



EL5101 | Incremental encoder interface

The EL5101 EtherCAT Terminal is an interface for the direct connection of incremental encoders with differential inputs (RS422). A 32/16 bit counter with a quadrature decoder and a 32/16 bit latch for the zero pulse can be read, set or enabled. Incremental encoders with alarm outputs can be connected at the interface's status input. Interval measurement with a resolution of up to 100 ns is possible. The gate input allows the counter to be halted. The counter state is taken over with a rising edge at the latch input.

Due to the optional interpolating microincrement function, the EL5101 can supply even more precise axis positions for dynamic axes. In addition, it supports the synchronous reading of the encoder value together with other input data in the EtherCAT system via high-precision EtherCAT distributed clocks (DC).

Technical data	EL5101 ES5101
Technology	incremental encoder interface RS422
Encoder type	incremental, differential (RS422)
Number of channels	1
Encoder connection	A, A (inv), B, B (inv), C, C (inv), differential inputs (RS422); status input 5 V DC; gate/latch input 24 V DC
Encoder operating voltage	5 V DC/max. 0.5 A (generated from the 24 V DC power contacts)
Encoder output current	0.5 A
Counter	1 x 16/32 bit switchable
Input frequency	max. 4 million increments/s (with 4-fold evaluation)
Quadrature decoder	4-fold evaluation
Zero-pulse latch	32 or 16 bits
Commands	read, set, enable
Oversampling factor	–
Input signal	difference signal (RS422), single-ended possible
Supply voltage	24 V DC (-15 %/+20 %)
Nominal voltage	24 V DC at power contact
Resolution	1/256 bit microincrements
Conversion time	–
Current consumption power contacts	typ. 100 mA + load
Current consumption E-bus	typ. 130 mA
Distributed clocks	yes
Special features	wire breakage detection, latch and gate function, period duration and frequency measurement, microincrements, timestamping of edges, filters
Weight	approx. 100 g
Operating/storage temperature	-25...+60 °C/-40...+85 °C
Relative humidity	95 %, no condensation
Vibration/shock resistance	conforms to EN 60068-2-6/EN 60068-2-27
EMC immunity/emission	conforms to EN 61000-6-2/EN 61000-6-4
Protect. class/installation pos.	IP 20/variable
Pluggable wiring	for all ESxxxx terminals
Approvals/markings	CE, UL, ATEX
Ex marking	II 3 G Ex nA IIC T4 Gc

Related products	
EL5101-0010	incremental encoder interface, 20 million increments/s (with 4-fold evaluation), no single-ended operation
EL5101-0011	Incremental encoder interface with oversampling
EL5101-0090	incremental encoder interface with differential input, 32 bit, TwinSAFE SC