

# TSXCAY41C

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

Product availability : Stock - Normally stocked in distribution facility

Price\* : 7745.25 USD



## 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                       | Consistency of commands<br>Encoder coupling, servo drive present, emergency stop<br>Proper execution of movement<br>Sensor power supply<br>Validity of parameters<br>Presence of voltage/sensor feedback counter input |

## Complementary

|                     |                                                                                                                          |
|---------------------|--------------------------------------------------------------------------------------------------------------------------|
| Speed profile path  | Trapezoidal or parabolic                                                                                                 |
| Resolution          | >= 0.5 position units per point<br><= 1000 position units per point                                                      |
| Length of axis      | 32000...32000000 P                                                                                                       |
| Acquisition speed   | <= 270000 points/mn<br>>= 54000 points/mn                                                                                |
| Acceleration time   | 8 ms...10 s                                                                                                              |
| Operating mode      | Automatic<br>OFF<br>FOLLOWER<br>Manual<br>Direct drive mode                                                              |
| Type of axis        | Following axis static ratio<br>Limited axis                                                                              |
| I/O modularity      | 4 axes                                                                                                                   |
| Input compatibility | Absolute encoder SSI output 16...25 bits<br>Incremental encoder 10...30 V totem pole<br>Incremental encoder 5 V DC RS422 |

|                                   |                                                                                                                                                                   |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   | With 2-wire/3-wire sensor (24 DC) auxiliary input<br>Absolute encoder parallel output ABE7CPA11                                                                   |
| Clock frequency                   | 200 kHz SSI absolute encoder                                                                                                                                      |
| Incremental encoder frequency x1  | 500 kHz                                                                                                                                                           |
| Incremental encoder frequency x 4 | 1000 kHz in counting<br>250 kHz in input                                                                                                                          |
| Power dissipation in W            | 10...17 W                                                                                                                                                         |
| Input type                        | Current sink auxiliary input conforming to EN/IEC 1131 Type 2<br>Resistive counter input<br>Resistive servo drive control input conforming to EN/IEC 1131 Type 1  |
| Input logic                       | Positive                                                                                                                                                          |
| Input voltage                     | 24 V 8 mA auxiliary input<br>24 V 8 mA servo drive control input<br>5 V 18 mA counter input                                                                       |
| Input voltage limits              | <= 5.5 V counter input<br>19...30 V auxiliary input<br>19...30 V servo drive control input                                                                        |
| Voltage state 1 guaranteed        | >= 11 V auxiliary input<br>>= 11 V servo drive control input<br>>= 2.4 V counter input                                                                            |
| Current state 1 guaranteed        | >= 3.5 mA servo drive control input<br>>= 3.7 mA counter input<br>>= 6 mA auxiliary input                                                                         |
| Voltage state 0 guaranteed        | <= 1.2 V counter input<br><= 5 V auxiliary input<br><= 5 V servo drive control input                                                                              |
| Current state 0 guaranteed        | <= 1 mA counter input<br><= 1.5 mA servo drive control input<br><= 2 mA auxiliary input                                                                           |
| Input impedance                   | 270 Ohm counter input<br>3000 Ohm auxiliary input<br>3000 Ohm servo drive control input                                                                           |
| Number of outputs                 | 4 analogue output static<br>4 reflex output static conforming to EN/IEC 61131<br>4 servo drive validation output relay                                            |
| Analogue output range             | +/- 10...24 V                                                                                                                                                     |
| Analogue output resolution        | 13 bits + sign                                                                                                                                                    |
| LSB value                         | 1.25 mV analogue output                                                                                                                                           |
| Output voltage                    | 24 V DC reflex output<br>24 V DC servo drive validation output                                                                                                    |
| Output voltage limits             | 19...30 V reflex output<br>5...30 V servo drive validation output                                                                                                 |
| Nominal output current            | 0.5 A reflex output                                                                                                                                               |
| Maximum output current            | 1.5 mA analogue output<br>200 mA servo drive validation output<br>625 mA reflex output                                                                            |
| Minimum load                      | 1 mA 1 V                                                                                                                                                          |
| Voltage drop                      | < 1 V at state on reflex output                                                                                                                                   |
| Leakage current                   | < 0.3 mA reflex output                                                                                                                                            |
| Switching time                    | < 5 ms for servo drive validation<br>< 500 µs for reflex output                                                                                                   |
| Output compatibility              | Positive logic DC inputs (resistance <= 15 kOhm) reflex                                                                                                           |
| Short-circuit protection          | Current limiter reflex output<br>Thermal tripping reflex output                                                                                                   |
| Output overload protection        | Current limiter reflex output<br>Thermal tripping reflex output                                                                                                   |
| Output overvoltage protection     | Zener diode between outputs and 24 DC reflex output                                                                                                               |
| Reverse polarity protection       | Reverse diode on supply reflex output                                                                                                                             |
| Local signalling                  | 4 LEDs green axis diagnostics available<br>1 LED green module operating (RUN)<br>1 LED red external fault (I/O)<br>1 LED red internal fault, module failure (ERR) |

