

FIT[®]7A

Digital load cell dynamic weighing

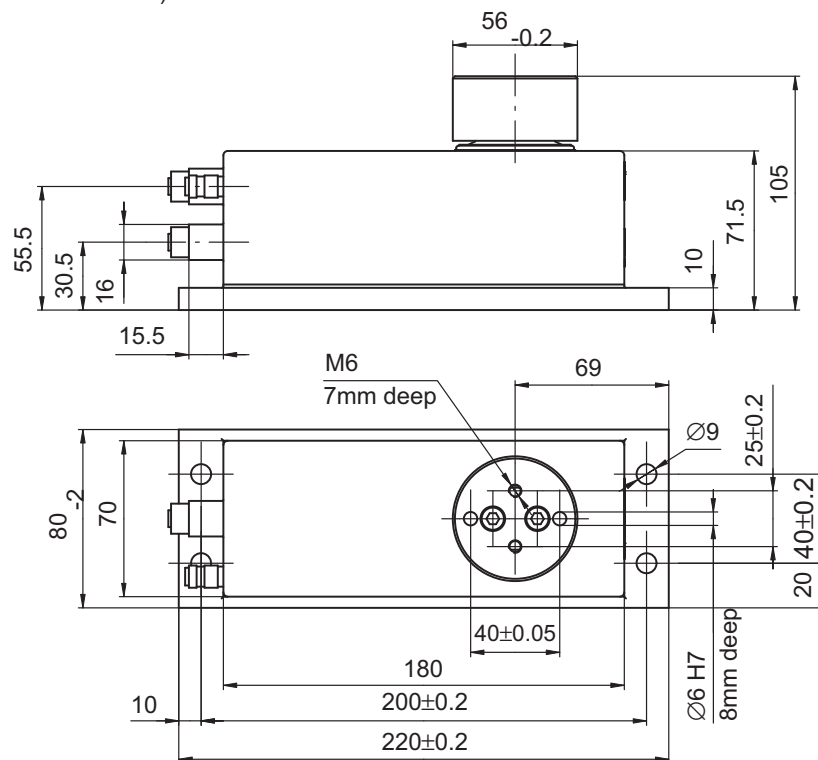
Special features

- Accuracy class up to C6 and maximum scale interval factor Y up to 50,000
- OIML CS and EU Test certificate
- Integrated advanced filters
- Standalone checkweighing algorithm
- Stainless steel
- 1000% overload protection

Data sheet



Dimensions (in mm; 1 mm = 0.03937 inches)



Specifications FIT7A C3

Type			FIT7A						
Accuracy class ¹⁾			C3						
Max. number of load cell intervals	n_{LC}		3000						
Fraction	P_{lc}		0.8						
Maximum capacity	E_{max}	kg	3	5	10	20	30	50	75
Minimum load cell verification interval Version VA (standard)	v_{min}	g	0.5		1	2	5		10
Ration of minimum verification interval Version VA (standard)	Y		6,000	10,000		6,000	10,000	7,500	
Temperature coefficient of zero signal Version VA (standard)	TC_0	% of $C_n/10K$	± 0.0266	± 0.0160		± 0.0266	± 0.0160	± 0.0213	
Minimum load cell verification interval Version VB (optional)	v_{min}	g	0.2	-	0.5	1	2		5
Ration of minimum verification interval Version VB (optional)	Y		15,000	-	20,000		15,000	25,000	15,000
Temperature coefficient of zero signal Version VB (optional)	TC_0	% of $C_n/10K$	± 0.0107	-	± 0.0080		± 0.0107	± 0.0064	± 0.0107
Maximum platform size		mm	400 x 400				600 x 500		
Nominal (rated) sensitivity	C_n	digit	1,000,000						
Zero signal			0 \pm 100,000						
Temperature coefficient of sensitivity ²⁾ Temperature range: +20 ... +40°C -10 ... +20°C	TC_S	% of $C_n/10K$	± 0.0200 ± 0.0133						
Hysteresis error ²⁾	d_{hy}	% of C_n	± 0.0166						
Non-linearity ²⁾	d_{lin}		± 0.0166						
Minimum dead load output return	MDLOR		± 0.0166						
Off-center load error ³⁾			± 0.0233						

