

# FIT<sup>®</sup>7A

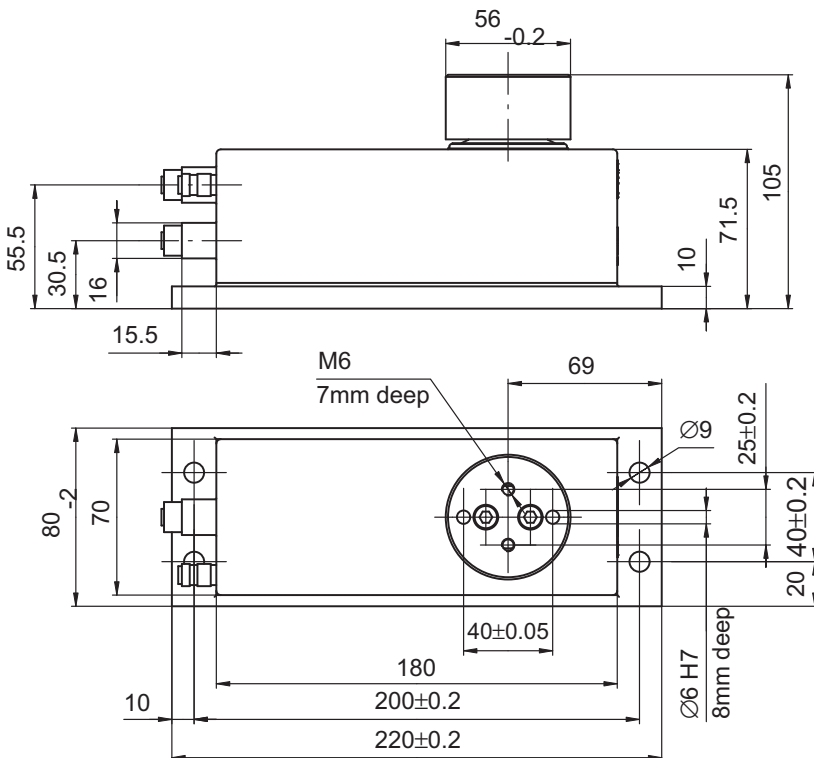
## Digital load cell dynamic weighing

### 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



### DIMENSIONS



Dimensions in mm (1 mm = 0.03937 inches)

## SPECIFICATIONS FIT7A C3

Type			FIT7A						
Accuracy class <sup>1)</sup>			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 $C_n/10K$	$\pm 0.0266$	$\pm 0.0160$		$\pm 0.0266$	$\pm 0.0160$	$\pm 0.0213$	
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 $C_n/10K$	$\pm 0.0107$	-	$\pm 0.0080$		$\pm 0.0107$	$\pm 0.0064$	$\pm 0.0107$
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 <sup>2)</sup> Temperature range: +20 ... +40°C -10 ... +20°C	$TC_s$	% of $C_n/10K$	$\pm 0.0200$ $\pm 0.0133$						
Hysteresis error <sup>2)</sup>	$d_{hy}$	% of $C_n$	$\pm 0.0166$						
Non-linearity <sup>2)</sup>	$d_{lin}$		$\pm 0.0166$						
Minimum dead load output return	MDLOR		$\pm 0.0166$						
Off-center load error <sup>3)</sup>			$\pm 0.0233$						

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 <sup>1)</sup>			C4						
Max. number of load cell intervals	$n_{LC}$		4000						
Fraction	$P_{Ic}$		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 $C_n/10K$	$\pm 0.0266$	$\pm 0.0160$		$\pm 0.0266$	$\pm 0.0160$	$\pm 0.0213$	
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 $C_n/10K$	$\pm 0.0107$	-	$\pm 0.0080$		$\pm 0.0107$	$\pm 0.0064$	$\pm 0.0107$
Temperature coefficient of the sensitivity <sup>2)</sup> Temperature range: +20 ... +40°C -10 ... +20°C	$TC_s$	% of $C_n/10K$	$\pm 0.0149$ $\pm 0.0100$						
Hysteresis error <sup>2)</sup>	$d_{hy}$	% of $C_n$	$\pm 0.0125$						
Non-linearity <sup>2)</sup>	$d_{lin}$		$\pm 0.0125$						
Minimum dead load output return	MDLOR		$\pm 0.0125$						
Off-center load error <sup>3)</sup>			$\pm 0.0183$						

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 <sup>1)</sup>			C6			
Max. number of load cell intervals	$n_{LC}$		6000			
Fraction	$P_{Ic}$		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 $C_n/10K$	$\pm 0.0032$	$\pm 0.0040$	$\pm 0.0053$	$\pm 0.0032$
Temperature coefficient of the sensitivity <sup>2)</sup> Temperature range: +20 ... +40°C -10 ... +20°C	$TC_s$	% of $C_n/10K$	$\pm 0.0087$ $\pm 0.0058$			