|                       |                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electrical connection | 1 connector HE-10 20 pins for servo drive ctrl inputs + for ext power supply of servo drive inputs/ outputs<br>1 connector SUB-D 9 for an analogue output (speed reference)<br>3 connectors HE-10 20 pins for aux inputs, reflex output, for external sensor and preactuator power supply<br>4 connectors SUB-D 15 for an incremental or absolute encoder |
| Current consumption   | 1500 mA 5 V DC<br>30 mA 24 V DC<br>22...40 mA 24 V DC on 10/30 V absolute encoder module                                                                                                                                                                                                                                                                  |
| Module format         | Double                                                                                                                                                                                                                                                                                                                                                    |
| Product weight        | 1.34 lb(US) (0.61 kg)                                                                                                                                                                                                                                                                                                                                     |

## Environment

|                                       |                                       |
|---------------------------------------|---------------------------------------|
| Protective treatment                  | TC<br>Conformal coating Humiseal 1A33 |
| 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              | 22558 - TSX PREMIUM, ATRIUM & PL7 PRO |
| Discount Schedule     | PC22                                  |
| Nbr. of units in pkg. | 1                                     |
| Package weight(Lbs)   | 2.2000000000000002                    |
| Returnability         | N                                     |
| Country of origin     | FR                                    |

## Offer Sustainability

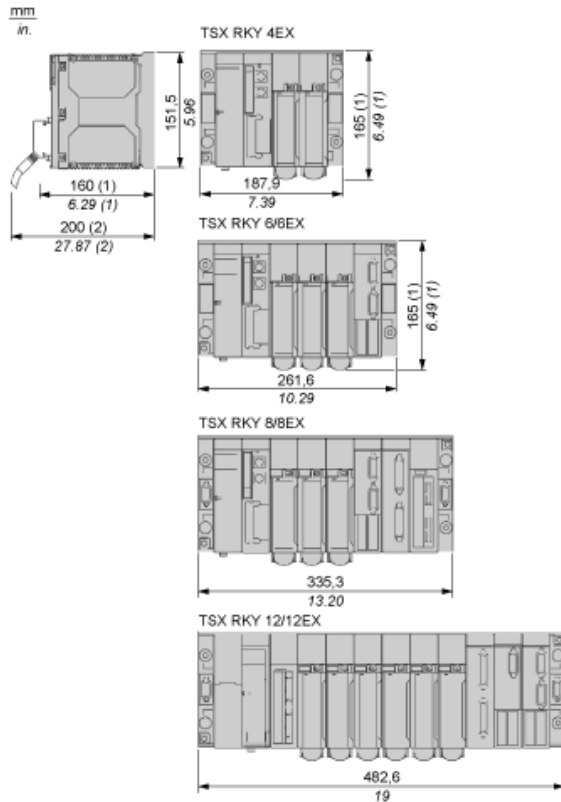
|                          |                                                                                                                                       |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Sustainable offer status | Not Green Premium product                                                                                                             |
| RoHS (date code: YYWW)   | Compliant - since 0801 - Schneider Electric declaration of conformity<br><a href="#">Schneider Electric declaration of conformity</a> |
| REACH                    | Reference not containing SVHC above the threshold<br><a href="#">Reference not containing SVHC above the threshold</a>                |

## Contractual warranty

|                 |           |
|-----------------|-----------|
| Warranty period | 18 months |
|-----------------|-----------|

