Fiber I/O Terminal Block

The Fiber I/O Terminal Block (FTB) provides an active fiber interface that extends the I/O capability of the IC695PMM335 PACMotion Multi-Axis Motion Controller. The FTB provides a broad range of configurable I/O for the axes on the PMM335, supporting extensive distributed, configurable digital and analog I/O for complex machines.

The FTB allows motion-centric I/O to be distributed up to 100 meters from the RX3i rack. Servo amplifiers and motion I/O can be distributed with up to 100 meters between nodes, allowing 400 meters maximum from the controller.

In addition to simple I/O, FTB I/O is configurable for motion-specific functionality such as Touch Probe inputs, Over Travel Limit switches, Home switches, and A Quad B Encoder and Marker inputs.

In the event of a system malfunction, such as loss of communication with the PMM, the FTB sets its I/O to the user-configured state.

Features

- Twelve differential high speed 5 volt inputs with fault detection. Six may be configured to operate as single ended inputs. Four may be configured to operate as differential inputs or outputs.

- Sixteen optically isolated 24 volt inputs.

- Eight optically isolated 24 volt outputs with integrated short circuit protection

- Two +/- 10 volt general-purpose analog inputs.

- Two +/- 10 volt general-purpose analog outputs.

- DIN rail mounting allows convenient location of I/O.

- Removable RX3i terminal block headers provide ease of use

- A 5VDC power source for external quadrature encoders.
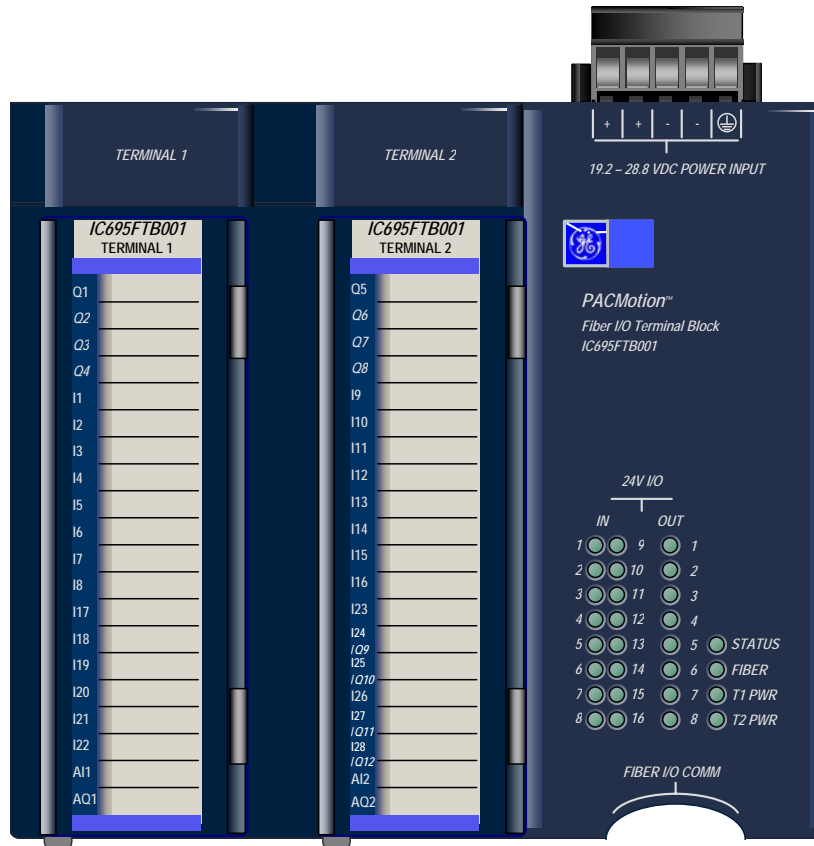
Specifications

For RX3i environmental specifications, refer to the *PACSystems Rx3i System Manual,* GFK-2314.

Specification Details		*Comments*
Mounting Dimensions:	35 mm DIN Rail	Must be mounted on a vertical surface for proper cooling
inches	5.56 W x 4.94 H x 2.46 D	—
mm	141.2 W x 125.5 H x 62.5	—
Interface to PACMotion Module	Fiber Optic Cable	Maximum cable length is 100 meters; Interface uses a unique user selectable ID for each PMM/FTB pair to prevent cross-connection
Power Requirements	19.2VDC —28.8VDC; 0.45 Amps @ 24V	One AWG #14 (2.1mm2) or two AWG #16 (1.3mm^2) copper wires per terminal
24V Outputs	8 optically isolated; source; open load & short detection	2 groups of 4; 1.5 A max. per point; 4 A max. per group
24V General Purpose Inputs	16 optically isolated; source/sink	4 groups of 4
5V Inputs / Outputs (differential)	4	RS422 Line Driver with short circuit protection; 48 mA max.
5V Inputs	8 (6 differential/single-ended; 2 differential)	RS422 / RS485 Line Receiver with fault detection
Analog Inputs	2, ±10V differential	14 bit resolution
Analog Outputs	2, ±10V single-ended	12 bit resolution
24V Power Output		Reverse polarity protected by replaceable fuse
5V Power Output	0.5 amp max.	electronic overload protected
Quad Encoder Open Circuit Detection	Yes	—
I/O Function Assignment	Configurable	I/O functions are assigned during module hardware configuration

