

EtherCAT system for length measurement, 24-bit 8 inductive transducers, LVDT, half-bridge

New!*



MSX-EC-3781

Simultaneous acquisition of up to 8 inductive displacement transducers

For half-bridge or LVDT transducers

24 V trigger interface



EtherCAT



*Operating temperature



TWINCAT

Features

- Robust standardised metal housing
- Power Save Mode: Reduced power consumption if no acquisition runs
- 16 MB onboard SDRAM for data storage

Transducer inputs

- 8 transducer inputs, 24-bit, 5-pin M18 female connector
- Connection of half-bridge (HB) or LVDT transducers
- Simultaneous acquisition
- Diagnostic function (short-circuit, line break)

Acquisition modes

- Untriggered live signal
- Acquisition synchronised with the EtherCAT master
- Average mode

Transducer accuracy (measurement example)

Type: TESA GT21, range: ± 2 mm ($\Delta 4$ mm), 16-bit accuracy

$$\frac{4 \text{ mm}}{2^{16}} = \pm 61 \text{ nm} = 0.061 \mu\text{m}$$

Applications

- Gear wheel measurement • Gauge block measurement
- Sensor data acquisition
- Quality assurance, automatic component testing
- Industrial process control • Profile and surface measurement

Interfaces

- 2 EtherCAT interfaces
- 24 V trigger interface
- 24 V supply

Specifications*

Transducer inputs

Number of inputs:	8 x ADC (not multiplexed)
Input type:	Single-ended
Coupling:	DC
Resolution:	24-bit
Transducer accuracy:	TESA GT21: ± 61 nm (without average value)
Sampling frequency f_s :	On 8 channels: $f_s = f_p$ at a primary frequency f_p of: 5 kHz, 7.69 kHz, 10 kHz, 12.5 kHz, 20 kHz
Example with TESA GT21:	On all 8 channels: $f_s = f_p = 12.5$ kHz
Input stage	
Input impedance:	2 k Ω , 10 k Ω , 100 k Ω , 10 M Ω (software-programmable)
Input range:	± 3.3 V max. (software-programmable)

Sine wave generator (transducer supply)

Number of outputs:	2
Coupling:	AC
Programmed signals	
Type:	Sine differential (180° phase shift)
Output frequency (primary frequency f_p):	5 kHz, 7.69 kHz, 10 kHz, 12.5 kHz, 20 kHz (typ.)
Output stage	
Output impedance:	< 0.1 Ω typ. > 30 k Ω typ. (in shutdown mode)
Short-circuit current:	0.7 A typ. (at 25 °C with thermal protection)

Power supply

Nominal voltage:	24 V \equiv
Supply voltage:	18-30 V
Optical isolation:	1000 V
Current consumption at 24 V:	250 mA
Reverse voltage protection	

Trigger

Number of inputs:	1
Optical isolation:	1000 V
Signal type:	24 V

EMC - Electromagnetic compatibility

The product complies with the European EMC directive. The tests were carried out by a certified EMC laboratory in accordance with the standard DIN EN IEC 61326-1. The limit values as set out by the European EMC directive for an industrial environment are complied with. The respective EMC test report is available on request.

System features

Interface:	EtherCAT
Dimensions:	232 x 121 x 31 mm
Weight:	850 g
Degree of protection:	IP 65
Operating temperature:	-40 °C to +85 °C

Interface connectors

EtherCAT:	2 x 4-pin M12 female connector, D-coded for ports 0 and 1
Trigger:	1 x 5-pin M12 male connector

Voltage supply

24 VDC input:	1 x 5-pin M12 male connector
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Sensor connectors

Transducer inputs:	8 x 5-pin M18 female connector
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Ordering information

MSX-EC-3781

EtherCAT system for length measurement, 24-bit, 8 inductive transducers, LVDT, half-bridge. Incl. technical description and software drivers.

* Preliminary product information