

Product datasheet

Specifications



intrinsically safe temperature input module Modicon Quantum - 8 I

140AI33000

⚠ Discontinued on: 11 Sept 2020

⚠ End-of-service on: 31 Dec 2014

⚠ Discontinued

Main

Range Of Product	Modicon Quantum automation platform
Product Or Component Type	Intrinsically safe temperature input module
Software Designation	Concept version V2.2 and above Unity Pro
Type Of Filter	Plus notch input filter 50/60 Hz thermocouple Single low pass input filter 20 Hz thermocouple

Complementary

Product Destination	In conjunction with products for zone 20, 21 or 22
Analogue Input Number	8
Analogue Input Type	Low level voltage: -100...100 mV Low level voltage: -25...25 mV Thermocouple: - 210...760 °C for thermocouple J Thermocouple: - 270...1000 °C for thermocouple E Thermocouple: - 270...1370 °C for thermocouple K Thermocouple: - 270...400 °C for thermocouple T Thermocouple: - 50...1665 °C for thermocouple R Thermocouple: - 50...1665 °C for thermocouple S Temperature probe: - 200...850 °C for Pt 100, Pt 200, Pt 500, Pt 1000 Temperature probe: - 60...180 °C for Ni 100, Ni 200, Ni 500, Ni 1000 Thermocouple: - 130...1820 °C for thermocouple B
Measurement Current	0.5 mA Pt 500, Pt 1000, Ni 500, Ni 1000 2.5 mA Pt 100, Pt 200, Ni 100, Ni 200
Source Resistance	< 200 Ohm thermocouple
Input Impedance	> 10 MOhm RTD thermocouple
Common Mode Rejection	> 100 dB 50/60 Hz RTD > 120 dB 50/60 Hz thermocouple
Cold Junction Compensation	Internal 0...60 °C thermocouple
Linearity	0.003 % of full scale RTD
Resolution	0.76 µV (16 bits) -25...25 mV millivolt 3.05 µV (16 bits) -100...100 mV millivolt 1 °C, 0.1 °C, 1 °F, 0.1 °F thermocouple 12 bits + sign (0.1 °C) RTD

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

Measurement Accuracy	+/- 2 °C + 0.1 % of reading thermocouple E +/- 2 °C + 0.1 % of reading thermocouple J +/- 2 °C + 0.1 % of reading thermocouple K +/- 2 °C + 0.1 % of reading thermocouple T +/- 4 °C + 0.1 % of reading thermocouple B +/- 4 °C + 0.1 % of reading thermocouple R +/- 4 °C + 0.1 % of reading thermocouple S +/- 0.5 °C RTD at 25 °C +/- 0.9 °C RTD at 0...60 °C 20 µV + 0.1 % of reading millivolt at 25 °C
Absolute Accuracy Error	+/- 0.05 % of full scale RTD at 25 °C +/- 0.1 % of full scale maximum RTD at 25 °C
Accuracy Drift According To Temperature	0.15 mV/°C + 0.0015 % of reading/°C max thermocouple
Update Time	1 s TC/millivolt thermocouple 1.35 s 3 wires RTD 750 ms 2 or 4 wires RTD
Isolation Between Channels And Bus	1780 V 47...63 Hz AC for 1 minute 2500 V DC for 1 minute
Fault Type	Broken wire Out of range
Power Dissipation In W	2 W
Hot Swapping Fallback	Not allowed per intrinsic safety standards
Protection Type	Internal fuse
Marking	CE II1 G/D-EEEx ia IIC
Bus Current Requirement	400 mA
Module Format	Standard
Net Weight	0.3 kg

Environment

Standards	EN 50281-1-1 EN 50014 EN 50284 CSA C22.2 No 142 EN 50020 Directive ATEX 94/9/EC EN 50039
Dust Zone	Outside zone
Product Certifications	hazardous location class 1, division 1 groups A, B, C C-Tick.1 FM Class 1 Division 2 SIRA 02ATEX2345X
Resistance To Electrostatic Discharge	4 kV contact conforming to IEC 801-2 8 kV on air conforming to IEC 801-2
Resistance To Electromagnetic Fields	10 V/m 80...2000 Hz conforming to IEC 801-3
Ambient Air Temperature For Operation	0...60 °C
Ambient Air Temperature For Storage	-40...85 °C
Relative Humidity	95 % without condensation
Operating Altitude	<= 5000 m

Packing Units

Unit Type Of Package 1	PCE
Number Of Units In Package 1	1

Package 1 Height	4.5 cm
Package 1 Width	16.5 cm
Package 1 Length	31.5 cm
Package 1 Weight	0.676 kg

