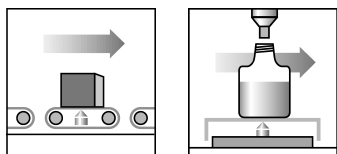


FIT[®]/5...

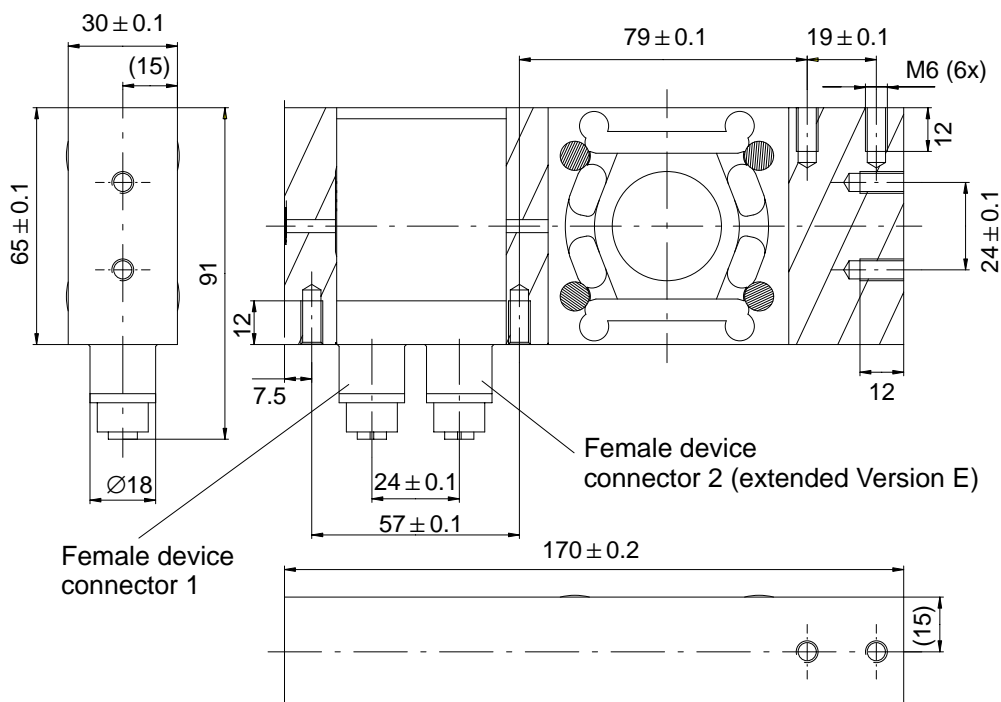
Digital load cell for
dynamical weighing

**Special features**

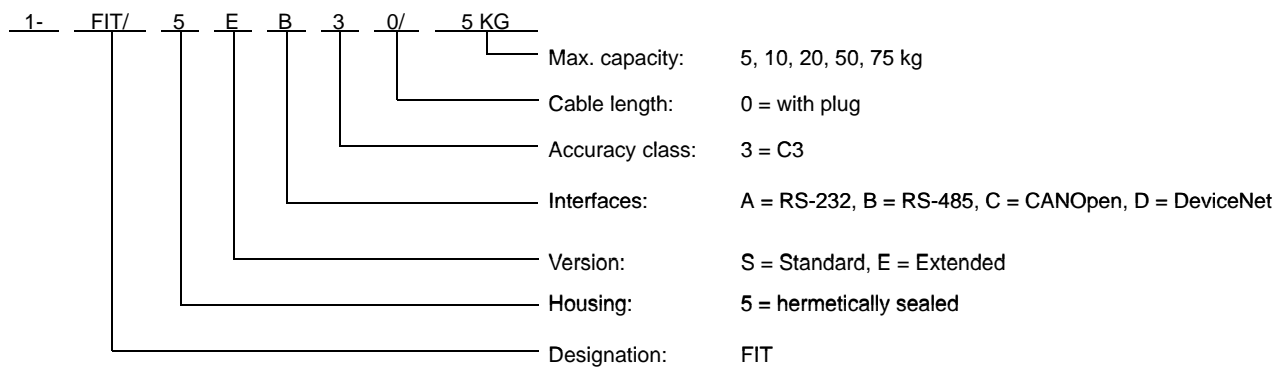
- 4 limit switches with hysteresis
- Dosing functionalities and diagnostic channel (Type E)
- integrated overload protection (Patent announced)
- Trigger function (external or level trigger)
- PC-Software for parameter adjustment and dynamical analysis
- hermetically sealed stainless steel housing IP68
- Test report for 3000 d accord. to OIML R 60, R 76



Dimensions (in mm; 1 mm = 0.03937 inches)



The FIT/... digital load cells are available in different versions, e.g.:



HBM has defined so-called preferred variants. All other variants are available on request.

