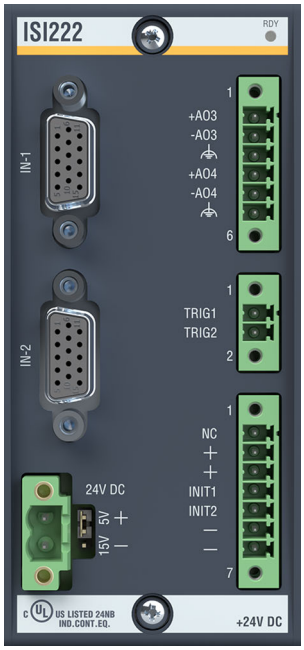


Part type designation	Part number
ISI222	00013737-00
ISI222 CC	00016421-00
ISI222/8	00014127-00

ISI222/x
Positioning Module

Especially designed for sophisticated motion control applications the ISI222 module offers compact equipment and optimum precision. Equipped for the total control of two motion axes, the module features a number of encoder interfaces for position acquisition, analog outputs for the application of manipulated variables, as well as digital inputs for the initiator or trigger. Furthermore, due to the central communication concept, all I/Os of the remaining M200 system can also be incorporated into the motion control (limit switches etc.). Input frequencies up to 8 MHz and the integrated synchronization (I/O-Bus-Sync) with the total system allow highly dynamic and precise movements.

Beside the full compatibility to the well proven controller modules M-SMC, M-CNC and M-SHAFT, also the user own programs and individually designed control tasks can utilize the extensive integrated functions of the module simply via the known standard interfaces (SVI, MIO). The extensive integrated error monitoring with ongoing checking of the encoder resolution identifies hard-to-see wiring or ESD problems and allows the application especially under difficult environmental conditions.

Features

- 2 input channels for incremental and SSI encoder
- Full 32 bit counter
- 2 analog outputs (14 bit)
- 4 fast digital input channels for initiator and trigger
- Position measurement / position storage can be initiated via triggers
- Virtual inputs can be used in applications:
  Zero pulse, velocity, etc.
- Synchronization via SYNC / PreSYNC
- Encoder supply via module
- Monitoring of the encoder voltage
- Cable break monitoring (encoder)

ISI222/x

Incremental encoder interface			
Number	2		
Counter resolution	32 bit		
Input signals	A-, A+, B-, B+, N-, N+		
Signal evaluation	1- / 2- / 4-fold edge evaluation or pulse direction mode		
Input frequency	Max. 1 MHz (ISI222), max. 8 MHz (ISI222/8)		
Synchronization	By means of SYNC signal		
Modes	Reference value monitoring Conditional storage of counter value Conditional load / rest of counter value Velocity measurement		
Error detection	Cable break, encoder resolution monitoring		
Galvanic isolation between channels [1)]	500 V		

[1)] *Only for ISI222*

SSI encoder interface [1)]			
Number	2		
Data word length	Programmable up to 32 bit		
Input signals	D-, D+		
Output signals	T-, T+		
Data format	Graycode and binary format, others can be evaluated by software		
Transfer clock rate	100 kHz to 2 MHz		
Synchronization	Via preSYNC function		

[1)] *Only for ISI222*

Encoder supply			
Output voltage ranges	+5 V and +15 V selectable with jumper, 24 V looped through		
Output voltage	+5 V	+15 V	-1 V
Tolerance	±5 %	±3 %	Like U_{ext}
Max. current / encoder	250 mA	100 mA	300 mA
Short-circuit-proof	Yes, permanent	Yes, permanent	Yes, permanent (PTC)
Residual ripple	< 150 mV_{ss} at +5 V and +15 V		
Galvanic isolation between channels	500 V		

Analog outputs	
Number	2
Output voltage	±10 V
Resolution	14 bit
Output current	Max. ±2 mA
Conversion time	< 40 µs
Accuracy at 25 °C	0.025 %
Error in the entire temperature range	±0.1 %
Settling time of 1 % of the output current range	Max. 500 µs
Error detection	Cable break
Short-circuit-proof	Yes, permanent
Synchronization	By means of SYNC signal

Digital inputs	
Number	4 (2 INIT, 2 TRIG)
Voltage	18 V DC to 34 V DC

Digital inputs	
Input delay	30 µs default, filter adjustable
Acc. to IEC 61131	Type 1
Function	INIT: initiator, trigger for strobe register, digital input TRIG: trigger for strobe register, digital input

Connection technology	
Connection for analog and digital I/O	Phoenix Contact MINICOMBICON connector RM 3.5 with flange
Connection technology	Screw-type terminal, spring-cage terminal block Connector codable, labeling by channels

Conditions for use	Standard	ColdClimate (❄)
Supply voltage	18 V DC to 34 V DC	
Mounting/Installation	Can be plugged onto BS2xx backplane	
Mounting position	Horizontal (vertical at -20 to +55 °C operating temperature)	Horizontal (vertical at -30 to +55 °C operating temperature)

Approvals/Certificates	
General	CE, UKCA, cULus
Marine	ABS, BV, DNV, KR, LR, NK, RINA

Environmental conditions	Standard	ColdClimate (❄)
Operating temperature	-30 °C to +60 °C	
Relative humidity, operation	5 % to 95 % noncondensing	5 % to 95 % with condensation
Storage temperature	-40 °C to +85 °C	
Relative humidity, storage	5 % to 95 % with condensation	
Pollution degree (IEC 60664-1)	2 (noncondensing)	2

Order data

Part type designation	Part number	Description
ISI222	00013737-00	Positioning module; 2x In INC/SSI; 1 MHz; 32 bit; RS422 level; INC A, A/B/N; position; gate time; period; velocity; encoder supply 5 V / 15 V / 24 V; 2x Out ±10 V; 14 bit; 0.025 %; 40 µs; synchronized; PreSYNC; 4x DI 24 V; trigger; homing
ISI222 CC	00016421-00	Like ISI222; ColdClimate (❄)
ISI222/8	00014127-00	Positioning module; 2x In INC; 8 MHz; 32 bit; RS422 level; INC A, A/B/N; position; gate time; period; velocity; encoder supply 5 V / 15 V / 24 V; 2x Out ±10 V; 14 bit; 0.025 %; 40 µs; synchronized; PreSYNC; 4x DI 24 V; trigger; homing; SSI encoder not supported

Accessories

Part type designation	Part number	Description
KZ-ISI222 B	00014277-30	Terminal set Phoenix cage clamp (1x KZ 51/02; 1x KZ 35/06; 1x KZ 35/07; 1x KZ 35/02) with labeling strips
KZ-ISI222 B+D	00014277-70	Terminal set Phoenix cage clamp (1x KZ 51/02; 1x KZ 35/06; 1x KZ 35/07; 1x KZ35/02) with labeling strips + D-sub connectors