

# Product data sheet

Specifications



## motion control modules - for servomotors - 8 ms..10 s - 4 axis

TSXCAY42

⚠ Discontinued on: Dec 31, 2018

⚠ To be end-of-service on: Dec 31, 2026

⚠ Discontinued - Service only

### Main

Range Of Product	Modicon Premium Automation platform
Product Or Component Type	Motion control modules
Product Specific Application	For servo motors
Servo Loop Type	Proportional to overshoot compensation and gain switching 4 ms
Checks	Presence of voltage/sensor feedback counter input Consistency of commands Encoder coupling, servo drive present, emergency stop Proper execution of movement Sensor power supply Validity of parameters

### Complementary

Speed Profile Path	Trapezoidal or parabolic
Resolution	>= 0.5 position units per point <= 1000 position units per point
Length Of Axis	256...32000000 P
Acquisition Speed	>= 54000 points/mn <= 270000 points/mn
Acceleration Time	8 ms...10 s
Operating Mode	Direct drive mode OFF Automatic Manual FOLLOWER
Type Of Axis	Following axis dynamic ratio Limited axis Infinite axis
Function Of Module	Servo drive offset correction
I/O Modularity	4 axes
Input Compatibility	Incremental encoder 10...30 V totem pole Incremental encoder 5 V DC RS422 With 2-wire/3-wire sensor (24 DC) auxiliary input Absolute encoder parallel output ABE7CPA11 Absolute encoder SSI output 12...25 bits
Clock Frequency	200 kHz SSI absolute encoder
Incremental Encoder Frequency X1	500 kHz
Incremental Encoder Frequency X4	1000 kHz in counting 250 kHz in input
Power Dissipation In W	10...17 W

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

<b>Input Type</b>	Current sink auxiliary input conforming to EN/IEC 1131 Type 2 Resistive servo drive control input conforming to EN/IEC 1131 Type 1 Resistive counter input
<b>Input Logic</b>	Positive
<b>Input Voltage</b>	24 V 8 mA auxiliary input 24 V 8 mA servo drive control input 5 V 18 mA counter input
<b>Input Voltage Limits</b>	<= 5.5 V counter input 19...30 V auxiliary input 19...30 V servo drive control input
<b>Voltage State 1 Guaranteed</b>	>= 11 V for auxiliary input >= 11 V for servo drive control input >= 2.4 V for counter input
<b>Current State 1 Guaranteed</b>	>= 3.5 mA (servo drive control input) >= 3.7 mA (counter input) >= 6 mA (auxiliary input)
<b>Voltage State 0 Guaranteed</b>	<= 1.2 V for counter input <= 5 V for auxiliary input <= 5 V for servo drive control input
<b>Current State 0 Guaranteed</b>	<= 1 mA (counter input) <= 1.5 mA (servo drive control input) <= 1.5 mA (auxiliary input)
<b>Input Impedance</b>	270 Ohm for counter input 3000 Ohm for auxiliary input 3000 Ohm for servo drive control input
<b>Number Of Outputs</b>	4 reflex output static conforming to EN/IEC 61131 4 analogue output static 4 servo drive validation output relay
<b>Analogue Output Range</b>	+/- 10...24 V
<b>Analogue Output Resolution</b>	13 bits + sign
<b>Lsb Value</b>	1.25 mV for analogue output
<b>Output Voltage</b>	24 V DC reflex output: 24 V DC servo drive validation:
<b>Output Voltage Limits</b>	Reflex output: 19...30 V Servo drive validation: 5...30 V
<b>Nominal Output Current</b>	0.5 A for reflex output
<b>Maximum Output Current</b>	1.5 mA analogue output 200 mA servo drive validation output 625 mA reflex output
<b>Minimum Load</b>	1 mA 1 V
<b>Maximum Voltage Drop</b>	<1 V at state on for reflex output
<b>Maximum Leakage Current</b>	0.3 mA for reflex output
<b>Switching Time</b>	< 5 ms for servo drive validation < 500 µs for reflex output
<b>Output Compatibility</b>	Positive logic DC inputs (resistance <= 15 kOhm) for reflex
<b>Short-Circuit Protection</b>	Current limiter reflex output Thermal tripping reflex output
<b>Output Overload Protection</b>	Current limiter reflex output Thermal tripping reflex output
<b>Output Overvoltage Protection</b>	Zener diode between outputs and 24 DC reflex output
<b>Reverse Polarity Protection</b>	Reflex output: reverse diode on supply