Preferred variants of the standard types

| Housing | Interface | | | |
|---------|---|--|-------------------------------------|-------------------------------------|
| | RS-232 | RS-485 (4 wire) | CANOpen | DeviceNet |
| FIT/0 | 1-FIT/0SA30/5KG 1-FIT/0SA30/10KG 1-FIT/0SA30/20KG 1-FIT/0SA30/50KG 1-FIT/0SA30/75KG | 1-FIT/0SB30/5KG 1-FIT/0SB30/10KG 1-FIT/0SB30/20KG 1-FIT/0SB30/50KG 1-FIT/0SB30/75KG | 1-FIT/0SC30/5KG 1-FIT/0SC30/10KG | 1-FIT/0SD30/5KG 1-FIT/0SD30/10KG |
| FIT/1 | 1-FIT/1SA31/5KG 1-FIT/1SA31/10KG 1-FIT/1SA31/20KG 1-FIT/1SA31/50KG 1-FIT/1SA31/75KG | 1-FIT/1SB31/5KG 1-FIT/1SB31/10KG 1-FIT/1SB31/20KG 1-FIT/1SB31/50KG 1-FIT/1SB31/75KG 1-FIT/1SB32/5KG 1-FIT/1SB32/10KG 1-FIT/1SB32/20KG | 1-FIT/1SC31/5KG 1-FIT/1SC31/10KG | 1-FIT/1SD31/5KG 1-FIT/1SD31/10KG |
| FIT/4 | | 1-FIT/4SB32/5KG 1-FIT/4SB32/10KG 1-FIT/4SB32/20KG | | |
| FIT/5 | 1-FIT/5SA30/5KG 1-FIT/5SA30/10KG 1-FIT/1SA30/20KG | | 1-FIT/5SC30/5KG 1-FIT/5SC30/10KG | |

Preferred variants of the extended types

In addition to the standard version (S), another extended version (E) with control functions (two connectors) is available. All versions offers additional application areas with limit values and dosing control functions (e.g. sorting systems, filling systems).

| Housing | Inteface | | | |
|---------|---|---|---|-------------------------------------|
| | RS-232 | RS-485 (4 wire) | CANOpen | DeviceNet |
| FIT/0 | 1-FIT/0EA30/5KG 1-FIT/0EA30/10KG 1-FIT/0EA30/20KG 1-FIT/0EA30/50KG 1-FIT/0EA30/75KG | 1-FIT/0EB30/5KG 1-FIT/0EB30/10KG 1-FIT/0EB30/20KG 1-FIT/0EB30/50KG 1-FIT/0EB30/75KG | 1-FIT/0EC30/5KG 1-FIT/0EC30/10KG | 1-FIT/0ED30/5KG 1-FIT/0ED30/10KG |
| FIT/1 | 1-FIT/1EA31/5KG 1-FIT/1EA31/10KG 1-FIT/1EA31/20KG 1-FIT/1EA31/50KG 1-FIT/1EA31/75KG | 1-FIT/1EB31/5KG 1-FIT/1EB31/10KG 1-FIT/1EB31/20KG 1-FIT/1EB31/50KG 1-FIT/1EB31/75KG | 1-FIT/1EC31/5KG 1-FIT/1EC31/10KG | 1-FIT/1ED31/5KG 1-FIT/1ED31/10KG |
| FIT/4 | – | 1-FIT/4EB31/5KG 1-FIT/4EB31/10KG 1-FIT/4EB32/5KG 1-FIT/4EB32/10KG | 1-FIT/4EC31/5KG 1-FIT/4EC31/10KG | 1-FIT/4ED31/5KG 1-FIT/4ED31/10KG |
| FIT/5 | 1-FIT/5EA30/5KG 1-FIT/5EA30/10KG | 1-FIT/5EB30/5KG 1-FIT/5EB30/10KG | 1-FIT/5EC30/5KG 1-FIT/5EC30/10KG 1-FIT/5EC30/20KG | 1-FIT/5ED30/5KG 1-FIT/5ED30/10KG |

