MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

HONEYWELL

MC-PLAM02 51304362-150

LOW-LEVEL ANALOG INPUT MULTIPLEXER

Used with the applicable TDC 3000 PM/APM/HPM configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Honeywell MC-PLAM02 51304362-150; applicable product and connection sections.

Low Level Analog Input Multiplexer Processor - 32 Inputs **MU-PLAM02**

Data Conversion Performance (General Specifications)	
Parameter	**Specification**
FTA Models	**MU-TAMR03, TAMT03, TAMT13**
Input Type	Thermocouple, RTD, and linear millivolts
Input Channels	32 galvanically isolated
A/D Converter Resolution	14 bits TC types J, K, E, T, B, S, R, RP: 10 µV per bit 100 Ω and 120 Ω RTDs: 64 mΩ per bit 10 Ω RTD: 8 mΩ per bit Linear mV sensors: 20 µV per bit
CMV, dc to 60 Hz	250 Vac Peak or ±250 Vdc
Dielectric Strength	1500 Vac rms or ±1500 Vdc channel-to-channel (operating), and channel-to-PM/APM/HPM common (not operating)
Crosstalk, dc to 60 Hz	120 dB
Input Impedance	2 MΩ min. @ 100 mV
Maximum Normal Mode Continuous Input (No damage)	-1 V to 10 V
Input Scan Rate	32 samples per second (each channel once per second)
Line Frequency Synchronization	Configurable to 50 or 60 Hz
Hardware (only) Accuracy	±40 µV, or ± 160 mΩ 23.5° ±2°C
Software (only) Accuracy(1)	±0.1°C typical, ±0.5°C maximum at 23.5° ±2°C
Surge withstand capability (common mode)	ANSI/IEEE C37.90.1-1978
(1) Software EU conversion error including software reference junction compensation, at reference temperature. The temperature conversion by software meets or exceeds the accuracy tolerances for fifth order polynomials as specified in the National Institute of Standards and Technology (NIST) Monograph 125 (IPTS-68).	
NOTE: Mercury-Wetted Relays are used in this product.	

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Low Level Analog Input Multiplexer Processor - **32 Inputs** (continued) **MU-PLAM02**

Data Conversion Performance --Thermocouple (TC) and Voltage Input		
Parameter	**Specification**	
Thermocouple Device Range	Normal Signal Range	Extended Signal Range
ANSI J ANSI K ANSI E ANSI T ANSI B ANSI S ANSI R JAPAN Type R	-100 to 750° C 0 to 1100° C -150 to 500° C -200 to 300° C +600 to 1650° C +550 to 1500° C +550 to 1500° C +550 to 1500° C	-200 to 1200° C -200 to 1370° C -200 to 1000° C -230 to 400° C +100 to 1820° C 0 to 1700° C 0 to 1700° C 0 to 1700° C
Voltage Input Signal Range	0 to 100 mV	
CMRR, dc to 60 Hz (0-100 mV)	120 dB min. with 500Ω lead imbalance	
NMRR, at line frequency (50 or 60 Hz)	60 dB min.	
NMRR, at other than line frequency (1-15 mV)	$NMRR = -20 \times \log_{10}\left(\frac{\sin(\pi^x f^x t)}{(\pi^x f^x t)}\right) -20 \times \log_{10}\left(\frac{1}{K^x f}\right)$ Where: π= 3.14159 f= Noise Frequency t= Integration Time (20 ms @ 50 Hz, 16.66ms @ 60 Hz) K= 0.20878 (a constant)	
Normal Mode Filter Response (TC & mV)	-3 dB point: Typical 5.1 Hz; min. 4.3 Hz; max. 6.4 Hz	
Hardware Reference Junction Accuracy	±1.0°C maximum at 23.5° ±2°C (in cabinet)	
Temperature Stability Voltage Input, current input, thermocouple input (except reference junction)	 20 ppm/°C RSS 30 ppm/°C maximum	
TC Max Length, 250 V Peak/dc Common Mode 16 Gauge TC Wire 18 Gauge TC Wire 20 Gauge TC Wire	 3,500 ft. 2,250 ft. 1,250 ft.	
CMRR = Common Mode Rejection Ratio. NMRR = Normal Mode Rejection Ratio.		

