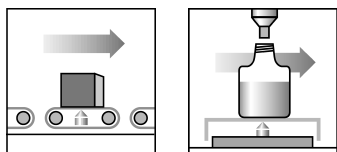


# FIT<sup>®</sup>/4...

Digital load cells for dynamical weighing

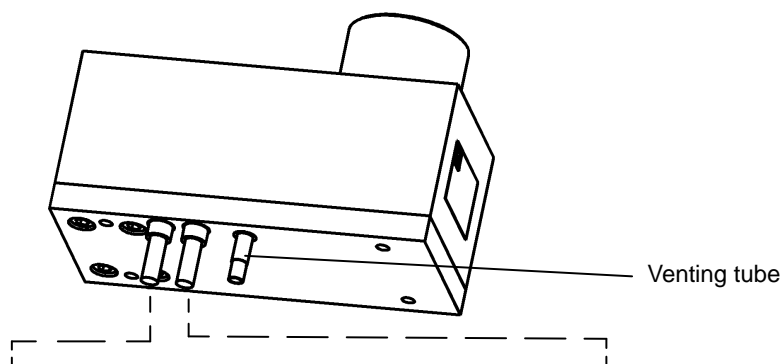


## Special features

- 4 limit switches with hysteresis
- Dosing functionalities and diagnostic channel (Type E)
- Fast triggering and scaling of the measured value
- Trigger function (external or level trigger)
- PC-Software for parameter adjustment and dynamical analysis
- Integrated overload protection
- Test report for 3000 d accord. to OIML R 60, R 76

## Electrical connection

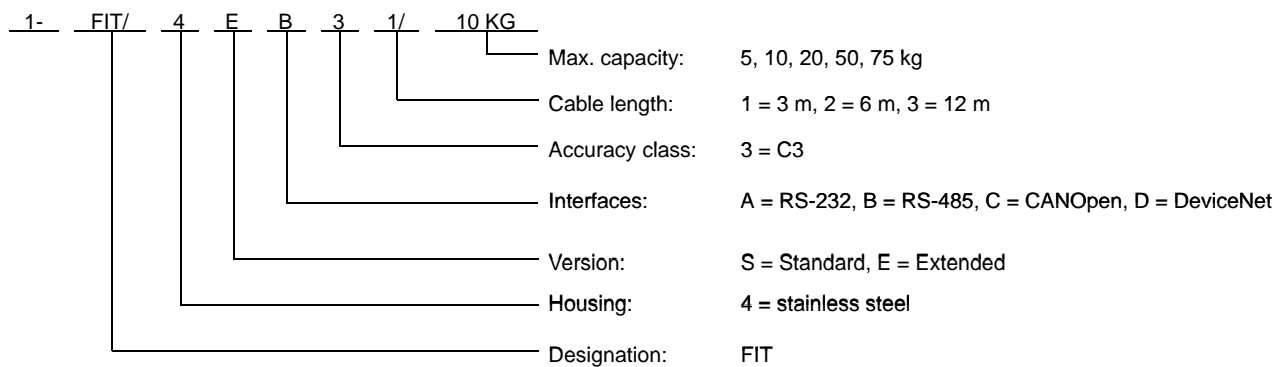
Cable 8 x 0.25 mm<sup>2</sup>, 3 m (6 m, 12 m) long, Ø7 ±0.5 mm



Cable 1				Cable 2 (extended version E)	
	RS-485	RS-232	CANOpen/DeviceNet		
brown <sup>1)</sup>	Diag. Rb/Tb	Diag. Rb/Tb	Diag. /Rb/Tb	brown	IN 2
yellow <sup>1)</sup>	Diag. Ra/Ta or Trigger	Diag. or Trigger	Diag. Ra/Ta or Trigger	yellow	IN 1
grey	RB	-	CanL in	grey	OUT 4
black	TB	-	CanL out	black	OUT 3
green	RA	RxD	CanH in	green	OUT 2
blue	TA	TxD	CanH out	blue	OUT 1
white	GND1	GND1	GND 1	white	GND 2
red	+UB 1	+UB 1	+UB 1	red	UB 2

<sup>1)</sup> The standard version (S) does not have a diagnostic channel. Brown is not assigned, yellow is trigger input.