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) 4 LEDs (green) for axis diagnostics available
Electrical Connection	1 connector HE-10 with 20 pins for servo drive ctrl inputs + for ext power supply of servo drive inputs/outputs 3 connectors HE-10 with 20 pins for aux inputs, reflex output, for external sensor and preactuator power supply 1 connector SUB-D 9 for an analogue output (speed reference) 4 connectors SUB-D 15 for an incremental or absolute encoder
Current Consumption	22...40 mA at 24 V DC on 10/30 V absolute encoder module 1500 mA at 5 V DC 30 mA at 24 V DC
Module Format	Double
Net Weight	0.61 kg

## Environment

Protective Treatment	TC
Ambient Air Temperature For Operation	0...60 °C
Ambient Air Temperature For Storage	-25...70 °C
Relative Humidity	5...95 % without condensation
Operating Altitude	<= 2000 m

## Packing Units

Unit Type Of Package 1	PCE
Number Of Units In Package 1	1
Package 1 Height	9.5 cm
Package 1 Width	18.0 cm
Package 1 Length	26.0 cm
Package 1 Weight	875.0 g
Unit Type Of Package 2	S04
Number Of Units In Package 2	6
Package 2 Height	30.0 cm
Package 2 Width	40.0 cm
Package 2 Length	60.0 cm
Package 2 Weight	6.251 kg

## Contractual warranty

Warranty	18 months
----------	-----------

# Sustainability

**Green Premium™ label** is Schneider Electric's commitment to delivering products with best-in-class environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-CO<sub>2</sub> products.

**Guide to assessing product sustainability** is a white paper that clarifies global eco-label standards and how to interpret environmental declarations.

[Learn more about Green Premium >](#)

[Guide to assess a product's sustainability >](#)

## California Proposition 65

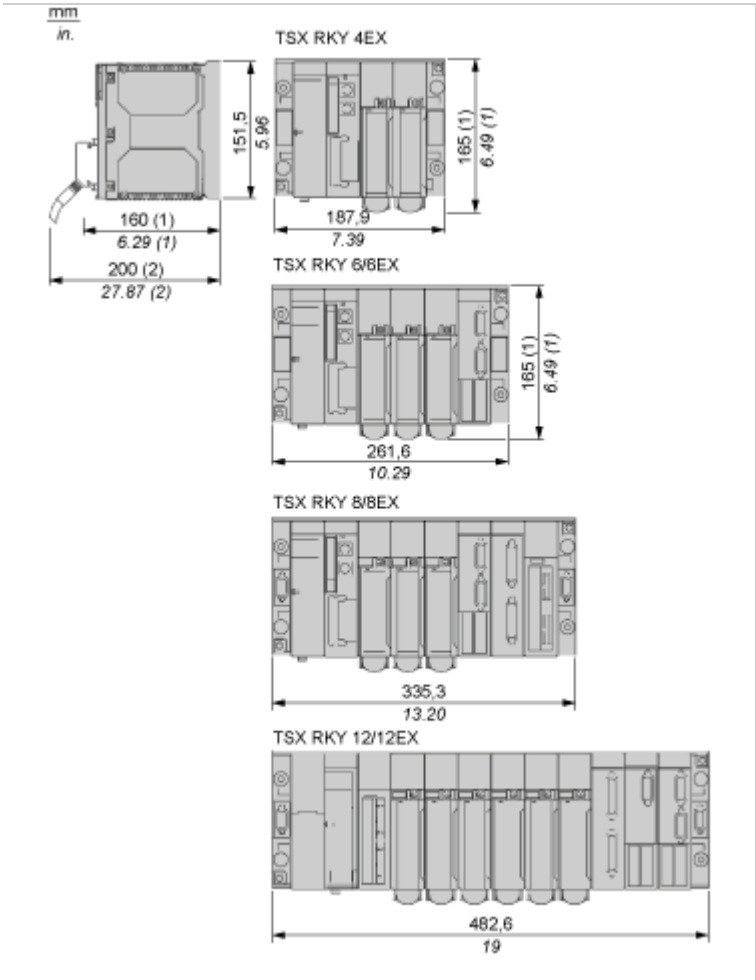
WARNING: This product can expose you to chemicals including: Lead and lead compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

