



EtherCAT MiniModul ECAT ADMM 4

- ▶ Very precise and extremely compact measurement module with EtherCAT interface
- ▶ 4 voltage differential inputs, fully electrically isolated
- ▶ 10 kHz measurement data rate per channel
- ▶ Measurement range from 10 mV to 60 V, adjustable per channel
- ▶ High-precision differential sensor excitation, adjustable per channel
- ▶ Extremely precise module synchronisation, with EtherCAT distributed clocks mechanism
- ▶ Waterproof, rugged housing: IP67
- ▶ Operating temperature: -40°C to +85°C
- ▶ LED status indicator per channel
- ▶ Perfect for use in test stands

The ECAT ADMM 4 is the first module of the new CSM EtherCAT series.

It allows to measure up to 10 kHz per channel with the high bandwidth of Ethernet and the full support of EtherCAT time synchronisation mechanism.

The ECAT ADMM 4 module provides wide and very precise differential input voltage ranges from +/-10 mV up to +/-60 V in configurable steps.

Communication via EtherCAT

For communication with an EtherCAT Master software a high level **EtherCAT Slave Controller** is used. ECAT ADMM supports the following operation modes:

- ▶ **Free running.** In this mode measurement data is updated in the configured data rate. ECAT ADMM is not synchronized to the EtherCAT master.
- ▶ **Synchronisation with Sync Manager 3 (SM3)** The measurement data acquisition is synchronised to the SM3 Events. This allows a very precise synchronisation.
- ▶ **Synchronisation with Distributed Clocks (DC)** All measurement modules are working with the same time base. This time base is synchronised between these modules down to a few nanoseconds.

Operation modes and further EtherCAT functionalities are specified in an XML file enclosed.



Configuration via CoE

The module functionality (measurement ranges, filters, sensor excitation,...) is configured via CANopen over EtherCAT (CoE) protocol, using an EtherCAT Master software, e.g. TwinCAT from Beckhoff.

Module information is available in an EDS file, or directly from the module using the SDO Info service.

Communication profile DS 301 V4.02

- ▶ EtherCAT Slave device
- ▶ 4 transmit PDOs (1 per channel)

Device profile DS 404 V1.2

- ▶ Measurement ranges and filter settings
- ▶ Sensor excitation settings

In case CoE is not available, ECAT ADMM4 can also be configured via an additional CAN interface, using standard CSM ConfigTool. All configuration data is stored in the module.

Shipping content

ECAT ADMM 4 device, device description files (XML+EDS), documentation, calibration certificate

Maintenance

We recommend a calibration interval of 1 year. For further technical information and references please contact our technical sales.


Part numbers

ART0200701 ADMM 4

Accessories

See data sheet "MiniModul Accessories".

Specifications EtherCAT MiniModul ECAT ADMM 4

Technical Data	ECAT ADMM 4
Inputs	4 analog inputs
Measurement ranges	± 10 , ± 20 , ± 50 , ± 100 , ± 200 , ± 500 mV, ± 1 , ± 2 , ± 5 , ± 10 , ± 20 , ± 60 V
Internal resolution	16 bit
Internal sampling rate per ch.	10 kHz
Measurement data rate per ch.	1, 2, 5, 10, 50, 100, 500 Hz und 1, 2, 5, 10 kHz
HW input filter	low-pass 3 rd order, approx. 2 kHz
SW input filter	selectable Butterworth filter 6 th order, range: 0.1 Hz to 2 kHz
Input protection ⁽¹⁾	
Operational safety	± 60 V permanent
Device safety	± 100 V permanent, additional ESD protection
Sensor excitation	
Voltage	± 5 V, ± 8 V, ± 10 V, ± 12 V, ± 15 V DC typ. ± 30 mA, max. ± 120 mA per channel ⁽²⁾ selectable and adjustable per channel ⁽³⁾
Galvanic isolation⁽⁴⁾	no safety insulation in terms of high-voltage applications
Channel/ channel	500 V
EtherCAT / channel	500 V
EtherCAT / power supply	500 V
EtherCAT interface	Ethernet 100Base-TX, 100 MBit/s EtherCAT slave controller
Configuration	via EtherCAT master using CANopen over EtherCAT (CoE), all settings and configuration data stored in the device
Power supply	
Minimum	6 V DC (-10 %)
Maximum	50 V DC (+10 %)
Power consumption	typ. 2.5 W (without sensor excitation)
LED indicator	Power (green) / Link/Activity IN (green) / Link/Activity OUT (green)
LED per input channel	Sensor excitation on (green) / short circuit (red)
Housing	Aluminium silver anodized
Protection class	IP67
Weight	approx. 500 g
Dimensions (w x h x d)	approx. 200 x 35 x 50 mm
Connectors	
EtherCAT / voltage	LEMO 1B 8-pole
Signal inputs	LEMO 1B 6-pole
Operating and storage conditions	
Operating temperature	-40°C to +85°C
Relative humidity	5 % to 95 %
Pollution degree	3
Storage temperature	-55°C to +90°C
Conformity	

1) Observe information regarding the intended use, see CSM document "Safety Instruction MiniModul".

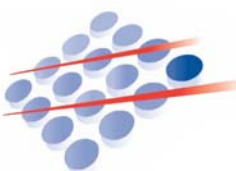
2) Distributive sensor excitation, see "Application Note".

3) In case of full load (7.2 W) a power supply of > 8 V is required, see "Application Note".

4) These MiniModul devices are designed for measurements in vehicles with 12 V-, 24 V-, or 42 V onboard power supply systems. The maximum operating voltage at the measuring inputs is 60 V. **Not suitable** to be used in systems with higher operating voltages, e.g. high-voltage batteries of hybrid- or electric cars.



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