– = for these load cell types separate data sheets are available

Specifications

| Type | FIT/5... | | | |
|--|----------------|---|----|----|
| Accuracy class according to OIML R60 | C3 | | | |
| Max. capacity (E_{max}) | kg | 5 | 10 | 20 |
| Min. load cell verification interval (v_{min}) | g | 0.5 | 1 | 2 |
| Min. application range for 3000 d | kg | 1.5 | 3 | 6 |
| Max. platform size | mm | L 400 x W 400 | | |
| Max. number of load cell verification intervals (n_{LC}) | | 3000 | | |
| Apportionment factor (p_{LC}) | | 1 | | |
| Temperature effect on sensitivity (TK_C) ^{1) 2)} in temperature range 0 °C...+40 °C [+32 °F...+104 °F] | % of $C_n/10K$ | ±0.0250 | | |
| Temperature effect on zero signal (TK_{S0}) ²⁾ | | ±0.0200 | | |
| Hysteresis factor (d_{hy}) ^{1) 2)} | | ±0.0166 | | |
| Nonlinearity (d_{lin}) ^{1) 2)} | % of C_n | ±0.0166 | | |
| Creep (d_{CR}) over 30 min | | ±0.0166 | | |
| Eccentric loading error acc. to OIML R76 | | ±0.0233 | | |
| Service load (E_U); max. 120 mm eccentricity | | 150 | | |
| Safe load limit (E_L); max. 20 mm eccentricity | % of E_{max} | 1000 | | |
| Permissible dyn. load (F_{srel}) max. 50 mm eccentricity | | 70 | | |
| Deflection at max. capacity (s_{nom}) | mm | < 0.15 | | |
| Power supply: | | | | |
| Supply voltage UB1 (DC) | V | + 10 ... +30 | | |
| Power consumption | W | ≤ 2 | | |
| Switch-on current | A | 0.2 | | |
| Resolution of meas. signal (1 Hz-Filter) | Bit | 20 | | |
| Measuring rate | 1/s | 4 ... 1200 | | |
| Adjustable cut-off frequency of the digital filters | | | | |
| Filtermode 0 | Hz | 200 ... 0.25 | | |
| Filtermode 1 (response time 62 ... 365 ms) | Hz | 18 ... 2.5 | | |
| Baud rate (RS-232-, RS-485-interface) | Baud | 1200; 2400; 4800; 9600; 19200; 38400; 57600; 115200 | | |
| Max. number of bus members | | 90 | | |
| CANopen interface | | Standard CiA DS301 | | |
| Baud rate | Baud | 10 000 ... 1 000 000 | | |
| DeviceNet interface | | Release 2.0 ODVA | | |
| Baud rate | Baud | 125 000 ... 500 000 | | |
| max. cable length (CANOpen, DeviceNet) | m | ≤ 5000 (10KBaud)... ≤ 100 (500KBaud), ≤ 25 (1MBaud) | | |
| Diagnostic channel, RS-485-2-wire (extended version E, female dev. conn. 2) | | | | |
| Baud rate | Baud | 38 400 | | |
| max. cable length | m | 500 | | |
| Max. number of bus members | | 90 | | |
| Asynchronous serial interface (female device connector 1) | | | | |
| RS-485, 4 wire, max. cable length | m | 500 | | |
| RS-232 max. cable length | m | 15 | | |
| Trigger input (female device connector 1) | | | | |
| Permissible input voltage | V | 0 ... +12 | | |
| Low-level | V | < 1 | | |
| High-level | V | > 4 | | |
| Input resistance | kΩ | 10 | | |
| Control inputs (extended version E, female device connector 2) | | isolated, reference potential GND2 | | |
| Permissible input voltage | V | 0 ... +30 | | |
| Low-level | V | < 6 | | |
| High-level | V | > 10 | | |
| Input resistance | kΩ | > 3 | | |
| Control outputs (extended version E, female device connector 2) | | isolated, reference potential GND2 | | |
| External supply voltage UB2 | V | +11 ... +30 | | |
| Max. current of one output | A | < 0.5 | | |
| Accumulated current of all outputs | A | < 1.0 | | |
| Voltage drop | V | < 1 | | |

