



M-7017RMS

8-channel True RMS Input Module

Features

- 8-channel True RMS Input
- $\pm 0.15\%$ Factory Calibrated Accuracy
- The RMS input range can be from +150 mVrms to +10 Vrms
- Designed for Standard Operation with Frequencies of 45 Hz to 10 KHz
- Individual Channel Configurable
- 4 kV ESD Protection
- ± 35 Vdc Overvoltage Protection
- 2500 Vdc Intra-module Isolation
- RoHS Compliant
- Wide Operating Temperature Range: -25 to +75°C



Introduction

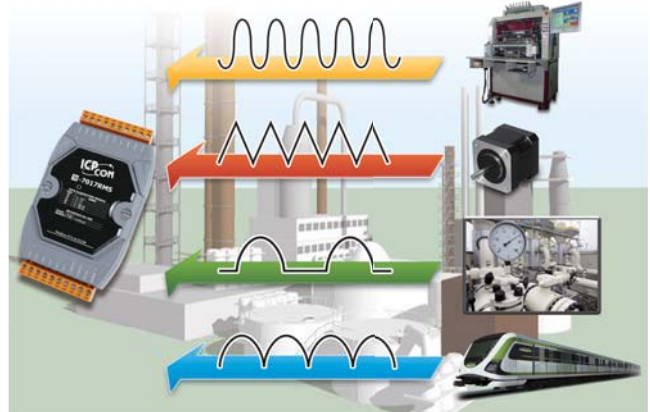
The M-7017RMS is an 8-channel differential AC input module that is used to convert the AC input signals to their True RMS DC values. The RMS input range can be from +150 mVrms to +10 Vrms, and each channel can be configured individually. The M-7017RMS is a complete, high-accuracy, RMS-to-DC converter that computes the True RMS DC value of any complex waveform. It also features 4 kV ESD protection, 2500 VDC intra-module isolation and +/-35 VDC overvoltage protection.

System Specifications

Model	M-7017RMS
Communication	
Interface	RS-485
Bias Resistor	No (Usually supplied by the RS-485 Master. Alternatively, add a tM-SG4 or SG-785.)
Baud Rate	1200 to 115200 bps
Protocol	Modbus RTU, DCON
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)
LED Indicators/Display	
System LED Indicator	Yes, 1 as Power/Communication Indicator
I/O LED Indicators	-
7-segment LED Display	-
Isolation	
Intra-module Isolation, Field-to-Logic	2500 Vdc
EMS Protection	
ESD (IEC 61000-4-2)	± 4 kV Contact for each Terminal
	± 8 kV Air for Random Point
EFT (IEC 61000-4-4)	± 4 kV for Power Line
Surge (IEC 61000-4-5)	± 0.5 kV for Power Line
Power	
Reverse Polarity Protection	Yes
Input	+10 ~ +30 Vdc
Consumption	0.9 W
Mechanical	
Dimensions (L x W x H)	123 mm x 72 mm x 35 mm
Installation	DIN-Rail
Environment	
Operating Temperature	-25 to +75°C
Storage Temperature	-40 to +85°C
Humidity	10 to 95% RH, Non-condensing

Applications

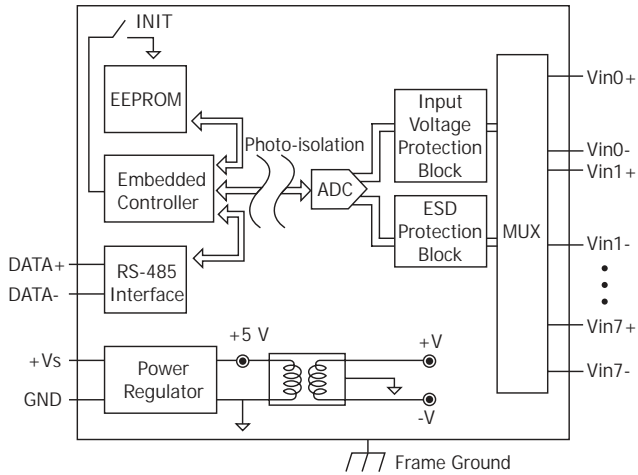
- Building Automation
- Machine Automation
- Remote Diagnosis
- Factory Automation
- Remote Maintenance
- Testina Equipment



