

Example of MCS-08 with 2 channels, local display, digital I/O module and Profibus gateway



Product Description

Type MCS-08 is a powerful and economic state-of-the-art multi channel system for static and dynamic weighing applications plus force and torque measurements.

The basic measurement module is the 1-channel type MCS-08AD A/D converter which converts the analogue low level signal from a load cell or a strain gauge sensor to a digital high-resolution and high-accuracy signal. All standard weighing functions are available on this A/D converter.

For bus connections, gateways such as Profibus DP, ProfiNet, CANopen, Modbus RTU and Ethernet TCP/IP are available. The gateway can communicate via the internal system bus with up to 8 type MCS-08AD A/D converters.

For local display purposes the bus system can be extended with one optional type MCS-08DP Display module.

The system can be extended with optional control signals located on the type MCS-08IO Digital I/O module. The gateway can communicate via the internal system bus with up to 8 type MCS-08IO modules.

Available Accessoires

- Type MCS-08DP Local display module
- Type MCS-08IO Digital I/O module
- Setup software running under MS Windows

Key Features

- Up to 8 channels in one system
- Profibus gateway
- ProfiNet gateway
- CANopen gateway
- Modbus RTU gateway
- Ethernet TCP/IP gateway
- Load cell excitation 5 V DC for up to 6 load cells à 350 Ω
- 6 wire load cell connection
- Linearity better than 0.0015 %
- Calibration with weight or in mV/V
- Max. conversion rate 800 values / s
- Internal resolution up to 8 million counts
- External resolution up to 2 million counts
- Digitale filter, switchable
- Power supply 12...28 V DC
- DIN-rail mounting

Components of MCS-08

1. Type **MCS-08AD** A/D Converter (max. 8 per system)
2. Gateway modules (max. 1 per system):
 - Type **MCS-08PB** Profibus-DP
 - Type **MCS-08PN** ProfiNet
 - Type **MCS-08MB** Modbus RTU
 - Type **MCS-08EN** Ethernet TCP/IP
 - Type **MCS-08CO** CANopen
3. Type **MCS-08DP** Display module (max. 1 per system)
4. Type **MCS-08IO** Digital I/O module (max. 8 per system)

MCS-08AD

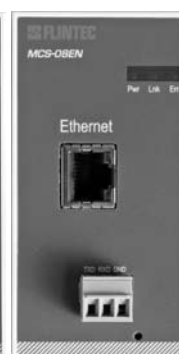
MCS-08DP

MCS-08IO

MCS-08PB

MCS-08PN

MCS-08MB

MCS-08EN

MCS-08CO


Specifications

Type MCS-08AD A/D Converter

A/D CONVERTER

Type	24-bit Delta-Sigma ratiometric with integral analogue and digital filter
Analogue input range	0 mV to 18 mV (unipolar) or -18 mV to +18 mV (bipolar), switchable
Linearity	< 0.0015% FS
Temperature coefficient	< 2 ppm/°C
Min. input per vs1	0.1 µV/d
Conversion rate	Up to 800 measurement values per second
Internal resolution	Up to 8 million counts
External resolution	Up to 100 000 counts (weight value, force, torque) respective 1 million raw counts (unipolar) respective 2 million raw counts (bipolar)

CALIBRATION & WEIGHING FUNCTIONS

Calibration	Electronic calibration without test weights (eCal) or calibration by test weights
Digital filter	10 step adjustable digital adaptive filter
Weighing functions	Tare, zero, auto zero tracking, motion detection, auto-zero at power-up, save tare at power-off, increased resolution

LOAD CELLS

Excitation	5 V DC at 58...1 200 Ω, max. 100 mA
Number of load cells	Up to 6 load cells à 350 Ω or 18 load cells à 1 100 Ω in parallel
Connection	4 or 6 wire technique, cable length 250 m/mm² for 6 wire connection

COMMUNICATION & SETUP

Setup & calibration	By PC software via gateway module, backup data stored on PC
Response time	< 4 ms (delay after each read or write command)

