



Figure: FAD-40PB with Profibus-DP
Alternatively with ProfiNet (FAD-40PN),
CANopen (FAD-40CO) or Ethernet (FAD-40EN)



Figure: FAD-40 with RS485
Alternatively FAD-40MB with Modbus RTU



Product Description

The type FAD-40 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 type FAD-40 A/D Converter Series comprises various instruments for different industrial bus systems:

- Type FAD-40 A/D Converter with RS485 interface
- Type FAD-40MB A/D Converter with Modbus RTU interface
- Type FAD-40PB A/D Converter with Profibus DP interface
- Type FAD-40PN A/D Converter with ProfiNet interface
- Type FAD-40CO A/D Converter with CANopen interface
- Type FAD-40EN A/D Converter with Ethernet TCP/IP interface

Key Features

- Easy converting analogue load cells and strain gauge sensors to digital
- Various instrument versions for different industrial bus systems
- 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
- Digital filter, switchable
- Power supply 12...28 V DC
- DIN-rail mounting
- 2 digital inputs/outputs and 1 additional digital output (configurable)

Available Accessory

- Setup software running under MS Windows

| Specifications | |
|---|--|
| 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 vsi | 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...1200 Ω, max. 100 mA, for up to 6 load cells à 350 Ω or 18 load cells à 1100 Ω |
| Connection | 4 or 6 wire technique, cable length 250 m/mm ² for 6 wire connection |
| COMMUNICATION & SETUP | |
| Serial interface | RS232C with 9600 baud (8, N, 1); for FAD-40 and FAD-40MB: RS485A with up to 57600 baud (8N1, 7E1, 701) |
| Other interfaces | Depends on instrument version |
| Response time | < 4 ms (delay after each read or write command) |
| Setup & calibration | By PC software via RS232C respective RS485A, backup data stored on PC |
| DIGITAL INPUTS & OUTPUTS | |
| 2x configurable I/O | Selectively configured as input (10...26 V DC) or open collector output (24 V DC, max. 100 mA) |
| 1x additional output | Open collector output (24 V DC, max. 100 mA) |
| Input functions | Zero, tare, clear tare or control input to communication interface |
| Output functions | Setpoint output with / without hysteresis, tolerance band output or control output from communication interface |
| POWER SUPPLY | |
| DC power supply | 11...28 V DC, < 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-40 | |
| Serial interface RS485A | 1200 to 57600 baud (8N1, 7E1, 701), bus capability up to 31 units |
| Communication mode | Continuous or requested |
| Dimensions & weight | 99 x 22.5 x 114.5 mm (L x W x H), weighs appr. 110 g |
| Instrument with Modbus RTU interface: Type FAD-40MB | |
| Serial interface RS485A | 1200 to 57600 baud (8N1, 7E1, 701), 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 114.5 mm (L x W x H), weighs appr. 110 g |
| Instrument with Profibus DP interface: Type FAD-40PB | |
| 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 114.5 mm (L x W x H), weighs appr. 150 g |
| Instrument with ProfiNet interface: Type FAD-40PN | |
| ProfiNet | 100 Mbit/s (full duplex), galvanically isolated interface |
| IP settings | DHCP or manual setup by PC software |
| Dimensions & weight | 99 x 45 x 114.5 mm (L x W x H), weighs appr. 150 g |
| Instrument with CANopen interface: Type FAD-40CO | |
| CANopen V.2.0 | 10 kbit/s...1 Mbit/s (automatic), galvanically isolated interface |
| Address range | 1...126 |
| Dimensions & weight | 99 x 45 x 114.5 mm (L x W x H), weighs appr. 150 g |
| Instrument with Ethernet TCP/IP interface: Type FAD-40EN | |
| Ethernet TCP/IP | 10 Mbit/s (full duplex), galvanically isolated interface |
| IP settings | Manual setup by PC software |
| Dimensions & weight | 99 x 45 x 114.5 mm (L x W x H), weighs appr. 150 g |
| Other | Web client interface |