## Standard and Extendable Racks for Modules Mounting

### Dimensions of Modules and Racks

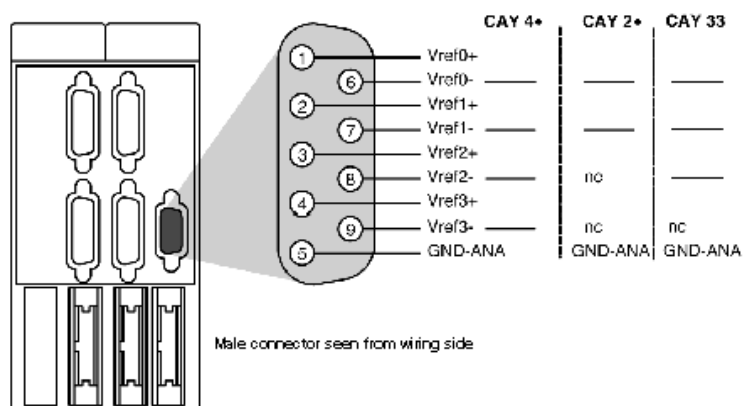


(1) With screw terminal block modules.

(2) Maximum depth for all types of modules and their associated connectors.

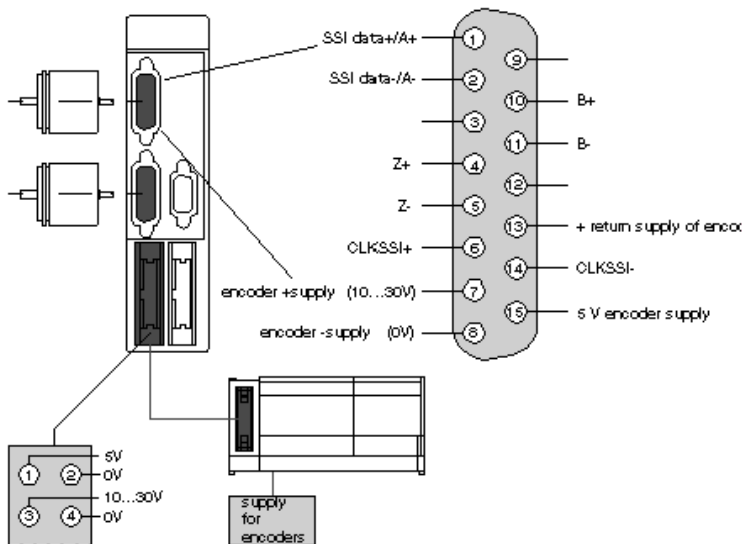
## Connection of Speed Reference Signals

### 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                  |              |
|-----------|---|---|-----|--------------------------|--------------|
|           |   |   |     | B                        | C            |
| 5 V       | ① | ② | 0 V | Supply input of encoders | channels 0,1 |
|           | ③ | ④ | nc  |                          |              |
| 10...30 V | ⑤ | ⑥ | I1  | Auxiliary inputs         | channel 0    |
|           | ⑦ | ⑧ | I3  |                          |              |
| I0        | ⑨ | ⑩ | I1  | Auxiliary inputs         | channel 1    |
|           | ⑪ | ⑫ | I3  |                          |              |
| Q0        | ⑬ | ⑭ | nc  | Reflex output            | channel 0    |
|           | ⑮ | ⑯ | nc  |                          |              |
| 24 V      | ⑰ | ⑱ | 0 V | Supply input of sensors  | channels 0,1 |
|           | ⑲ | ⑳ | 0 V |                          |              |

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

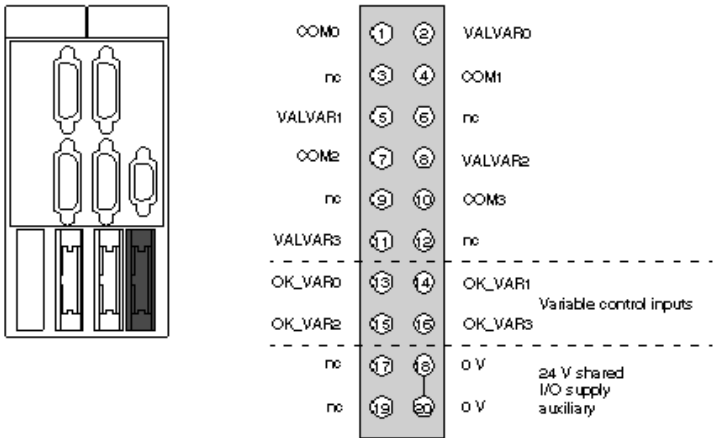
The auxiliary inputs/outputs are allocated the following functions:

- 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.