



Model TMA 4882-27 1U rack housing

TMA 4882-27

Kepeco's TMA are power supply controllers to program, control and monitor the output of up to 27 Kepeco power modules in the MAT, MST and BOP-TMA series at distances up to 1000 feet (300meters).

The Kepeco TMA 4882-27 controller receives commands and transmits data to a host computer over the bi-directional digital control bus IEEE 488.2 or over a serial communications link using RS 232. Kepeco model TMA 4882-27 supports both CIIL (Control Intermediate Interface Language) and SCPI, the Standard Commands for Programmable Instruments.

The controller continuously monitors the status of each power module for the correctness of the programmed voltage or current, overvoltage, overcurrent, crowbar, overtemperature, power loss, output enable, polarity reversal status and other fault conditions. Any changes from normal set conditions will generate error flags reported over the communications bus.

For catastrophic failures, a separate 2-wire discrete fault line output flag (status monitor indicator) is activated for fast direct communication with the host computer. Also, 2 pairs of isolated and non-isolated input lines are provided for fast remote emergency shut-down.



Model TMA PC-27 plugs into a PC

TMA PC-27

Use a PC to directly control Kepeco's M-series (MAT and MST) and BOP-TMA power supplies.

PC-27 is a software emulator of Kepeco's model TMA 4882-27. Where TMA 4882-27 converts an IEEE 488.2 bus into the Kepeco serial bus to talk with a Kepeco M-Series or BOP-TMA power supply, the model TMA PC-27 communicates directly from your PC to the serial bus and then to the M-series and BOP-TMA power supplies. TMA PC-27 comprises a board that will fit into your PC or compatible computer. With the provided software, it allows your computer to emulate the whole TMA function. The PC will communicate directly with up to 27 M-series and BOP-TMA power supplies providing all control and communication functions without requiring an IEEE 488.2 (GPIB) card.

DIGITAL INTERFACES

Kepeco's Single Address, Multiple Instrument System for the Digital Control of Kepeco Power Supplies

Modern desk-top computers typically support RS 232 and can drive IEEE 488.2 with the help of a plug-in card. Many Kepeco power supplies directly communicate with these two digital buses. Their limitations, however, in terms of the number of instruments supported and the distance that can be covered, have led Kepeco to adopt a serial bus scheme to distribute signals to multiple power supplies.

Kepeco's single address, multiple instrument serial bus is based on the IEEE 1118 protocol. By choosing a 375KHz data rate and limiting it to 27 talk-listen power supplies, we are able to provide communications to our power supplies over a 300m (1000') path. The operation of this serial link is entirely transparent to users. The communication from PC to the IEEE 488.2 bus to Kepeco's serial bus to power supply and back is exactly as if the PC were talking to the power supply on the IEEE 488.2 bus alone. The difference is that there can be 27 power supplies spread over 300m of a daisy chained two-wire serial bus.

Kepeco offers various hardware options to facilitate communications between desk-top computers and their common instrumentation buses and Kepeco's power supplies. The TMA 4882-27 links either the GPIB or RS 232 to the single address multiple-instrument bus that drives MST, MAT and BOP power supplies. MST 488-27 accepts GPIB and RS 232 to drive the plug-in MST power modules. The various BIT cards that plug into Kepeco's low-voltage 100-400W BOP allow these bipolar power supplies to interface with the buses. A VXI interface is also offered.





Model TMA VXI-27 plugs into a VXI type C enclosure

TMA VXI-27

TMA VXI-27 supports the VXI bus by providing an interface path to the Kepco M-series power supplies: MAT and MST. VXI, the VME bus eXtension for Instrumentation is a recent standard for test and measurement instruments that seeks to reduce the size of these instruments, promote standardization, and allow instruments to share resources such as cooling, chassis and power supply.

Kepco's power supplies are not the sources used to power up the instruments-on-a-card that comprise a VXI card cage. Rather, they are generators that work with the other instruments to stimulate the device under test so that measurements can be made of its performance. As generators, Kepco's programmable power supplies need to communicate with the other instruments to receive instructions on where to set the voltage (for example) and report back how much current is being drawn.

The Kepco TMA VXI-27 fills a single width slot in a VXI type "C" enclosure and provides a serial output in the IEEE 1118 format.

For catastrophic failures, a separate 2-wire discrete fault line output flag (status monitor indicator) is activated for fast direct communication with the host computer. Also, 2 pairs of isolated and non-isolated input lines are provided for fast remote emergency shut-down.



TMA VXI-27 SPECIFICATIONS

SPECIFICATION	TYPE	RATING/DESCRIPTION
Function		To interconnect up to 27 power supplies with Kepco's single address, multiple instrument, serial bus capability to the VXI bus.
Purpose		To permit control of external power supplies via VXI using either SCPI or CIL programming languages
VXI Bus Capability	Device (instrument) type	VXI message-based servant interface with programmable interrupter capability
	Command set	Implements the command set of an I 4 instrument
	Addressing	Static configured address, switch selectable 1-254
	Address space	A16, sixteen address lines with normal handshake only
	Interrupter	Programmable interrupter software assigns interrupt levels between Level (1) highest & Level (7) lowest priority
	Data bus width	D16, sixteen data lines for commands, status and data transfer
Module Specific Commands	Byte request; Byte available	Data transfer using Word Serial Protocol
	Clear Begin Normal Operation End Normal Operation Abort Normal Operation Read Protocol Read Protocol Error	Required for message-based instruments
	Read interrupts: Assign interrupter line Read interrupter line	Required for programmable interrupter instruments
Events Supported Through Interrupts	Control event: Asynchronous mode control	Enable, disable, request true and request false events
Power Requirement	Normal operation	+5V, 2A from VXI backplane
Card Size	VXI "C" size	9.19" x 13.39" (233.35 x 340mm)
VXI Mainframe Slots		Card occupies one slot
Front Panel	Connectors	One 9-Pin "D"-type for serial bus; One 15-Pin "D"-type for aux. signals
	On Line LED	Green. Normally on. Indicates that power is applied and the microsystem is on line
	Failed LED	Red. Normally off. Indicates a failure condition. "On" during power-on self test, goes off in less than 5 seconds.
	Access LED	Green. When on, it indicates that a VXI access cycle to the module address has been executed.