POWER SUPPLY

DC power supply	11...28 V DC, < 200 mA, not galvanically isolated
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ENVIRONMENT & ENCLOSURE

Operating temperature	Between -10 °C and +40 °C at maximum 85% RH, non-condensing
Enclosure & protection class	Polyamide, for DIN-rail mounting, protection class IP20
Dimensions & weight	99 x 22.5 x 114.5 mm (L x W x H), weighs appr. 100 g

Specifications	
Gateway Modules	
GENERAL	
Internal bus system	Communication with up to 8x type MCS-08AD and up to 8x type MCS-08IO and 1x type MCS-08DP
Serial interface RS232C	9600 baud (8, N, 1), used as service interface, communication to each connected type MCS-08AD respective type MCS-08IO respective type MCS-08DP
Response time	< 4 ms (delay after each read or write command)
POWER SUPPLY	
DC power supply	11...28 V DC, < 100 mA, not galvanically isolated
ENVIRONMENT & ENCLOSURE	
Operating temperature	Between -10 °C and +40 °C at maximum 85% RH, non-condensing
Enclosure & protection class	Polyamide, for DIN-rail mounting, protection class IP20
Dimensions & weight	99 x 45 x 114.5 mm (L x W x H), weighs appr. 150 g
Profibus DP Gateway Module: Type MCS-08PB	
Profibus DP-V0 and DP-V1	9,6 kbit/s to 12 Mbit/s (automatic), galvanically isolated interface
Address range	1...126
ProfiNet Gateway Module: Type MCS-08PN	
ProfiNet	100 Mbit/s (full duplex), galvanically isolated interface
IP settings	DHCP or manual setup by PC software
Modbus RTU Gateway Module: Type MCS-08MB	
Modbus RTU	Serial interface RS485A, 1200 to 57 600 baud (8N1, 7E1, 7O1), bus capability up to 31 units
Address range	1...31
CANopen Gateway Module: Type MCS-08CO	
CANopen V.2.0	10 kbit/s...1 Mbit/s (automatic), galvanically isolated interface
Address range	1...126
Ethernet TCP/IP Gateway Module: Type MCS-08EN	
Ethernet TCP/IP	10 Mbit/s (full duplex), galvanically isolated interface
IP settings	Manual setup by PC software
Other	Web client interface
Type MCS-08IO Digital I/O Module	
DIGITAL I/O	
Inputs	4 opto-isolated inputs (12...30 V DC)
Outputs	4 potential-free NO relays, 1A @ 250 V AC, 30 V DC
Input function	Control input to communication interface
Output function	Control output from communication interface
COMMUNICATION & SETUP	
Setup	By PC software via gateway module, backup data stored on PC
Response time	< 4 ms (delay after each read or write command)
POWER SUPPLY	
DC power supply	11...28 V DC, < 100 mA, not galvanically isolated
ENVIRONMENT & ENCLOSURE	
Operating temperature	Between -10 °C and +40 °C at maximum 85% RH, non-condensing
Enclosure & protection class	Polyamide, for DIN-rail mounting, protection class IP20
Dimensions & weight	99 x 22.5 x 114.5 mm (L x W x H), weighs appr. 100 g
Type MCS-08DP Display Module	
LOCAL DISPLAY	
Display	LED red, 10.2 mm high, 5 digits, with overflow indication
Status LEDs	Selected channel; net, no motion, zero and power-on state of the selected channel
Keyboard	2-key membrane with tactile feedback
Refresh time	250 ms
POWER SUPPLY	
DC power supply	11...28 V DC, < 100 mA, not galvanically isolated
ENVIRONMENT & ENCLOSURE	
Operating temperature	Between -10 °C and +40 °C at maximum 85% RH, non-condensing
Enclosure & protection class	Polyamide, for DIN-rail mounting, protection class IP20
Dimensions & weight	99 x 45 x 114.5 mm (L x W x H), weighs appr. 140 g