Type			FIT7A Version VC
Accuracy class <sup>1)</sup>			C6
Hysteresis error <sup>2)</sup>	d <sub>hy</sub>	% of C <sub>n</sub>	±0.0083
Non-linearity <sup>2)</sup>	d <sub>lin</sub>		±0.0083
Minimum dead load output return	MDLOR		±0.0083
Off-center load error <sup>3)</sup>			±0.0116

1) As per OIML R60, with P<sub>LC</sub> = 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

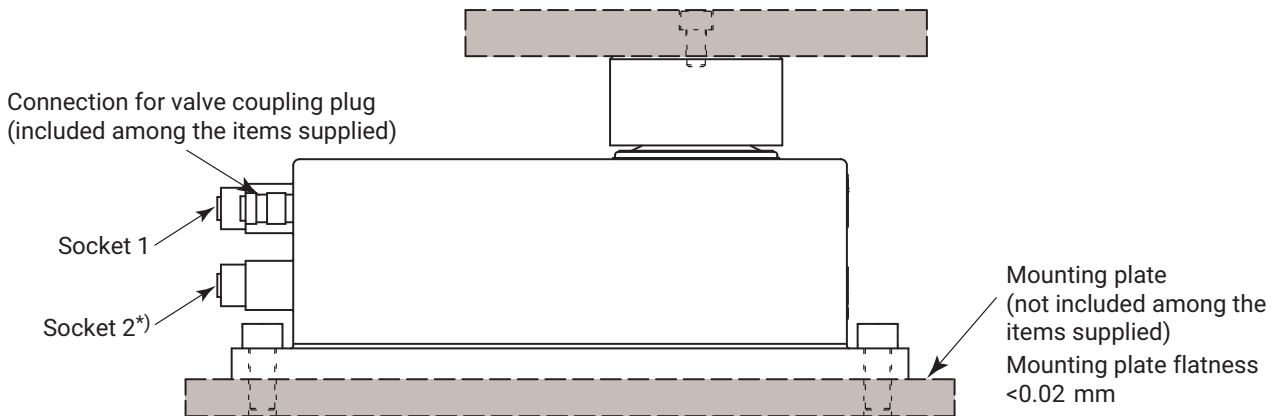
## SPECIFICATIONS FIT7A C3/C4/C6

Type				FIT7A
Nominal (rated) range of the ambient temperature	B <sub>T</sub>	°C		-10 ... +40
Operating temperature range	B <sub>tu</sub>			-10 ... +50
Storage temperature range	B <sub>tl</sub>			-25 ... +70
Limit load at 20 mm eccentricity	E <sub>L</sub>	% of E <sub>max</sub>		1000
Service load at centric load input				150
Relative vibrational stress at max. 50 mm eccentricity	F <sub>srel</sub>			70
Nominal (rated) displacement <sup>1)</sup>	s <sub>nom</sub>	mm		< 0.1
Weight, approx.	m	kg		3
Degree of protection <sup>2)</sup>				IP66
<b>Voltage supply</b>	U <sub>B</sub>	V W A		+10 ... +30
Operating voltage (DC)				≤ 2
Power consumption				< 0.2
Start-up current				
<b>Material</b>				Stainless steel 1.4545 <sup>3)</sup> Silicone rubber R830 Stainless steel 316L <sup>4)</sup> Stainless steel 1.4301 <sup>3)</sup>
Housing				
Diaphragm				
Bonded seals				
Baseplate				
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
<b>CANopen interface (CANopen/DeviceNet)</b>		baud m		Standard CiA DS301 10000 ... 1000000 ≤ 5000 (10 kBaud) ... ≤ 100 (500 kBaud) ... ≤ 25 (1 MBaud)
Baud rate				
Maximum cable length				
<b>DeviceNet</b>		baud m		Release 2.0 DVA 125000 ... 500000 ≤ 5000 (10 kBaud) ... ≤ 100 (500 kBaud)
Baud rate				
Maximum cable length				
<b>Diagnostics bus RS-485 2-wire (extended version E)</b>		baud m		38400 500
Baud rate				
Maximum cable length				
<b>Asynchronous interface RS-485 4-wire (socket 1)</b>		baud m		1200/2400/4800/9600/19200/38400/57600/115200 500
Baud rate				
Maximum cable length				

Type			FIT7A
<b>Trigger input (socket 1)</b>			
Input voltage	V		0 ... +12
Low level	V		< 1
High level	V		> 4
Input resistance	kΩ		70
<b>Control inputs (extended version E, socket 2) <sup>5)</sup></b>			
Input voltage	V		0 ... +30
Low level	V		< 6
High level	V		> 10
Input resistance	kΩ		9
<b>Control outputs (extended version E, socket 2) <sup>5)</sup></b>			
External supply voltage	V		+11 ... +30
Max. current per output	A		< 0.5
Max. total current of all outputs	A		< 1

