



EL3681 | Digital multimeter terminal

The EL3681 EtherCAT Terminal enables measurement of currents and voltages in a wide input range. The measuring ranges are switched automatically, as usual in advanced digital multimeters. For current measurements, two current paths are available, one of which is a high-current path for up to 10 A. The current and the voltage measurement facility can be used for DC and AC. The alternating parameters are output as true RMS values. The measurement readings can be read and processed with EtherCAT. At the same time, the EL3681 enables the measuring type and range to be set via the bus.

Excellent interference immunity is achieved through the fully electrically isolated design of the electronic measuring system and the dual-slope conversion system. High precision and simple, high-impedance measurement from 300 mV to 300 V allow the EtherCAT Terminal to be used like a modern digital multimeter.

In measuring applications in particular, the voltage to be expected is often not yet known during the planning phase. Automatic adjustment of the measurement range simplifies use and reduces stock levels. The selected measuring type and overload are indicated by LEDs.

Technical data	EL3681 ES3681
Number of inputs	1 voltage or 1 current (10 A/1 A)
Technology	digital multimeter with automatic range selection
Signal voltage	max. 300 V AC/DC, 10 A
Distributed clocks	–
Internal resistance	3 mΩ/0.2 Ω/12.5 MΩ
Resolution	18 bit + sign in each measurement range
Conversion time	0.5 s (1 s during measuring range switching) preset, min. 65 ms
Measured values	current, voltage
Measuring voltage	300 mV, 3 V, 30 V, 300 V
Measuring current	100 mA, 1 A and 10 A via high-current path
Measuring error	0.01 % DC voltage measurement at 40 °C
Measuring procedure	DC with arithmetic averaging, AC with true RMS value calculation
Update time	0.5 s, 1 s for measuring range selection
Electrical isolation	1500 V (E-bus/field potential)
Current consumption power contacts	–
Current consumption E-bus	150 mA
Bit width in the process image	32 bit data, 16 bit control/status
Special features	automatic or manual range selection, 1.25 A fuse installed + spare fuse, filter deactivatable
Weight	approx. 70 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	CE

Related products	
EL3681-0020	Digital multimeter terminal, with calibration certificate

Accessories	
ZB8000-0001	spare fuse, 1.25 A, 10 pieces, spare part KL3681/EL3681
TS3300	license for using the TwinCAT Scope 2
TS6420	license for using the TwinCAT Database Server