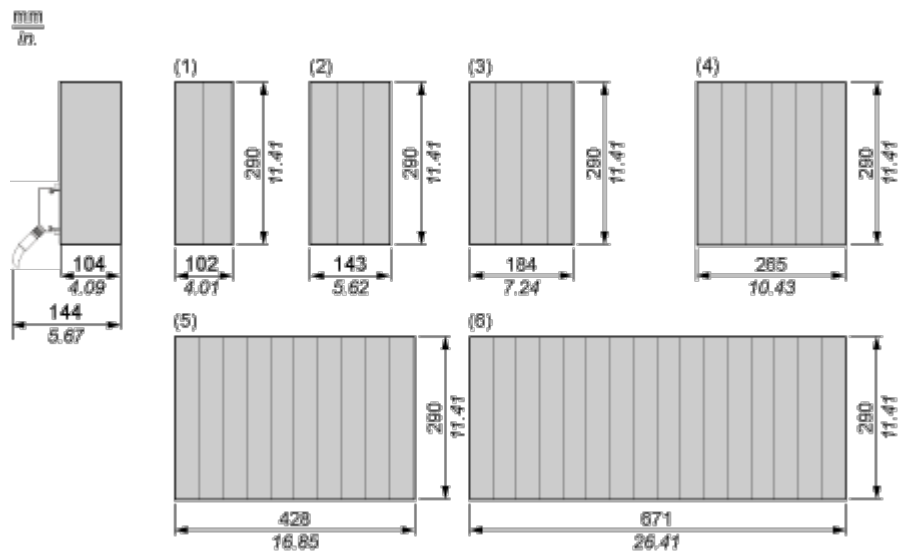
Contractual warranty

Warranty	18 months
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Dimensions Drawings

Racks for Modules Mounting

Dimensions of Modules and Racks



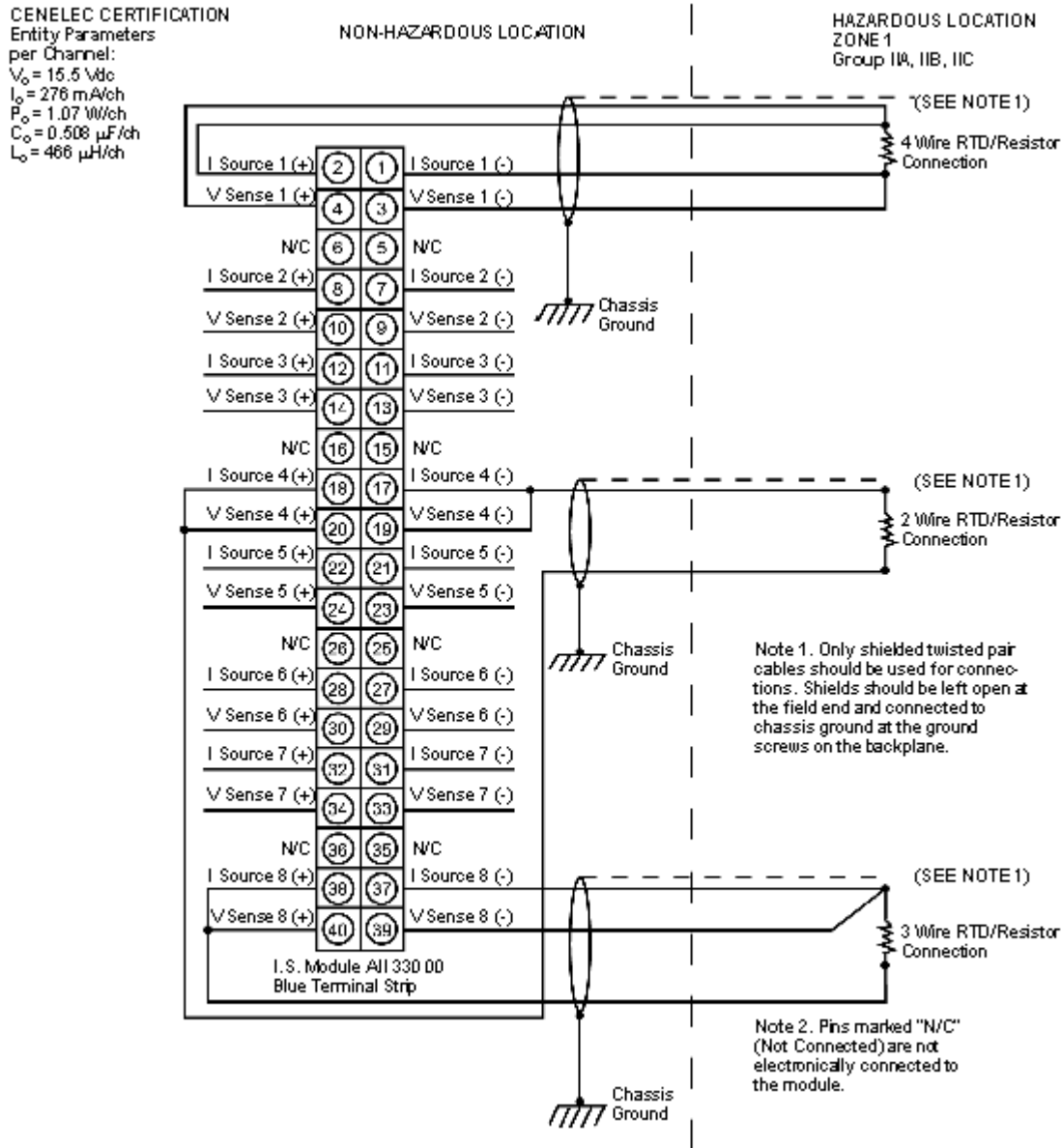
- (1) 2 slots
- (2) 3 slots
- (3) 4 slots
- (4) 6 slots
- (5) 10 slots
- (6) 16 slots

Connections and Schema

Intrinsically Safe Analog Input Module

Cenelec Certified Wiring Diagrams

Module configured with an RTD/Resistance connection:



CENELEC CERTIFICATION
Entity Parameters
per Channel:
 $V_0 = 15.5 \text{ Vdc}$
 $I_0 = 276 \text{ mA/ch}$
 $P_0 = 1.07 \text{ W/ch}$
 $CO = 0.508 \text{ }\mu\text{F/ch}$
 $Lo = 466 \text{ }\mu\text{H/ch}$