## 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/4SB31/5KG 1-FIT/4SB31/10KG	1-FIT/5SC30/5KG 1-FIT/5SC30/10KG	

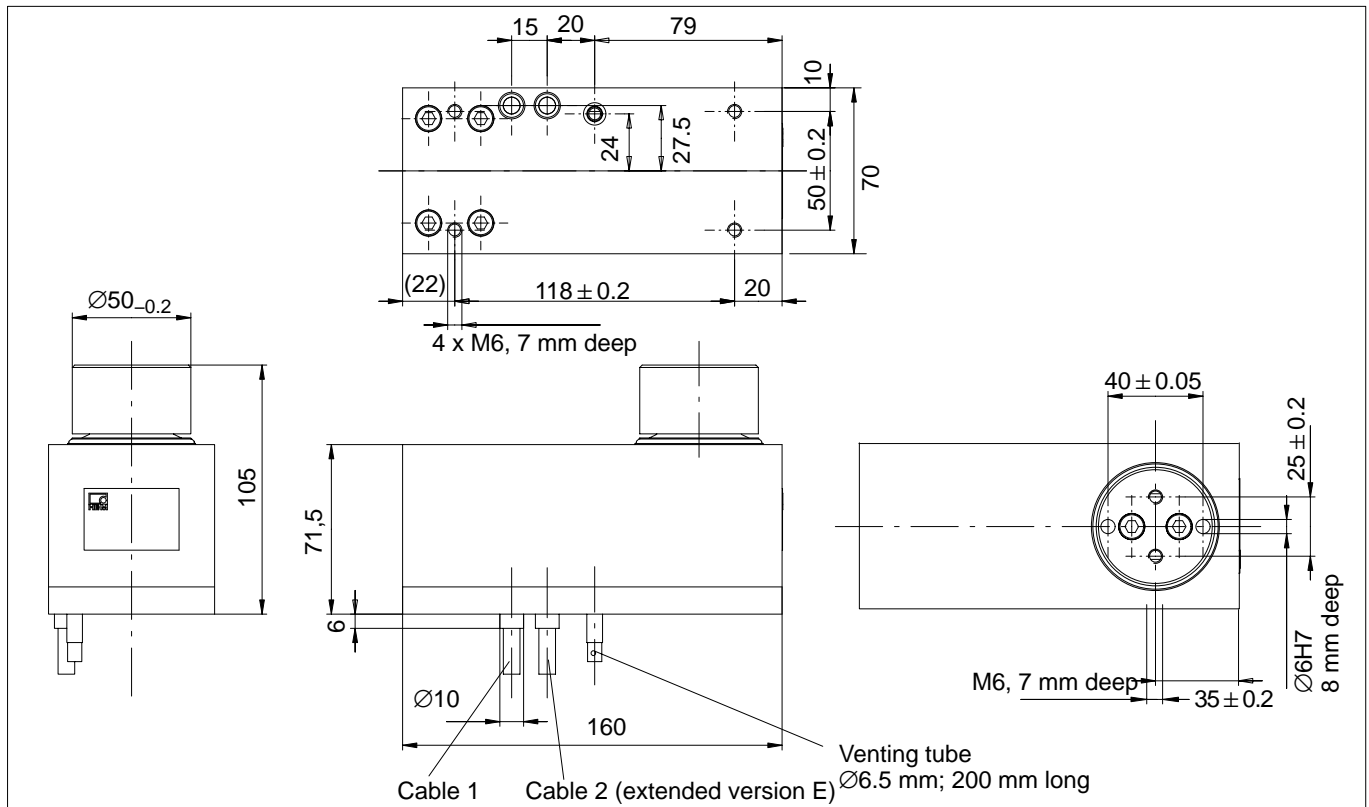
### Preferred variants of the extended types

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	Interface			
	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/4EC31/50KG	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/5ED30/5KG 1-FIT/5ED30/10KG

= for these load cell types separate data sheets are available

## Dimensions (in mm; 1 mm = 0.03937 inches)



## Specifications

Type	FIT/4...					
Accuracy class according to OIML R60	C3					
Max. capacity ( $E_{max}$ )	kg	5	10	20	50	75
Min. load cell verification interval ( $v_{min}$ )	g	0.5	1	2	5	10
Min. application range for 3000 d	kg	1.5	3	6	15	30
Max. platform size	mm	L 400 x W 400			L 600 x W 500	
Max. number of load cell verification intervals ( $n_{LC}$ )		3000				
Apportionment factor ( $p_{LC}$ )		1				
Temperature effect on sensitivity ( $TK_C$ ) <sup>1) 2)</sup> in temperature range 0 °C...+40 °C [32 °F...+104 °F]	% of $C_n/10K$	±0.0250				
Temperature effect on zero signal ( $TK_{S0}$ ) <sup>2)</sup>		±0.0200				
Hysteresis factor ( $d_{hy}$ ) <sup>1) 2)</sup>		±0.0166				
Nonlinearity ( $d_{lin}$ ) <sup>1) 2)</sup>	% 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	< 0.2				
Power supply:						
Supply voltage UB1 (DC)	V	+ 10 ... +30				
Power consumption	W	≤ 2				
Switch-on current	A	0.15				
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				

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)

<b>CANopen interface</b> Baud rate	Baud	Standard CiA DS301 10 000 ... 1 000 000
<b>DeviceNet interface</b> Baud rate	Baud	Release 2.0 ODVA 125 000 ... 500 000
<b>max. cable length (CANOpen, DeviceNet)</b>	m	≤ 5000 (10KBaud)... ≤ 100 (500KBaud), ≤ 25 (1MBaud)
<b>Diagnostic channel, RS-485-2-wire (extended version E, cable 2)</b> Baud rate max. cable length Max. number of bus members	Baud m	38 400 500 90
<b>Asynchronous serial interface (cable 1)</b> RS-485, 4 Leiter, max. cable length RS-232 max. cable length	m m	500 15
<b>Trigger input (cable 1)</b> Permissible input voltage Low-level High-level Input resistance	V V V kΩ	0 ... +12 < 1 > 4 10
<b>Control inputs (extended version E, cable 2)</b> Permissible input voltage Low-level High-level Input resistance	V V V kΩ	isolated, reference potential GND2 0 ... +30 < 6 > 10 > 3
<b>Control outputs (extended version E, cable 2)</b> External supply voltage UB2 Max. current of one output Accumulated current of all outputs Voltage drop	V A A V	isolated, reference potential GND2 +11 ... +30 < 0.5 < 1.0 < 1
<b>Nominal temperature range</b> <b>Operating temperature range</b> <b>Storage temperature range</b>	°C [°F] °C [°F] °C [°F]	-10 ... +40 [+14 ... +104] -10 ... +50 [+14 ... +122] -25 ... +75 [-13 ... +167]
<b>EMC-requirements</b>  <b>Degree of protection acc. to EN 60529</b>  <b>Material, Housing</b> Diaphragm <b>Weight, approx.</b>	     kg	EN 45501, OIML R76 EN 61326-1/Tab. 4, equipment of class B EN 61326/A1, Tab. A1, equipment in industrial areas IP 66  Stainless steel Silicone R830 3

### Accessories, to be ordered separately

**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/4... 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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