

Schneider Series Service Manual

TSXAEY414

1. Description

The TSXAEY414 from Schneider Electric is a TSX Micro PLC equipped for diverse input types. It supports a range of measurements and features comprehensive voltage isolation, ensuring high operational integrity.

2. Specifications

Specification	Value
Manufacturer	Schneider Electric
Product	Line TSX Micro PLCs
Part	Number TSXAEY414
EAN	3389110756951
Weight	1.00 lbs (0.45 kg)
Common	Mode Voltage 415 V AC or 200 V DC between channels, 240 V AC or 110 V DC between channels and earth
Isolation	2830 Vrms between channels and bus, 1780 Vrms between channels and ground
Measurement	Error Varies by input type, e.g., 0.13% of full scale for 0-400 Ohm at 25°C
Input	Types Current (4-20 mA), Voltage (+/- 10 V, 0-10 V, 0-5 V, 1-5 V), Thermocouple (B, E, J, K, L, N, R, S, T, U), Resistor (0-400 Ohm, 0-3850 Ohm), Temperature probe (Pt 100, Pt 1000, Ni 1000)
Nominal	Read Cycle Time 550 ms
Analog/Digital	Conversion 16 bits
Analog	Input Channels 4 high-level inputs
Relative	Humidity 10 to 95% without condensation for operation
Storage	Temperature -25 to 70°C
Operating	Temperature 0 to 60°C
Current	Consumption 660 mA at 5 V DC
Module	Format Standard
Electrical	Connection Screw terminal block
Input	Overvoltage Protection -30 to 30 V at state 1, -15 to 1

3. Product Information

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Technical specifications for TSXAEY414

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Storage Temperature -25 to 70°C

Operating Temperature 0 to 60°C

Current Consumption 660 mA at 5 V DC

Module Format Standard

Electrical Connection Screw terminal block

Input Overvoltage Protection -30 to 30 V at state 1, -15 to 15 V at state 0

Description

The Schneider Electric TSXAEY414 module is part of the TSX Micro PLCs series, designed to perform well in a variety of measurement applications. It manages common mode voltages reaching 415 V AC or 200 V DC across channels and achieves significant isolation with 2830 Vrms between channels and bus. This assistance provides operational safety in various environments.

In terms of performance metrics, the measurement error fluctuates based on the selected input type. For instance, at 25°C, the error can achieve accuracy within 0.13% for a 0-400 Ohm measurement. Input options include a wide array of types: current inputs from 4-20 mA, voltage inputs covering +/- 10 V, 0-10 V, 0-5 V, and 1-5 V, as well as various thermocouple types such as B, J, K, and others. There are also options for resistive inputs and temperature probes, including Pt 100 and Pt 1000.

The module performs a nominal read cycle time of 550 ms and employs a 16-bit conversion for more precise analog/digital transition. It features four high-level analog input channels, enabling versatile application use. Additionally, the TSXAEY414 requires operating temperatures between 0 and 60°C and can be stored safely at temperatures as low as -25°C or as high as 70°C.

When it comes to environmental performance, it is built to operate under relative humidity levels of 10% to 95%, avoiding condensation. The current consumption for operation is 660 mA at 5 V DC, ensuring efficient energy use. The modular standard format supports easy installation. The device connects through a screw terminal block for simple wiring.

For its protection capabilities, it includes input overvoltage protection that accommodates -30 to 30 V during state 1 and -15 to 15 V for state 0, protecting against possible voltage spikes that may compromise functional integrity.

