



EL3742 | 2-channel analog input terminal 0...20 mA, differential input, with oversampling

The EL3742 analog input terminal handles signals in the range between 0 and 20 mA. The voltage is digitised to a resolution of 16 bits, and is transmitted, electrically isolated, to the controller. The input channels of the EtherCAT Terminal have differential inputs and possess a common, internal ground potential. The signals are oversampled with an adjustable, integer multiple (oversampling factor: n) of the bus cycle time (n microcycles per bus cycle). For each microcycle, the EtherCAT Terminal generates a process data block that is collected and transferred during the next bus cycle. The time base of the terminal can be synchronised precisely with other EtherCAT devices via distributed clocks. This procedure enables the temporal resolution of the analog input signals to be increased to n times the bus cycle time. In conjunction with the EL47xx (analog output terminal with oversampling), responses with equidistant time intervals, e.g. in the event of a threshold value being exceeded, become possible. The distributed clocks function enables several EL3742 devices to be synchronised in almost any configuration. The maximum sampling rate per channel is 100 ksamples/s (100,000 samples/s).

Technical data	EL3742 ES3742
Number of inputs	2 (differential)
Power supply	via the E-bus
Technology	differential input, oversampling
Signal current	0...20 mA
Max. sampling rate	max. 10 μ s/100 ksp (per channel, simultaneously)
Oversampling factor	$n = 1 \dots 100$ selectable
Input signal bandwidth	0...30 kHz recommended
Distributed clocks	yes
Distributed clock precision	$\ll 1 \mu$ s
Internal resistance	typ. 85 Ω + diode voltage
Input filter limit frequency	80 kHz
Common-mode voltage U_{CM}	max. 10 V
Conversion time	min. 10 μ s
Resolution	16 bit (incl. sign)
Measuring error	$< \pm 0.3 \%$ (relative to full scale value) up to 10 Hz input signal
Surge voltage resistance	max. 35 V
Electrical isolation	500 V (E-bus/signal voltage)
Current consumption power contacts	–
Current consumption E-bus	typ. 200 mA
Bit width in the process image	input: $n \times 2 \times 16$ bit data; optionally 2×16 bit cycle counter, 4 byte StartNextLatch time
Special features	oversampling
Weight	approx. 60 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

Further information

XFC

eXtreme Fast Control Technology