1) As per OIML R60, with $P_{LC} = 0.8$

2) The sum of data for Non-linearity, Hysteresis and TC Span meets the requirements of OIML R60

3) As per OIML R76

Specifications FIT7A C4 (optional in K-MAT)

Type			FIT7A						
Accuracy class ¹⁾			C4						
Max. number of load cell intervals	n_{LC}		4000						
Fraction	P_{LC}		0.8						
Maximum capacity	E_{max}	kg	3	5	10	20	30	50	75
Minimum load cell verification interval Version VA (standard)	v_{min}	g	0.5		1	2	5		10
Ration of minimum verification interval Version VA (standard)	Y		6,000	10,000		6,000	10,000	7,500	
Temperature coefficient of zero signal Version VA (standard)	TC_0	% of $C_n/10K$	± 0.0266	± 0.0160		± 0.0266	± 0.0160	± 0.0213	
Minimum load cell verification interval Version VB (optional)	v_{min}	g	0.2	-	0.5	1	2		5
Ration of minimum verification interval Version VB (optional)	Y		15,000	-	20,000		15,000	25,000	15,000
Temperature coefficient of zero signal Version VB (optional)	TC_0	% of $C_n/10K$	± 0.0107	-	± 0.0080		± 0.0107	± 0.0064	± 0.0107
Temperature coefficient of the sensitivity ²⁾ Temperature range: +20 ... +40°C -10 ... +20°C	TC_S	% of $C_n/10K$	± 0.0149 ± 0.0100						
Hysteresis error ²⁾	d_{hy}	% of C_n	± 0.0125						
Non-linearity ²⁾	d_{lin}		± 0.0125						
Minimum dead load output return	MDLOR		± 0.0125						
Off-center load error ³⁾			± 0.0183						

1) As per OIML R60, with $P_{LC} = 0.8$

2) The sum of data for Non-linearity, Hysteresis and TC Span meets the requirements of OIML R60

3) As per OIML R76

Specifications FIT7A C6 Version VC (optional in K-MAT)

Type			FIT7A Version VC			
Accuracy class ¹⁾			C6			
Max. number of load cell intervals	n_{LC}		6000			
Fraction	P_{LC}		0.8			
Maximum capacity	E_{max}	kg	10	20	30	50
Minimum load cell verification interval	v_{min}	g	0.2	0.5	1	
Ration of minimum verification interval	Y		50,000	40,000	30,000	50,000
Temperature coefficient of zero signal	TC_0	% of $C_n/10K$	± 0.0032	± 0.0040	± 0.0053	± 0.0032
Temperature coefficient of the sensitivity ²⁾ Temperature range: +20 ... +40°C -10 ... +20°C	TC_S	% of $C_n/10K$	± 0.0087 ± 0.0058			
Hysteresis error ²⁾	d_{hy}	% of C_n	± 0.0083			
Non-linearity ²⁾	d_{lin}		± 0.0083			
Minimum dead load output return	MDLOR		± 0.0083			
Off-center load error ³⁾			± 0.0116			

1) As per OIML R60, with $P_{LC} = 0.8$

2) The sum of data for Non-linearity, Hysteresis and TC Span meets the requirements of OIML R60

