

Schneider Series Service Manual

TSXCTY2C

1. Description

The TSXCTY2C from Schneider Electric, part of the TSX Micro PLCs series, is a current sink auxiliary input module. It integrates with various sensor types and is designed to operate with different input standards.

2. Specifications

Specification	Value
Manufacturer	Schneider Electric
Product	Line TSX Micro PLCs
Part	Number TSXCTY2C
EAN	3389110896510
Weight	1.00 lbs (0.45 kg)
Input	Logic Current sink auxiliary input (preset, enable, read)
Input	Compatibility 2/3-wire proximity sensors (PNP/NPN), incremental encoder (10-30 V totem pole, 5 V DC RS422)
Input	Voltage 24 V (18 mA for sensors, 7 mA for auxiliary input, 18 mA for encoder)
Voltage	Limits <= 5.5 V for encoder, 19-30 V for sensors and auxiliary input
Voltage	State 1 >= 11 V for sensors and auxiliary input, >= 2.4 V for encoder
Current	State 1 >= 3.6 mA for encoder, >= 6 mA for sensors and auxiliary input
Voltage	State 0 <= 1.2 V for encoder, <= 5 V for sensors and auxiliary input
Current	State 0 <= 1 mA for encoder, <= 2 mA for sensors and auxiliary input
Output	Voltage 24 V DC
Electrical	Circuit Type Auxiliary output conforming to EN/IEC 61131
Response	Time < 2.5 ms sensor voltage at loss of 24 V auxiliary input (preset, enable, read)
Channels	2
Counting	Frequency 1 MHz
Power	

3. Product Information

The TSXCTY2C from Schneider Electric, part of the TSX Micro PLCs series, is a current sink auxiliary input module. It integrates with various sensor types and is designed to operate with different input standards.

Technical specifications for TSXCTY2C

Manufacturer Schneider Electric

Product Line TSX Micro PLCs

Part Number TSXCTY2C

EAN 3389110896510

Weight 1.00 lbs (0.45 kg)

Input Logic Current sink auxiliary input (preset, enable, read)

Input Compatibility 2/3-wire proximity sensors (PNP/NPN), incremental encoder (10-30 V totem pole, 5 V DC RS422)

Input Voltage 24 V (18 mA for sensors, 7 mA for auxiliary input, 18 mA for encoder)

Voltage Limits ≤ 5.5 V for encoder, 19-30 V for sensors and auxiliary input

Voltage State 1 ≥ 11 V for sensors and auxiliary input, ≥ 2.4 V for encoder

Current State 1 ≥ 3.6 mA for encoder, ≥ 6 mA for sensors and auxiliary input

Voltage State 0 ≤ 1.2 V for encoder, ≤ 5 V for sensors and auxiliary input

Current State 0 ≤ 1 mA for encoder, ≤ 2 mA for sensors and auxiliary input

Output Voltage 24 V DC

Electrical Circuit Type Auxiliary output conforming to EN/IEC 61131

Response Time < 2.5 ms sensor voltage at loss of 24 V auxiliary input (preset, enable, read)

Channels 2

Counting Frequency 1 MHz

Power Dissipation 7 to 10 W

Cycle Time 1 ms

Description

The Schneider Electric TSXCTY2C is an auxiliary input module designed for TSX Micro PLC systems. This component utilizes a current sink method for auxiliary input functionalities such as presetting, enabling, and reading signals. The device accommodates various input types, including 2 and 3-wire proximity sensors (PNP/NPN) and incremental encoders. It operates over a range of voltages from 10 to 30 volts with totem pole output and 5 V DC RS422 standards.

It operates on a standard input voltage of 24 V, with different current requirements: 18 mA for sensors, 7 mA for auxiliary inputs, and 18 mA for encoders. The voltage limits specify a required encoder voltage of less than or equal to 5.5 V, while sensors and auxiliary inputs function within a range of 19 to 30 V. A state of logic can be identified through key voltage thresholds: for active conditions, the sensors and auxiliary inputs must exceed 11 V, while the encoder requires at least 2.4 V. Conversely, a voltage of 1.2 V or less signifies a non-active state for the encoder, with corresponding limits for sensors and auxiliary inputs.

The module is built to conform to the EN/IEC 61131 standards for electrical circuit types. It supports a response time of less than 2.5 milliseconds when detecting loss in the 24 V auxiliary input. Handling two channels facilitates effective signal processing and can support counting frequencies up to 1 MHz. In addition to its functional efficiencies, the TSXCTY2C unit has a cycle time of 1 ms, contributing to its overall performance in demanding control applications.