Range of Product

Modicon Premium Automation platform

Product or Component Type

Analog input module

Input level

Low level

Analogue input number

4

Analogue input type

Current 4...20 mA

Voltage +/- 10 V

Voltage 0...10 V

Voltage 0...5 V

Voltage 1...5 V

Thermocouple thermocouple B

Thermocouple thermocouple E

Thermocouple thermocouple J

Thermocouple thermocouple K

Thermocouple thermocouple L

Thermocouple thermocouple N

Thermocouple thermocouple R

Thermocouple thermocouple S

Thermocouple thermocouple T
 Thermocouple thermocouple U
 Resistor 0...3850 Ohm
 Resistor 0...400 Ohm
 Temperature probe Ni 1000 2 wires
 Temperature probe Ni 1000 4 wires
 Temperature probe Pt 100 2 wires
 Temperature probe Pt 100 4 wires
 Temperature probe Pt 1000 2 wires
 Temperature probe Pt 1000 4 wires
 Voltage - 13...63 mV
 Voltage +/- 5 V
 Analog/digital conversion
 16 bits
 Complementary
 Nominal read cycle time
 550 ms
 Measurement error
 0.13 % of full scale 0...400 Ohm 25 °C
 0.16 % of full scale 0...10 V 25 °C
 0.19 % of full scale - 13...63 mV 25 °C
 0.22 % of full scale 0...3850 Ohm 25 °C
 0.22 % of full scale 0...5 V 25 °C
 0.27 % of full scale +/- 10 V 25 °C
 0.27 % of full scale +/- 5 V 25 °C
 0.27 % of full scale 0...400 Ohm 0...60 °C
 0.27 % of full scale 1...5 V 25 °C
 0.39 % of full scale 0...10 V 0...60 °C
 0.44 % of full scale - 13...63 mV 0...60 °C
 0.45 % of full scale 0...5 V 0...60 °C
 0.45 % of full scale 4...20 mA 25 °C
 0.48 % of full scale 0...3850 Ohm 0...60 °C
 0.5 % of full scale +/- 10 V 0...60 °C
 0.5 % of full scale +/- 5 V 0...60 °C
 0.56 % of full scale 1...5 V 0...60 °C
 0.86 % of full scale 4...20 mA 0...60 °C
 1.5 °C thermocouple B external 25 °C
 1.5 °C thermocouple E external 25 °C
 1.5 °C thermocouple T external 25 °C
 1.5 °C thermocouple U external 25 °C
 1.8 °C thermocouple J external 25 °C
 10.5 °C thermocouple K internal 0...60 °C
 11 °C thermocouple R internal 0...60 °C
 12 °C thermocouple S internal 0...60 °C
 2 °C thermocouple L external 25 °C
 2 °C thermocouple N external 25 °C
 2.3 °C thermocouple K external 25 °C
 3.1 °C thermocouple U external 0...60 °C
 3.2 °C thermocouple E external 0...60 °C
 3.2 °C thermocouple R external 25 °C
 3.2 °C thermocouple T external 0...60 °C
 3.4 °C thermocouple S external 25 °C
 3.5 °C thermocouple B external 0...60 °C
 3.5 °C thermocouple B internal 25 °C
 3.8 °C thermocouple J external 0...60 °C
 4.1 °C thermocouple L external 0...60 °C
 4.3 °C thermocouple N external 0...60 °C
 4.7 °C thermocouple K external 0...60 °C
 5.4 °C thermocouple U internal 25 °C

6 °C thermocouple N internal 25 °C
6 °C thermocouple R internal 25 °C
6.1 °C thermocouple E internal 25 °C
6.6 °C thermocouple S internal 25 °C
6.6 °C thermocouple T internal 25 °C
7.3 °C thermocouple J internal 25 °C
7.3 °C thermocouple U internal 0...60 °C
7.5 °C thermocouple L internal 25 °C
7.7 °C thermocouple R external 0...60 °C
7.8 °C thermocouple K internal 25 °C
8.1 °C thermocouple B internal 0...60 °C
8.1 °C thermocouple E internal 0...60 °C
8.5 °C thermocouple S external 0...60 °C
8.7 °C thermocouple N internal 0...60 °C
8.8 °C thermocouple T internal 0...60 °C
9.5 °C thermocouple J internal 0...60 °C
9.8 °C thermocouple L internal 0...60 °C
1 °C Ni 1000 25 °C
1.2 °C Pt 100 25 °C
2 °C Ni 1000 0...60 °C
2.4 °C Pt 100 0...60 °C
2.5 °C Pt 1000 25 °C
5 °C Pt 1000 0...60 °C
Isolation between channels and bus
1780 Vrms
Isolation between channels and ground
1780 Vrms
Isolation between channels
2830 Vrms
Common mode between channels
415 V AC or 200 V DC
Common mode between channels and earth
240 V AC or 110 V DC
Input overvoltage protection
-15...15 V at state 0 250 Ohm
-30...30 V at state 1 250 Ohm
Electrical connection
Screw terminal block
Overcurrent
-30...30 mA at state 1 250 kOhm
Marking
CE
Current consumption
660 mA 5 V DC
Module format
Standard
Net Weight
0.71 lb(US) (0.32 kg)
Environment
Standards
DIN 43760
IEC 584
IEC 751
DIN 43710
NFC 42-330
IEC 1131
Product Certifications
DNV
BV

ABS

RMRS

RINA

GL

LR

Ambient Air Temperature for Operation

32...140 °F (0...60 °C)

Ambient Air Temperature for Storage

-13...158 °F (-25...70 °C)

Relative Humidity

10...95 % without condensation for operation

5...95 % without condensation for storage

Operating altitude

0...6561.68 ft (0...2000 m)

Protective treatment

TC

IP Degree of Protection

IP20

Pollution degree

2

Ordering and shipping details

Category

22558-TSX PREMIUM, ATRIUM & PL7 PRO

Discount Schedule

PC22

GTIN

3389110756951

Returnability

No

Country of origin

FR