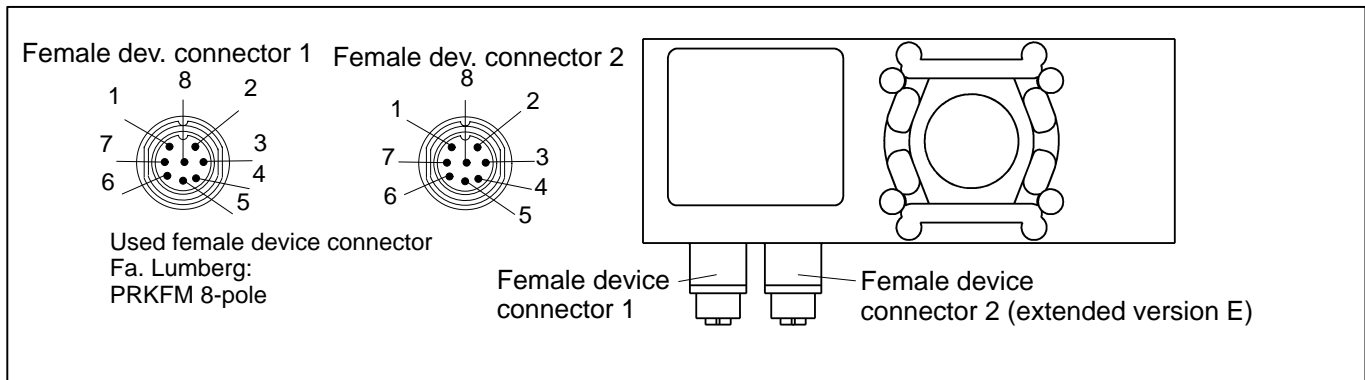
1) The values can be exceeded in individual cases. The resulting errors of TK_C , nonlinearity and hysteresis don't exceed the maximum permissible errors of OIML R 60 with $p_{LC} = 1$.

2) All relative errors are related to the output signal at max. capacity.

Specifications (continuation)

| | | |
|--|---------|---|
| Nominal temperature range | °C [°F] | -10 ... +40 [+14 ... +104] |
| Operating temperature range | °C [°F] | -10 ... +50 [+14 ... +122] |
| Storage temperature range | °C [°F] | -25 ... +75 [-13 ... +167] |
| EMC-requirements | | EN 45501, OIML R76 EN 61326-1/Tab. 4, equipment of class B EN 61326/A1, Tab. A1, equipment in industrial areas IP 68 |
| Degree of protection acc. to EN 60529 | | Female device connector, Fa. Lumberg, 8-pole |
| Female device connector | | Stainless steel |
| Material | | 2 |
| Weight, approx. | kg | |

Electrical connection



| Female device connector 1 | | | | Female device conn. 2 (optional) | |
|---------------------------|------------------------|------------------------|------------------------|----------------------------------|-------|
| Pin-No. | RS-232 | RS-485 | CANOpen/DeviceNet | Pin-No. | |
| 7 | TxD | TA | CANH out | 1 | OUT 1 |
| 3 | RxD | RA | CANH in | 2 | OUT 2 |
| 6 | - | TB | CANL out | 3 | OUT 3 |
| 5 | - | RB | CANL in | 4 | OUT 4 |
| 8 | UB 1 | UB 1 | UB 1 | 5 | UB 2 |
| 1 | GND 1 | GND 1 | GND 1 | 6 | GND 2 |
| 4 ¹⁾ | Diag. Ra/Ta or Trigger | Diag. Ra/Ta or Trigger | Diag. Ra/Ta or Trigger | 7 | IN 1 |
| 2 ¹⁾ | Diag. Rb/Tb | Diag. Rb/Tb | Diag. Rb/Tb | 8 | IN 2 |

¹⁾ The standard version (S) does not have a diagnostic channel. Pin 2 is not assigned, Pin 4 is trigger input.

Accessories, to be ordered separately

Connection cable

Material: PUR, Ø7 ± 0.5 mm, Female device connector / free ends

| | |
|------------------------|--------------------------|
| Length | 3 m |
| Cable (8 cores) | 1-KAB165-3 ^{*)} |

^{*)} The cable is suitable only for experimental purposes for the structure of CANOpen and DeviceNet bus systems (the characteristic wave impedance does not correspond to the CANOpen specifications)

1-FIT-AED-DOC = Documentation (CD-ROM with Operating manual and AED-Panel program AED_Panel32)

- Documentation of mechanics and electronics
- Documentation of command codes for the communication with the FIT/5... load cell
- Software package for parameter setting and dynamic analysis of the weighing system

1-FIT-AED-KIT = Starter kit for CANOpen and DeviceNet

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