3) As per OIML R76

Specifications FIT7A C3/C4/C6

Type			FIT7A
Nominal (rated) range of the ambient temperature	B_T	°C	-10 ... +40
Operating temperature range	B_{tu}		-10 ... +50
Storage temperature range	B_{tl}		-25 ... +70
Limit load at 20 mm eccentricity	E_L	% of E_{max}	1000
Service load at centric load input			150
Relative vibrational stress at max. 50 mm eccentricity	F_{srel}		70
Nominal (rated) displacement ¹⁾	s_{nom}	mm	<0.1
Weight, approx.	m	kg	3
Degree of protection ²⁾			IP66
Voltage supply Operating voltage (DC) Power consumption Start-up current	U_B	V	+10 ... +30
		W	≤2
		A	<0.2
Material Housing Diaphragm Bonded seals Baseplate			Stainless steel 1.4545 ³⁾ Silicone rubber R830 Stainless steel 316L ⁴⁾ Stainless steel 1.4301 ³⁾
Measurement signal resolution		bit	24
Data rate		1/s	4 ... 1200
Digital filter bandwidth		Hz	0 ... 120
RS-485 interface baud rates		baud	1200/2400/4800/9600/19200/38400/57600/115200
Maximum number of bus nodes			90
CANopen interface (CANopen/DeviceNet) Baud rate Maximum cable length		baud m	Standard CiA DS301 10000 ... 1000000 ≤ 5000 (10 kBaud) ... ≤ 100 (500 kBaud) ... ≤ 25 (1 MBaud)
DeviceNet Baud rate Maximum cable length		baud m	Release 2.0 DVA 125000 ... 500000 ≤ 5000 (10 kBaud) ... ≤ 100 (500 kBaud)
Diagnostics bus RS-485 2-wire (extended version E) Baud rate Maximum cable length		baud m	38400 500
Asynchronous interface RS-485 4-wire (socket 1) Baud rate Maximum cable length		baud m	1200/2400/4800/9600/19200/38400/57600/115200 500
Trigger input (socket 1) Input voltage Low level High level Input resistance		V V V kΩ	0 ... +12 < 1 > 4 70
Control inputs (extended version E, socket 2) ⁵⁾ Input voltage Low level High level Input resistance		V V V kΩ	0 ... +30 < 6 > 10 9
Control outputs (extended version E, socket 2) ⁵⁾ External supply voltage Max. current per output Max. total current of all outputs		V A A	+11 ... +30 < 0.5 < 1

1) Loading with E_{max} and center of gravity in center of platform

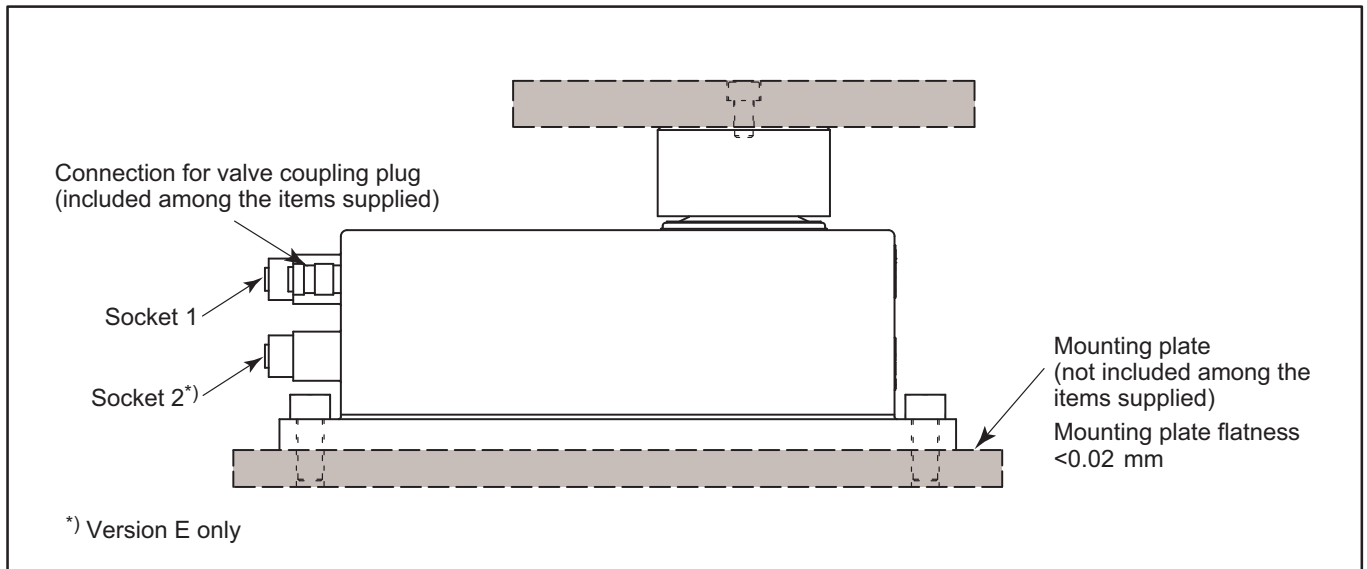
2) As per EN 60 529 (IEC 529)