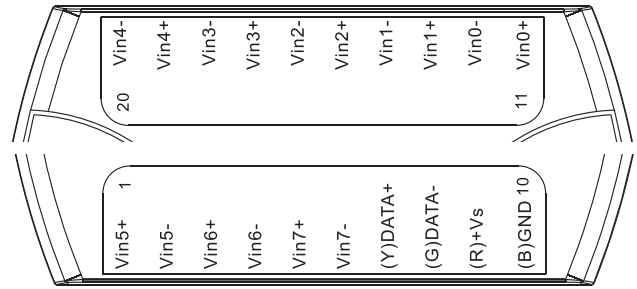
I/O Specifications

Model	M-7017RMS	
Analog Input		
Channels	8	
Wiring	Differential	
Input Range	0 ~ +10 Vrms, 0 ~ +5 Vrms, 0 ~ +1 Vrms, 0 ~ +500 mVrms, 0 ~ +150 mVrms	
Resolution	16-bit	
Accuracy	Sinusoid	
	50/60 Hz	$\pm 0.15\%$ of FSR
	45 Hz to 10 kHz	$\pm 0.5\%$ of FSR
	Non-Sinusoid	
	Crest Factor = 1 to 2	$\pm 0.2\%$ of FSR
	Crest Factor = 2 to 3	$\pm 0.35\%$ of FSR
	DC	
0 ~ +10 Vrms/ 0 ~ +5 Vrms/ 0 ~ +1 Vrms,	$\pm 0.3\%$ of FSR	
Other	$\pm 0.7\%$ of FSR	
Sampling Rate	10 Hz (Total)	
-3dB Bandwidth	15.7 Hz	
Zero Drift	$\pm 20 \mu\text{V}/^\circ\text{C}$	
Span Drift	$\pm 25 \text{ ppm}/^\circ\text{C}$	
Common Mode Rejection	86 dB	
Normal Mode Rejection	100 dB	
Input Impedance	>2 M Ω	
Individual Channel Configuration	Yes	
Overvoltage Protection	± 35 Vdc	

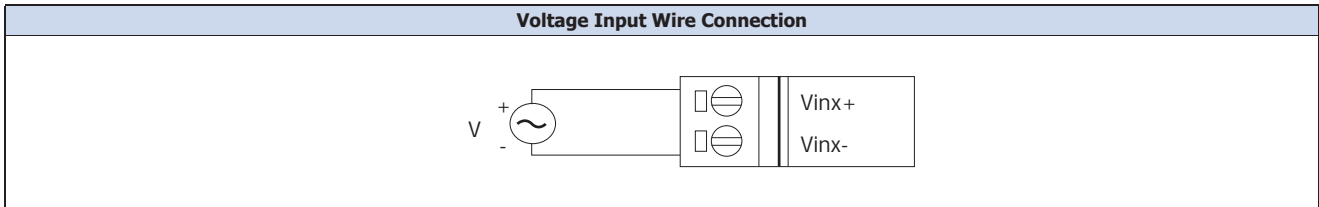
Internal I/O Structure



Pin Assignments



Wire Connections



Ordering Information

M-7017RMS-G CR	8-channel True RMS Input Module (Gray Cover) (RoHS)
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Accessories

	DN-843V-600V CR	3-channel 600 V Voltage Attenuator (RoHS)
	DN-848VI-80V CR	8-channel 80 V Voltage Attenuator (RoHS)
	DN-848VI-150V CR	8-channel 150 V Voltage Attenuator (RoHS)
	DN-843I-CT-1 CR	3-channel 1 A Current Transformer (RoHS)
	DN-843I-CT-50 CR	3-channel 50 A Current Transformer (RoHS)
	SG-770 CR	7-channel Differential or 14-channel Single-ended Surge Protector (RoHS)
	SG-3000 series	Signal Conditioning Modules for Thermocouple, RTD, DC Voltage, DC Current and Power Input Transformers