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Low Level Analog Input Multiplexer Processor - **32 Inputs** (continued) **MU-PLAM02**

Data Conversion Performance--Resistive Temperature Device (RTD)	
Parameter	**Specification**
RTD (3 Wire) Input Signal Range Pt: 100 Ω DIN (4376) Pt: 100 Ω JIS (C-1604) Ni: 120 Ω Ed #7 Cu: 10 Ω	 -200 to 850°C -200 to 650°C -45 to 315°C -20 to 250°C
CMRR, dc to 60 Hz (0-100 mV)	10Ω RTD: 120 dB min. 100Ω RTD: 110 dB min.
NMRR, at line frequency (50 or 60 Hz)	10Ω RTD: 60 dB min. (for 50/60 Hz noise of 0-15 mV) 100Ω RTD: 60 dB min. (for 50/60 Hz noise of 0-75 mV)
NMRR, at other than line frequency 10Ω RTD: (0-15 mV) 100Ω RTD: (0-75 mV)	NMRR = $-20 \times \log_{10}\left(\frac{\sin(\pi^{x} f^{x} t)}{(\pi^{x} f^{x} t)}\right)$ Where: π= 3.14159 f= Noise Frequency t= Integration Time (20 ms @ 50 Hz, 16.66ms @ 60 Hz)
Hardware Reference Junction Accuracy	±1.0°C maximum at 23.5° ±2°C (in cabinet)
Temperature Stability RTD Input	 30 ppm/°C RSS 40 ppm/°C maximum
RTD Max Lead Resistance	15 Ω
CMRR = Common Mode Rejection Ratio. NMRR = Normal Mode Rejection Ratio.	

Model Numbers

Description	Uncoated Model Number	Coated Model Number (see note)
I/O Processors		
High Level Analog Input Processor (16 Inputs)	n/a	MC-PAIH03
Smart Transmitter Interface (Multivariable) Processor (16 Inputs)	MU-PSTX03	MC-PSTX03
Serial Device Interface Processor (16 Points/Port)	MU-PSDX02	MC-PSDX02
Serial Interface Processor (16 Points/Port)	MU-PSIM11	MC-PSIM11
Low Level Analog Input Processor (8 Inputs)	MU-PAIL02	MC-PAIL02
Low Level Analog Input Multiplexer Processor (32 Inputs)	MU-PLAM02	MC-PLAM02
Remote Hardened Multiplexer IOP (32-Points)	MU-PRHM01	MC-PRHM01
Pulse Input Processor (8 Inputs)	MU-PPIX02	MC-PPIX02
Analog Output Processor (8 Outputs)	n/a	MC-PAOX03
Analog Output 16 Processor (16 Outputs)	n/a	MC-PAOY22
Digital Input Processor (32 Inputs)	MU-PDIX02	MC-PDIX02
Digital Input Processor for Sequence of Events (32 Inputs)	MU-PDIS12	MC-PDIS12
Digital Input 24 Vdc Processor (32 Inputs)	MU-PDIY22	MC-PDIY22
Digital Output Processor (16 Outputs)	MU-PDOX02	MC-PDOX02
Digital Output 32 Processor (32 Outputs)	MU-PDOY22	MC-PDOY22
Blank Filler Plate for I/O Slot	MU-PFPX01	n/a
I/O Link Extender Pair–Main Location	MU-IOLM02	MC-IOLM02
I/O Link Extender Pair–Remote Location	MU-IOLX02	MC-IOLX02
Long Distance I/O Link Extender Pair	MU-ILDX03	MC-ILDX03
I/O Link Extender Shroud (EC)	MU-ILES01	n/a
NOTE: MC model numbers indicate conformally coated boards. All IOPs are available conformally coated (MC models).		

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