3) As per EN 10088-1

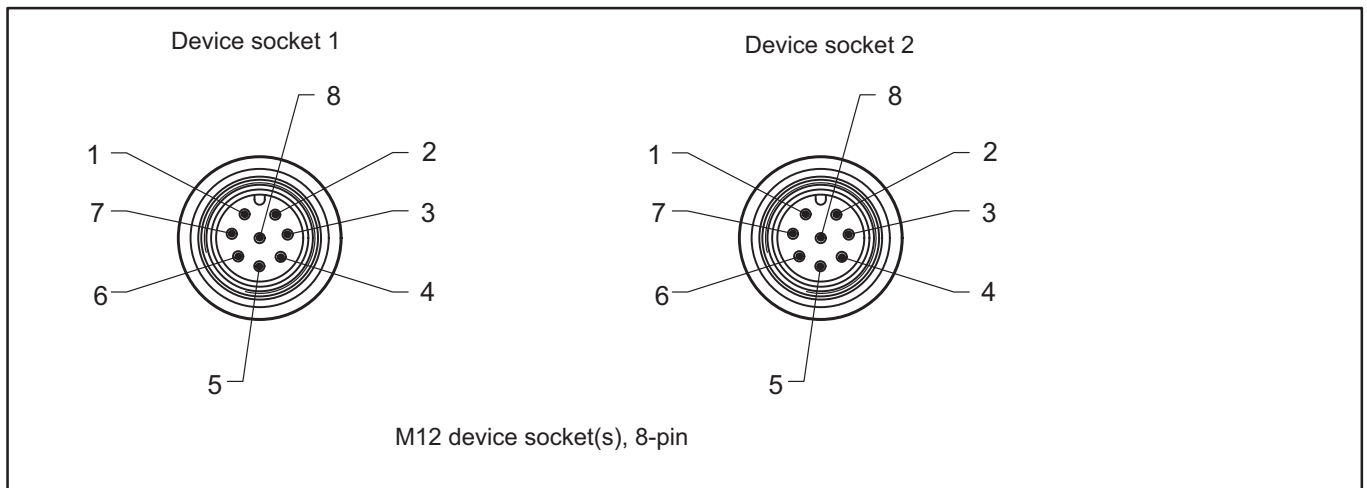
4) Gaskets may need protecting against aggressive cleaning agents

5) The signals apply to GND of socket 1.

Mounting instructions



Electrical connection



FIT7A pin assignment - type S

Device socket 1				
Pin	RS-485	CANopen/DeviceNet	Wiring code for 1-KAB165 ¹⁾	Wiring code for 1-KAB173 ¹⁾
1	GND	GND	White	White
2	-	-	Brown	Brown
3	RA	CAN High IN	Green	Green
4	Trigger input ²⁾	Trigger input ²⁾	Yellow	Yellow
5	RB	CAN Low IN	Gray	Gray
6	TB	CAN Low OUT	Pink	Black
7	TA	CAN High OUT	Blue	Blue
8	U _{B1}	U _{B1}	Red	Red

¹⁾ For digital load cells, HBM recommends two cable types, 1-KAB165 or 1-KAB173, depending on the application. Detailed information about these cables is available in data sheet B3643, which can be found under "Product Data Sheet & Literature" on our website <http://www.hbm.com/fit7a>

²⁾ The trigger input is referenced to the GND of pin 1.

FIT7A pin assignment - type E

Device socket 1 – digital communication				
Pin	RS-485	CANopen/DeviceNet	Wiring code for 1-KAB165 ¹⁾	Wiring code for 1-KAB173 ¹⁾
1	GND	GND	White	White
2	Diagnosis RbTb	Diagnosis RbTb	Brown	Brown
3	RA	CAN High IN	Green	Green
4	Diagnosis RaTa	Diagnosis RaTa	Yellow	Yellow
5	RB	CAN Low IN	Gray	Gray
6	TB	CAN Low OUT	Pink	Black
7	TA	CAN High OUT	Blue	Blue
8	U _{B1}	U _{B1}	Red	Red