Release History

Catalog Number	Firmware Version	Date
IC695FTB001-AA	1.00 (initial release)	

Important Product Information for this Release

Functional Compatibility

Subject	Description
CPU Version	Use of the FTB001 requires PACSystems Rx3i firmware release 5.60.
PMM Version	Use of the FTB001 requires PACMotion firmware release 1.00 or later.
Programmer Version	Use of FTB001 requires Machine Edition Logic Developer – PLC Version 5.90 or higher. The FTB001 is not compatible with LM90, Control, VersaPro or the DOS-based Motion Programmer (IC641SWP065).

Restrictions and Open Issues

Restriction/Problem	Description
Analog Output 2 does not output Actual Motor Current	Analog Output 2 does not output Actual Motor Current. Instead, a 0x005F event is logged. The MC_WriteDwordParameter instance that sets analog Output 2 to output actual motor current does not report an error. Analog Output 1 correctly outputs actual motor current.
Analog Output Source not set back to default	If the user sets the Analog Output Source by calling the MC_WriteParameter function with parameter number 2104 or 2105, and then later stores hardware configuration, the output source is not set back to the default, which is the MC_WriteAnalogOutput value. To work around this issue, execute another MC_WriteParameter function call to reset the output source.

Related Documents

PACSystems CPU Reference Manual, GFK-2222

TCP/IP Ethernet Communications for PACSystems, GFK-2224

Station Manager for PACSystems, GFK-2225

Proficy Machine Edition Logic Developer-PLC Getting Started, GFK-1918

PACSystems RX3i Hardware and Installation Manual, GFK-2314

Servo Products Specifications Guide, GFH-001

AC Servo Motor βis Series - Descriptions Manual, GFZ-65302EN

In addition to these manuals, product update documents describe individual product revisions. The most recent PACSystems documentation is available at the GE website: http://www.ge-ip.com/.

PLCopen, www.plcopen.org

Ordering Information

Fiber I/O Terminal Block	IC695FTB001	Motion I/O Expansion
Motion Controller	IC695PMM335	PACMotion Motion Controller for RX3i
Fiber Optic Cables	ZA66L-6001-0023#L150R0	FSSB and FTB I/O Cable 0.15 Meter
	ZA66L-6001-0023#L300R0	FSSB and FTB I/O Cable 0.3 Meter
	ZA66L-6001-0023#L1R003	FSSB and FTB I/O Cable 1 Meter
	ZA66L-6001-0023#L3R003	FSSB and FTB I/O Cable 3 Meter
	ZA66L-6001-0026#L1R003	FSSB and FTB I/O Cable Sheathed, 1 Meter
	ZA66L-6001-0026#L3R003	FSSB and FTB I/O Cable Sheathed, 3 Meter
	ZA66L-6001-0026#L5R003	FSSB and FTB I/O Cable Sheathed, 5 Meter
	ZA66L-6001-0026#L10R03	FSSB and FTB I/O Cable Sheathed, 10 Meter
	ZA66L-6001-0026#L20R03	FSSB and FTB I/O Cable Sheathed, 20 Meter
	ZA66L-6001-0026#L30R03	FSSB and FTB I/O Cable Sheathed, 30 Meter
	ZA66L-6001-0026#L50R03	FSSB and FTB I/O Cable Sheathed, 50 Meter
	ZA66L-6001-0026#L100R3	FSSB and FTB I/O Cable Sheathed, 100 Meter
Terminal Header Options (ordered separately – two required per FTB)		
IC694TBS032	High Density 36 point Spring Clip Terminals	14-26 AWG
IC694TBB032	High Density 36 point Captive Screw Terminals	14-26 AWG
IC694TBS132	High Density Spring Clip Terminals, Extended Shroud	14-28 AWG
IC694TBB132	High Density Captive Screw Terminals, Extended Shroud	14-28 AWG

Installation in Hazardous Locations

The following information is for products bearing the UL marking for Hazardous Locations:

- WARNING - EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2;

- WARNING - EXPLOSION HAZARD - WHEN IN HAZARDOUS LOCATIONS, TURN OFF POWER BEFORE REPLACING OR WIRING MODULES; AND

- WARNING - EXPLOSION HAZARD - DO NOT CONNECT OR DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NONHAZARDOUS.

- EQUIPMENT LABELED WITH REFERENCE TO CLASS I, GROUPS A, B, C & D, DIV. 2 HAZARDOUS LOCATIONS IS SUITABLE FOR USE IN CLASS I, DIVISION 2, GROUPS A, B, C, D OR NON-HAZARDOUS LOCATIONS ONLY