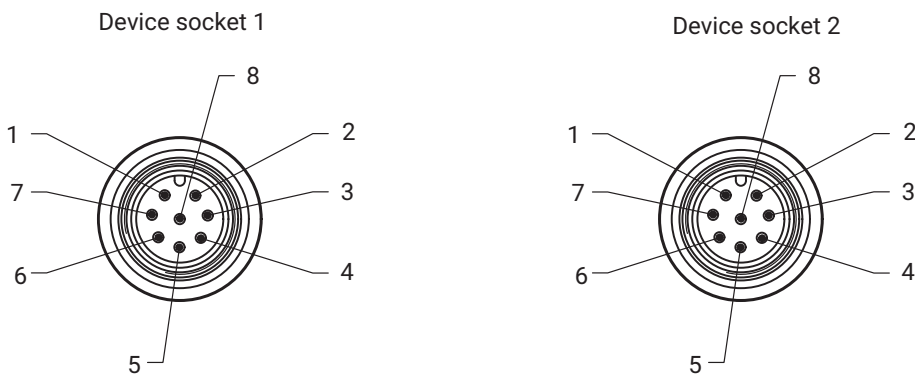
- 1) Loading with  $E_{max}$  and center of gravity in center of platform
- 2) As per EN 60 529 (IEC 529)
- 3) As per EN 10088-1
- 4) Gaskets may need protecting against aggressive cleaning agents
- 5) The signals apply to GND of socket 1.

## MOUNTING INSTRUCTIONS



\*) Version E only

## ELECTRICAL CONNECTION



M12 device socket(s), 8-pin

## FIT7A pin assignment - type S

Device socket 1				
Pin	RS-485	CANopen/DeviceNet	Wiring code for 1-KAB165 <sup>1)</sup>	Wiring code for 1-KAB173 <sup>1)</sup>
1	GND	GND	White	White
2	-	-	Brown	Brown
3	RA	CAN High IN	Green	Green
4	Trigger input <sup>2)</sup>	Trigger input <sup>2)</sup>	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 <sub>B1</sub>	U <sub>B1</sub>	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 <sup>1)</sup>	Wiring code for 1-KAB173 <sup>1)</sup>
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 <sub>B1</sub>	U <sub>B1</sub>	Red	Red

Device socket 2 – inputs and outputs				
Pin			Wiring code for 1-KAB165 <sup>1)</sup>	Wiring code for 1-KAB173 <sup>1)</sup>
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 <sub>B2</sub> <sup>2)</sup>		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<sub>B2</sub>, choose either the same voltage source as for U<sub>B1</sub>, 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

K-FIT7A		
1	<b>Code</b>	<b>Option 1: Mechanical design</b>
	<b>N</b>	Standard
2	<b>Code</b>	<b>Option 2: Accuracy class</b>
	<b>C3</b>	C3
	<b>C4</b>	C4
	<b>C6</b>	C6 <span style="float: right;">[only with option 6 = VC]</span>
3	<b>Code</b>	<b>Option 3: Maximum capacity</b>
	<b>3</b>	3 kg
	<b>5</b>	5 kg
	<b>10</b>	10 kg
	<b>20</b>	20 kg
	<b>30</b>	30 kg
	<b>50</b>	50 kg
<b>75</b>	75 kg	
4	<b>Code</b>	<b>Option 4: Explosion connection</b>
	<b>N</b>	No ATEX
5	<b>Code</b>	<b>Option 5: Electrical connection</b>
	<b>N</b>	Socket
6	<b>Code</b>	<b>Option 6: Miscellaneous</b>
	<b>VA</b>	3, 30 kg: Y = 6000; 5, 10, 20, 50 kg: Y = 10,000; 75 kg: Y = 7500
	<b>VB</b>	3, 30, 75 kg: Y = 15,000; 50 kg: Y = 25,000; 10, 20 kg: Y = 20,000 <span style="float: right;">[not with option 3 = 5]</span>
	<b>VC</b>	10, 50 kg: Y = 50,000; 20kg: Y = 40,000; 30kg: Y = 30,000 <span style="float: right;">[only with option 2 = C6; not with option 3 = 3, 5, 75]</span>
7	<b>Code</b>	<b>Option 7: Interface</b>
	<b>B</b>	Serial interface RS-485
	<b>C</b>	Serial interface CANopen
	<b>D</b>	Serial interface DeviceNet
8	<b>Code</b>	<b>Option 8: Variant</b>
	<b>S</b>	1 socket, with trigger
	<b>E</b>	2 sockets, with diagnostics bus as well as inputs and outputs

K-FIT7A - N -    -    - N - N -    -    -   

1            2            3            4            5            6            7            8