Device socket 2 – inputs and outputs			
Pin		Wiring code for 1-KAB165 ¹⁾	Wiring code for 1-KAB173 ¹⁾
1	-	White	White
2	IN2	Brown	Brown
3	OUT2	Green	Green
4	IN1	Yellow	Yellow
5	OUT4	Gray	Gray
6	OUT3	Pink	Black
7	OUT1	Blue	Blue
8	U _{B2} ²⁾	Red	Red

1) For digital load cells, HBM recommends two cable types, 1-KAB165 or 1-KAB173, depending on the application. Detailed information about these cables is available in data sheet B3643, which can be found under "Product Data Sheet & Literature" on our website <http://www.hbm.com/fit7a>

2) For U_{B2}, choose either the same voltage source as for U_{B1}, or a separate voltage source. In both cases, the signals are referenced to the GND with which pin 1 of socket 1 is connected. If a separate voltage source is chosen for the inputs and outputs, this must be connected with the common GND of pin 1.

Accessories

Suitable connection cables

Type	Ordering number
Connection cable with M12 M plug, 8-pin, TPU IP67, PUR cable sheath, 3 m long	1-KAB165-3
Connection cable with M12 M plug, 8-pin, TPU IP67, PUR cable sheath, 6 m long	1-KAB165-6
Connection cable with M12 M plug, 8-pin, TPU IP67, PUR cable sheath, 12 m long	1-KAB165-12
Connection cable with M12 M plug, 8-pin, stainless steel IP68/IP69K, TPE cable sheath, 3 m long	1-KAB173-3-1
Connection cable with M12 M plug, 8-pin, stainless steel IP68/IP69K, TPE cable sheath, 6 m long	1-KAB173-6-1

Additional connection cable data can be found in the HBM cables and plugs data sheet (B3643).

Product numbers (overview)

Type	1-FIT7A	
Accuracy class	C3 (OIML)	
Maximum capacity	Ordering number	Remarks
3 kg	1-FIT7ASB3/3KG	1 socket, RS-485
3 kg	1-FIT7ASC3/3KG	1 socket, CANopen
3 kg	1-FIT7ASD3/3KG	1 socket, DeviceNet
10 kg	1-FIT7AEB3/10KG	2 sockets, RS-485, 2 inputs & 4 outputs, diagnosis channel
10 kg	1-FIT7ASB3/10KG	1 socket, RS-485
10 kg	1-FIT7ASC3/10KG	1 socket, CANopen
10 kg	1-FIT7ASD3/10KG	1 socket, DeviceNet
20 kg	1-FIT7AEB3/20KG	2 sockets, RS-485, 2 inputs & 4 outputs, diagnosis channel
20 kg	1-FIT7ASB3/20KG	1 socket, RS-485
20 kg	1-FIT7ASC3/20KG	1 socket, CANopen
20 kg	1-FIT7ASD3/20KG	1 socket, DeviceNet

K-FIT7A..., optional versions

Order no.
K-FIT7A

Code	Option 1: Mechanical design
N	Standard

Code	Option 2: Accuracy class
C3	C3
C4	C4
C6	C6 [only with option 6 = VC]

Code	Option 3: Maximum capacity
3	3 kg
5	5 kg
10	10 kg
20	20 kg
30	30 kg
50	50 kg
75	75 kg

Code	Option 4: Explosion protection
N	No ATEX

Code	Option 5: Electrical connection
N	Socket

Code	Option 6: Miscellaneous
VA	3, 30 kg: Y = 6000; 5, 10, 20, 50 kg: Y = 10,000; 75 kg: Y = 7500
VB	3, 30, 75 kg: Y = 15,000; 50 kg: Y = 25,000; 10, 20 kg: Y = 20,000 [not with option 3 = 5]
VC	10, 50 kg: Y = 50,000; 20kg: Y=40,000; 30kg: Y=30,000 [only with option 2 =C6; not with option 3 = 3,5,10,75]

Code	Option 7: Interface
B	Serial interface RS-485
C	Serial interface CANopen
D	Serial interface DeviceNet

Code	Option 8: Variant
S	1 socket, with trigger
E	2 sockets, with diagnostics bus as well as inputs and outputs

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