

# TSXCAY42

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



has not been replaced. Please contact your customer care center for more information.

ⓘ Restricted Sales for Services

## 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<br>Consistency of commands<br>Encoder coupling, servo drive present, emergency stop<br>Proper execution of movement<br>Sensor power supply<br>Validity of parameters |

## Complementary

|                                   |                                                                                                                                                                                                                             |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Speed profile path                | Trapezoidal or parabolic                                                                                                                                                                                                    |
| Resolution                        | $\geq 0.5$ position units per point<br>$\leq 1000$ position units per point                                                                                                                                                 |
| Length of axis                    | 256...32000000 P                                                                                                                                                                                                            |
| Acquisition speed                 | $\geq 54000$ points/mn<br>$\leq 270000$ points/mn                                                                                                                                                                           |
| Acceleration time                 | 8 ms...10 s                                                                                                                                                                                                                 |
| Operating mode                    | Direct drive mode<br>OFF<br>Automatic<br>Manual<br>FOLLOWER                                                                                                                                                                 |
| Type of axis                      | Following axis dynamic ratio<br>Limited axis<br>Infinite axis                                                                                                                                                               |
| Function of module                | Servo drive offset correction                                                                                                                                                                                               |
| I/O modularity                    | 4 axes                                                                                                                                                                                                                      |
| Input compatibility               | Incremental encoder 10...30 V totem pole<br>Incremental encoder 5 V DC RS422<br>With 2-wire/3-wire sensor (24 DC) auxiliary input<br>Absolute encoder parallel output ABE7CPA11<br>Absolute encoder SSI output 12...25 bits |
| Clock frequency                   | 200 kHz SSI absolute encoder                                                                                                                                                                                                |
| Incremental encoder frequency x1  | 500 kHz                                                                                                                                                                                                                     |
| Incremental encoder frequency x 4 | 1000 kHz in counting                                                                                                                                                                                                        |

|                               |                                                                                                                                                                                                                                                                                                                                                                     |
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|                               | 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 servo drive control input conforming to EN/IEC 1131 Type 1<br>Resistive counter input                                                                                                                                                                                                    |
| 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 for auxiliary input<br>>= 11 V for servo drive control input<br>>= 2.4 V for 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 for counter input<br><= 5 V for auxiliary input<br><= 5 V for servo drive control input                                                                                                                                                                                                                                                                    |
| Current state 0 guaranteed    | <= 1 mA (counter input)<br><= 1.5 mA (servo drive control input)<br><= 1.5 mA (auxiliary input)                                                                                                                                                                                                                                                                     |
| Input impedance               | 270 Ohm for counter input<br>3000 Ohm for auxiliary input<br>3000 Ohm for servo drive control input                                                                                                                                                                                                                                                                 |
| Number of outputs             | 4 reflex output static conforming to EN/IEC 61131<br>4 analogue output static<br>4 servo drive validation output relay                                                                                                                                                                                                                                              |
| Analogue output range         | +/- 10...24 V                                                                                                                                                                                                                                                                                                                                                       |
| Analogue output resolution    | 13 bits + sign                                                                                                                                                                                                                                                                                                                                                      |
| LSB value                     | 1.25 mV for analogue output                                                                                                                                                                                                                                                                                                                                         |
| Output voltage                | 24 V DC reflex output:<br>24 V DC servo drive validation:                                                                                                                                                                                                                                                                                                           |
| Output voltage limits         | Reflex output: 19...30 V<br>Servo drive validation: 5...30 V                                                                                                                                                                                                                                                                                                        |
| Nominal output current        | 0.5 A for 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                                                                                                                                                                                                                                                                                                                                                            |
| Maximum voltage drop          | <1 V at state on for reflex output                                                                                                                                                                                                                                                                                                                                  |
| Maximum leakage current       | 0.3 mA for 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) for 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   | Reflex output: reverse diode on supply                                                                                                                                                                                                                                                                                                                              |
| Local signalling              | 1 LED (green) module operating (RUN):<br>1 LED (red) external fault (I/O):<br>1 LED (red) internal fault, module failure (ERR):<br>4 LEDs (green) 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<br>3 connectors HE-10 with 20 pins for aux inputs, reflex output, for external sensor and preactuator power supply<br>1 connector SUB-D 9 for an analogue output (speed reference)<br>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<br>1500 mA at 5 V DC<br>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                     |

## Contractual warranty

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