---

Dimensions Drawings

Standard and Extendable Racks for Modules Mounting

Dimensions of Modules and Racks

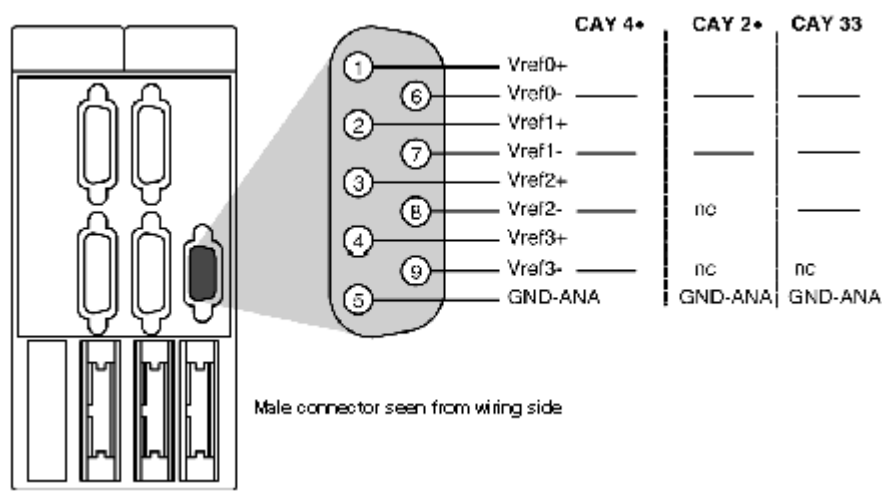


- (1) With screw terminal block modules.  
(2) Maximum depth for all types of modules and their associated connectors.

