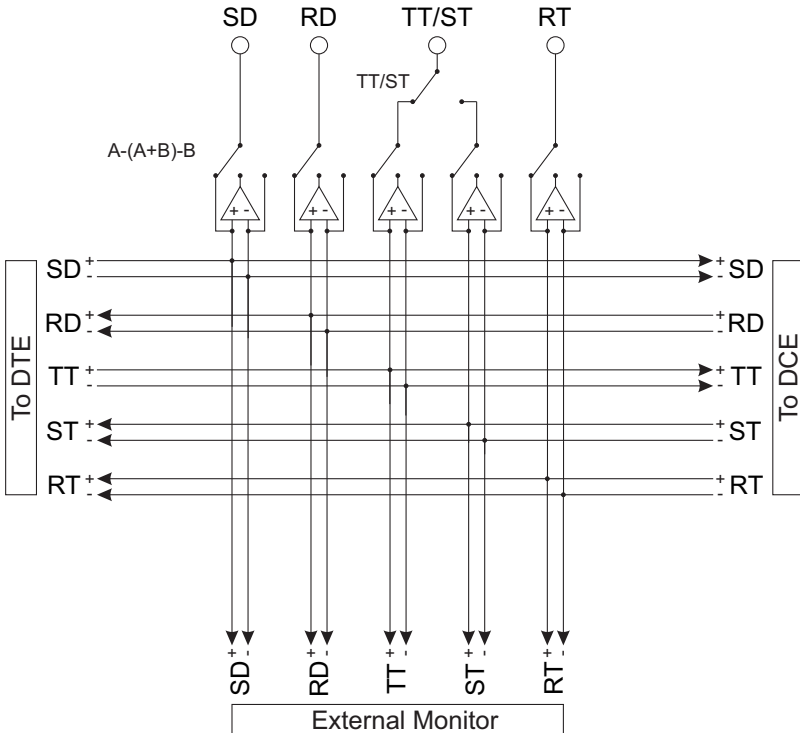


Figure 2: CMP-530 Rear Panel

- 12 **DCE Connector** – DB-25 connector. See pinouts below.
- 13 **DTE Connector** – DB-25 connector. See pinouts below.
- 14 **Power Connector** – 3 Prong AC connector, type IEC-320 C-14.

PINOUTS				
Pin	To DCE	To DTE	External Monitor	EIA-530 Designation
1				Chassis Ground
7				Signal Ground
2	Out	In	Out	Send Data A (SD)
14				Send Data B (SD\)
3	In	Out	Out	Receive Data A (RD)
16				Receive Data B (RD\)
4	Out	In	N/C	Request To Send A (RTS)
19			N/C	Request To Send B (RTS\)
5	In	Out	N/C	Clear To Send A (CTS)
13			N/C	Clear To Send B (CTS\)
20	Out	In	N/C	Terminal Ready A (TR)
23			N/C	Terminal Ready B (TR\)
6	In	Out	N/C	Data Set Ready A (DSR)
22			N/C	Data Set Ready B (DSR\)
24	Out	In	Out	Terminal Timing A (TT)
11				Terminal Timing B (TT\)
17	In	Out	Out	Receive Timing A (RT)
9				Receive Timing B (RT\)
15	In	Out	Out	Send Timing A (ST)
12				Send Timing B (ST\)
8	In	Out	N/C	Receiver Ready A (RR)
10			N/C	Receiver Ready B (RR\)
18	Out	In	N/C	Local Loopback (LL)
25	In	Out	N/C	Test Mode (TM)
21	Out	In		Remote Loopback (RL)

Functional Diagram



Specifications

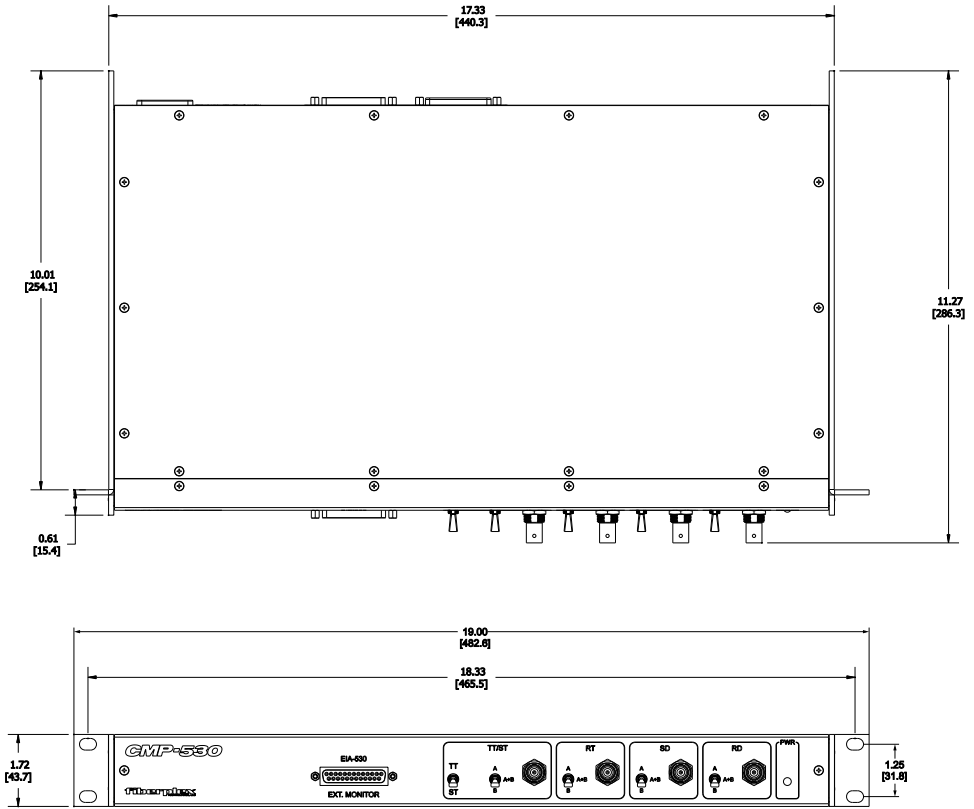


Figure 3 CMP-530 Dimensions

PHYSICAL SPECIFICATIONS

	Length	Width	Height	Weight
Case Dimensions (Unloaded)	11.3 in (286 mm)	19.0 in (483 mm)	1.72 in (43.7 mm)	10.5 lb (4.8 kg)

ELECTRICAL SPECIFICATIONS

		Min	Typ	Max	Units
Power Requirement	Voltage Range	100	115/230	240	VAC
	Power Line Frequency	47	60/50	63	Hz
	Power Consumption	-	-	10	W
Signal Specifications	BNC Output Levels	-12	-	12	V
	Maximum Digital Rate	-	5	-	MHz
	Analog Bandwidth	10MHz, -3dB max from actual DCE or DTE signal			
Power Connector Type	IEC-320 C-14				
Fuse	1A 250V SLO-BLO, 5 x 20 mm				



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