Range of Product

Modicon Premium Automation platform

Product or Component Type

Measurement and counter module

I/O modularity

2 channels

Electrical circuit type

Auxiliary output EN/IEC 61131-2

Complementary

Counting frequency

1000000 Hz

Incremental encoder frequency x1

500 kHz

Incremental encoder frequency x 4

250 kHz

Power dissipation in W

7...10 W

Cycle time

1 ms

Discrete input logic

Current sink auxiliary input (preset, enable and read) IEC 1131 Type 2

Resistive 2/3-wire proximity sensors PNP/NPN IEC 1131 Type 2

Resistive encoder input

Input logic

Positive

Input compatibility

Absolute encoder parallel output ABE7CPA11

Incremental encoder 10...30 V totem pole

Incremental encoder 5 V DC RS422

Absolute encoder SSI serial output

Input voltage

24 V 16 mA 2/3-wire proximity sensors PNP/NPN

24 V 8 mA auxiliary input (preset, enable and read)

5 V 18 mA encoder input

Input voltage limits

≤ 5.5 V encoder input

19...30 V 2/3-wire proximity sensors PNP/NPN

19...30 V auxiliary input (preset, enable and read)

Voltage state 1 guaranteed

≥ 11 V 2/3-wire proximity sensors PNP/NPN

≥ 11 V auxiliary input (preset, enable and read)

≥ 2.4 V encoder input

Current state 1 guaranteed

≥ 6 mA 2/3-wire proximity sensors PNP/NPN

≥ 6 mA auxiliary input (preset, enable and read))

≥ 3.6 mA encoder input)

Voltage state 0 guaranteed

≤ 1.2 V encoder input

≤ 5 V 2/3-wire proximity sensors PNP/NPN

≤ 5 V auxiliary input (preset, enable and read)

Current state 0 guaranteed

≤ 1 mA encoder input)

≤ 2 mA 2/3-wire proximity sensors PNP/NPN

≤ 2 mA auxiliary input (preset, enable and read))

Response time

< 10 ms sensor voltage at return of 24 V auxiliary input (preset, enable and read)

< 2.5 ms sensor voltage at loss of 24 V auxiliary input (preset, enable and read)

Input impedance

Encoder input > 270 Ohm at $U = 2.4$ V

2/3-wire proximity sensors PNP/NPN 1500 Ohm at U_n

Auxiliary input (preset, enable and read) 3400 Ohm at U_n

Encoder input 400 Ohm at U_n

Output voltage

24 V DC

nominal output current

0.5 A

Output voltage limits

19...30 V

Maximum voltage drop

< 0.5 V at state 1

Output compatibility

Positive logic DC inputs (resistance ≤ 15 kOhm) auxiliary output

Maximum leakage current

0.1 mA

Switching time

< 0.250 ms

Switching frequency

$< 0.6/LI^2$ Hz on inductive load

Output overload protection

Thermal tripping via program or automatically

Current limiter

Output short-circuit protection

Thermal tripping via program or automatically

Current limiter

Output overvoltage protection

Zener diode

Reverse polarity protection

Reverse diode on supply

Checks

Sensor power supply

Current consumption

15 mA 24 V DC

850 mA 5 V DC

Module format

Standard

Local signalling

1 LED (green) for module operating (RUN)

1 LED (red) for external fault (I/O)

1 LED (red) for internal fault, module failure (ERR)

2 LEDs (green) for axis diagnostics available (CH.)

Electrical connection

1 connector HE-10, 20 pins

2 connectors SUB-D 15

Net Weight

0.75 lb(US) (0.34 kg)

Environment

Protective treatment

TC

Ambient Air Temperature for Operation

32...140 °F (0...60 °C)

Ambient Air Temperature for Storage

-13...158 °F (-25...70 °C)

Relative Humidity

5...95 % without condensation

Operating altitude

<= 6561.68 ft (2000 m)

Ordering and shipping details

Category

US1PC2222558

Discount Schedule

PC22

GTIN

3389110896510

Returnability

No

Packing Units

Unit Type of Package 1

PCE

Nbr. of units in pkg.

1

Package 1 Height

2.2 in (5.5 cm)

Package 1 Width

7.09 in (18.0 cm)

Package 1 Length

10.2 in (26.0 cm)

Package weight(Lbs)

20.7 oz (587.0 g)