Connections and Schema

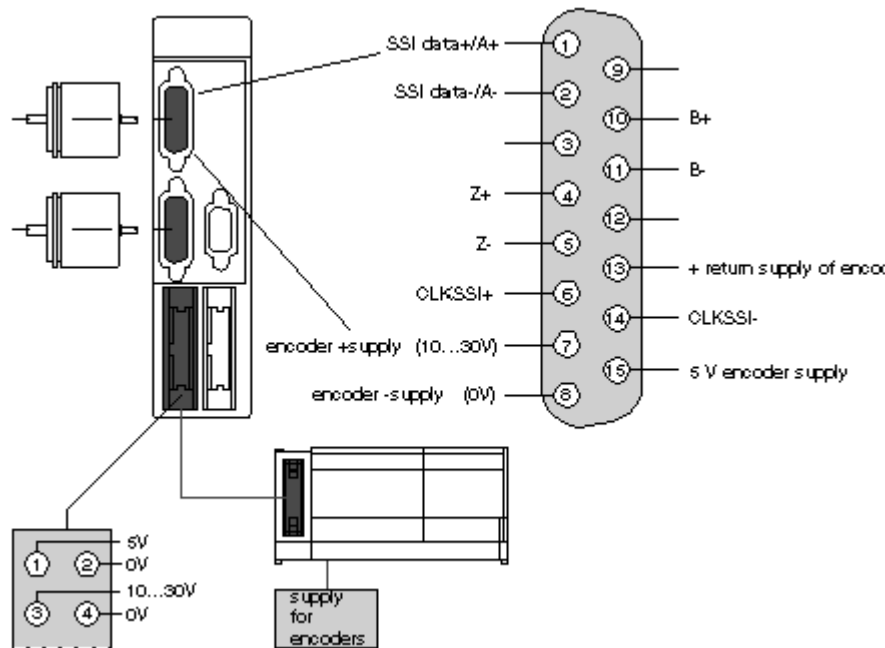
Connection of Speed Reference Signals

Connector Pinout



Connection of Counting Signals

Connectors Pinouts

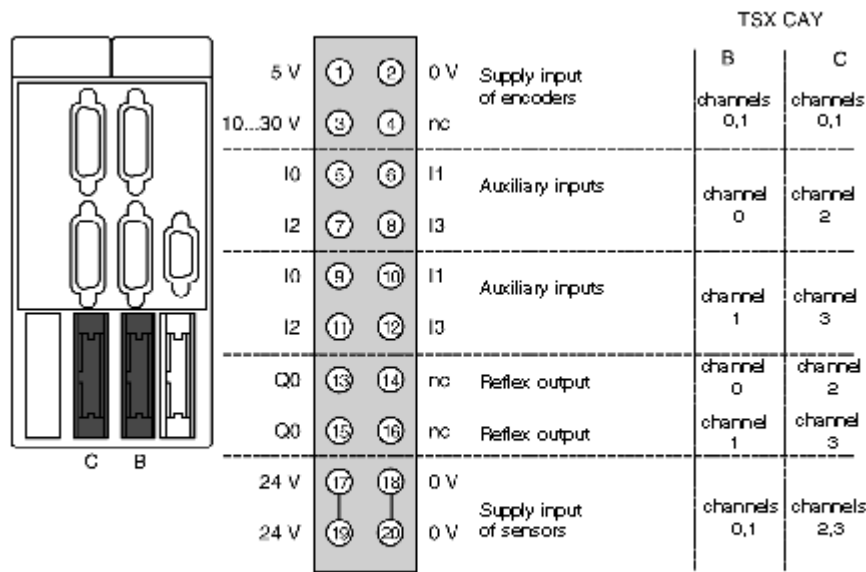


Element	Designation	Terminal
Incremental encoder	input A+	1
	input A-	2
	input Z+	4
	input Z-	5
	input B+	10
	input B-	11
	return supply of encoder	13
Absolute SSI encoder:	+ SSI Data	1
	- SSI data	2
	CLKSSI+	6
	CLKSSI-	14
5 V encoder power supply	+supply (5 V)	15
	- supply (0 V)	8
Encoder power supply (10-30 V)	+supply (10-30 V)	7
	- supply (0 V)	8



Connection of Sensors/Pre-actuators and Encoder Power Supply, without Variable Speed Controller

HE10 Connector Pinout



TSX CAY 2\* module: Channels 0 and 1  
TSX CAY 4\* module: Channels 0,1,2 and 3  
TSX CAY 33\* module: Channels 0,1 and 2

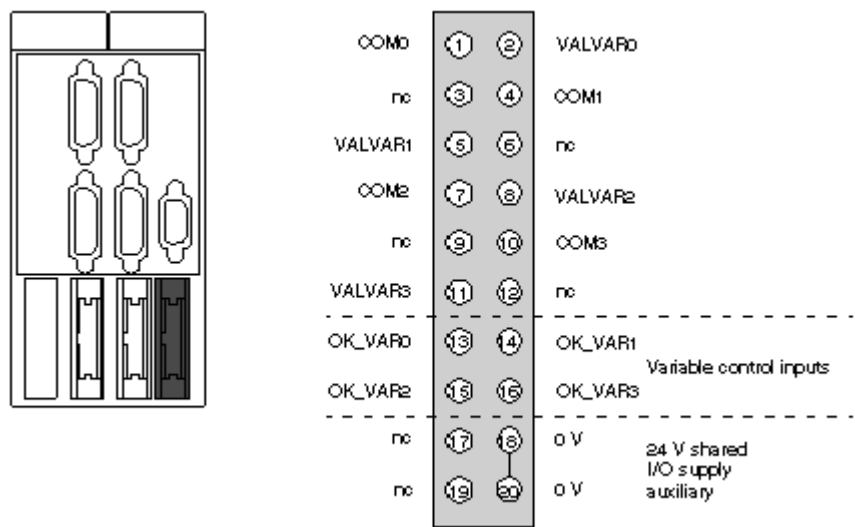
The auxiliary inputs/outputs are allocated the following functions:

- I0 = cam reference point input,
- I1 =emergency stop input (stop if there is no current in the input),
- I2 = adjusting input,
- I3 = adjustment input,
- Q0 = reflex output (static output),
- 0 V = shared auxiliary inputs and reflex outputs.

Connection of the Variable Speed Controller Signals

Connector Pinout

The axis command modules implement basic management of the signals necessary for correct operation of the variable speed controllers. There is only one connector, regardless of the number of axis command module channels.



COMx – VALVARx: potential free contact to validate variable speed controller  
OK\_VARx: variable speed controller input check  
24 V – 0 V sensor power supply

NOTE: Each channel uses a potential free closing contact.