



## EP3174-0092 | TwinSAFE SC: 4-channel analog input $\pm 10$ V or 0/4...20 mA, differential input, 16 bit

The EP3174-0092 EtherCAT Box has four analog inputs which can be individually parameterised, so that they process signals either in the  $-10 \dots +10$  V or the 0/4...20 mA range. The voltage or input current is digitised with a resolution of 16 bits, and is transmitted (electrically isolated) to the higher-level automation device. The four input channels have differential inputs and possess a common, internal ground potential. The input filter and therefore the conversion times are configurable in a wide range. If required, the inputs can be scaled differently, and automatic limit monitoring is also available. EtherCAT is used for parameterisation purposes. The parameters are stored in the module.

With the aid of the TwinSAFE SC technology (TwinSAFE Single Channel) it is possible to make use of standard signals for safety tasks in any network or fieldbus. The standard functions and features of the I/Os remain available. The data from these TwinSAFE SC I/Os is fed to the TwinSAFE Logic, where they undergo safety-related multi-channel processing. In the Safety Logic the data originating from different sources is analysed, checked for plausibility and submitted to a "voting". This is done by certified function blocks such as Scale, Compare/Voting (1oo2, 2oo3, 3oo5), Limit, etc. For safety reasons, however, at least one of the data sources must be a TwinSAFE SC component. The remainder of the data can originate from other standard Bus Terminals, drive controllers or measuring transducers.

With the aid of the TwinSAFE SC technology it is typically possible to achieve a safety level equivalent to PL d/Cat. 3 in accordance with EN ISO 13849-1 or SIL 2 in accordance with EN 62061.

Technical data	EP3174-0092
Number of inputs	4 (differential)
Input connections	M12, screw type
Protocol	EtherCAT
Bus interface	2 x M8 socket, shielded, screw type
Signal type	$-10/0 \dots +10$ V   0/4...20 mA
Internal resistance	$> 200$ k $\Omega$   85 $\Omega$ typ. + diode voltage
Common-mode voltage $U_{cm}$	35 V max.
Resolution	16 bit (incl. sign)
Measuring error	$< \pm 0.3$ % (relative to full scale value)
Input filter limit frequency	5 kHz
Conversion time	$\sim 100$ $\mu$ s
Nominal voltage	24 V DC (-15 %/+20 %)
Distributed clocks	yes
Input filter	configurable
Sensor supply	from load supply voltage $U_p$
Current consumption from $U_s$ (without sensor current)	120 mA
Power supply connection	feed: 1 x M8 male socket, 4-pin; downstream connection: 1 x M8 female socket, 4-pin
Bit width in the process image	4 x 16 bit input, 4 x 8 bit status
Electrical isolation	500 V
Special features	TwinSAFE SC, current or voltage parameterisable (0/4...20 mA, $-10/0 \dots +10$ V)
Weight	approx. 165 g
Operating/storage temperature	$-25 \dots +60$ °C/ $-40 \dots +85$ °C
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 65/66/67 (conforms to EN 60529)/variable
Approvals	CE, UL, Ex

Related products	
<b>EK1960</b>	TwinSAFE Compact Controller
<b>EL6910</b>	TwinSAFE Logic

Further information	
<b>TwinSAFE SC</b>	TwinSAFE SC technology