# FAD-30 A/D converter series



## product description

The FAD-30 A/D converter series consists of powerful and economic state-of-the-art instruments for static and dynamic weighing applications plus force and torque measurements.

Each instrument of the series converts the analogue low-level signal from a load cell or a strain gauge sensor to a digital high-resolution and high accuracy signal and transmits the digital data to an external PLC or PC system. As a special feature the instruments can switch between unipolar and bipolar input range without affecting the external resolution. The FAD-30 A/D converter series comprises various instruments for different industrial bus systems:

## converter options

- FAD-30 (RS485)
- FAD-30MB (Modbus RTU)
- FAD-30PB (Profibus DP)
- FAD-30PN (Profinet)
- FAD-30CO (CANopen)
- FAD-30EN (Ethernet TCP/IP)
- FAD-30EI (EtherNet IP)
- FAD-30EC (EtherCat)
- FAD-30CC (CC-Link)
- FAD-30PL (Powerlink)

## applications

Universal process weighing systems and process automation & control applications.

## accessories

Setup software running under MS Windows

## key features

Easily convert analogue to digital

Various instrument versions for different industrial bus systems

Load cell excitation 5VDC for up to 6 load cells at 350Ω

6 wire load cell connection

Linearity better than 0.0015%

Calibration with weight or in mV/V

Max. conv. rate of 800 values/s

Internal resolution up to 8mil counts

External resolution up to 2mil counts

Digital filter, switchable

Power supply 12...28 VDC

DIN-rail mounting

CE  RoHS compliant  IP20

# specifications

## A/D converter

| Type | 24-bit Delta-Sigma ratiometric with integral analogue and digital filter |
|---|---|
| Analogue input range | 0mV to 18mV (unipolar) or -18mV to +18mV (bipolar), switchable |
| Linearity | < 0.0015% FS |
| Temperature coefficient | < 2ppm/°C |
| Min. input per vsi | 0.1µV/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 VDC at 58...1,200Ω, max. 100 mA, for up to 6 load cells at 350Ω or 18 load cells at 1,100Ω |
|---|---|
| Connection | 4 or 6 wire technique, cable length 250m/mm² for 6 wire connection |

## Communication & setup

| Serial interface RS232C | 9,600 baud (8, N, 1) |
|---|---|
| Other interfaces | Depends on intrument version |
| Response time | < 4ms (delay after each read or write command) |
| Setup & calibration | By PC software via RS232C, backup data stored on PC |

## Power supply

| DC power supply | 11...28 VDC, < 200 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 |

### Instrument with RS485 interface: Type FAD-30

| | |
|---|---|
| Serial interface RS485A | 1,200 to 57,600 baud (8N1, 7E1, 7O1), bus capability up to 31 units |
| Communication mode | Continuous or requested |
| Dimensions & weight | 99 x 22.5 x 114.5mm (L x W x H), weighs appr. 110g |

### Instrument with Modbus RTU interface: Type FAD-30MB

| | |
|---|---|
| Serial interface RS485A | 1,200 to 57,600 baud (8N1, 7E1, 7O1), bus capability up to 31 units |
| Communication mode | Continuous or requested or Modbus RTU |
| Address range | 1...31 |
| Dimensions & weight | 99 x 22.5 x 114.5mm (L x W x H), weighs appr. 110g |

### Instrument with Profibus DP interface: Type FAD-30PB

| | |
|---|---|
| Profibus DP-V0 and DP-V1 | 9,6 kbit/s to 12 Mbit/s (automatic), galvanically isolated interface |
| Address range | 1...126 |
| Dimensions & weight | 99 x 45 x 114.5mm (L x W x H), weighs appr. 150g |

### Instrument with ProfiNet interface: Type FAD-30PN

| | |
|---|---|
| ProfiNet | 100 Mbit/s (full duplex), galvanically isolated interface |
| IP settings | DHCP or manual setup by PC software |
| Dimensions & weight | 99 x 45 x 114.5mm (L x W x H), weighs appr. 150g |

### Instrument with CANopen interface: Type FAD-30CO

| | |
|---|---|
| CANopen V.2.0 | 10 kbit/s...1 Mbit/s (automatic), galvanically isolated interface |
| Address range | 1...126 |
| Dimensions & weight | 99 x 45 x 114.5mm (L x W x H), weighs appr. 150g |

### Instrument with Ethernet TCP/IP interface: Type FAD-30EN

| | |
|---|---|
| Ethernet TCP/IP | 10 Mbit/s (full duplex), galvanically isolated interface |
| IP settings | Manual setup by PC software |
| Dimensions & weight | 99 x 45 x 114.5mm (L x W x H), weighs appr. 150g |
| Other | Web client interface |

Dimensions and specifications are subject to change without notice.