

FIT[®]5A

Digital load cell for dynamic weighing

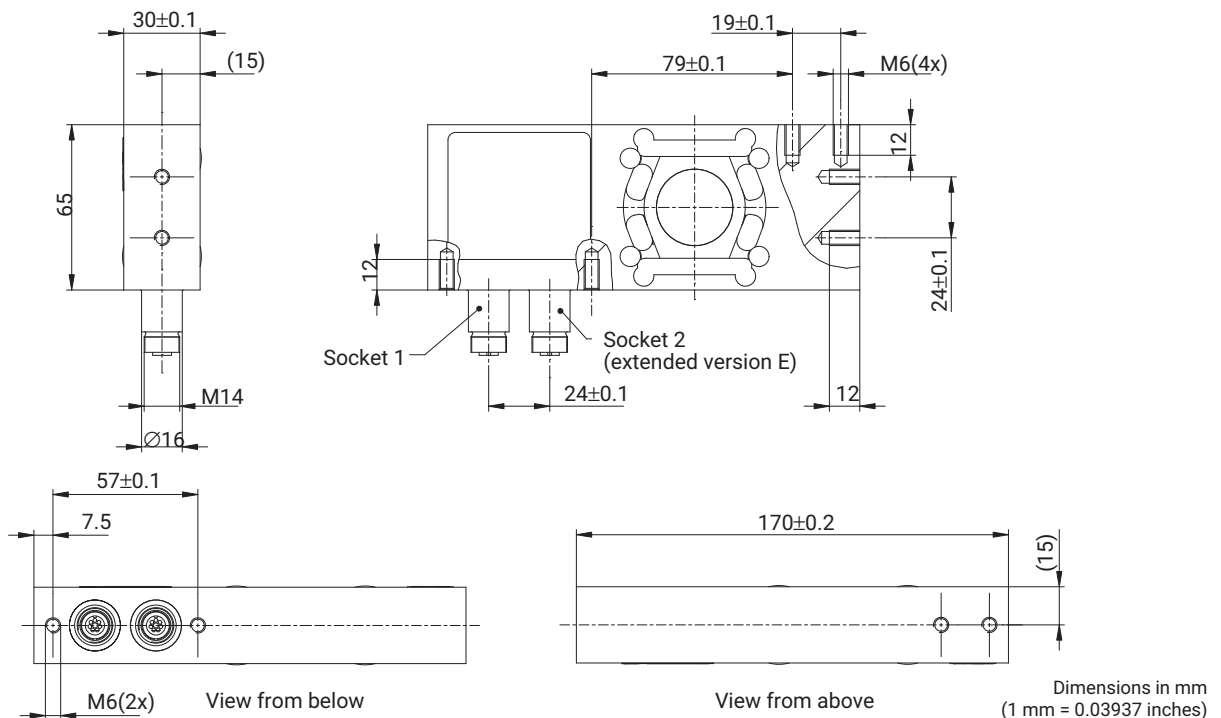
SPECIAL FEATURES

- Accuracy class C3 with OIML R60 test report
- Maximum capacities 5 kg ... 50 kg
- Off-center load compensated (OIML R76)
- Dosing mode
- 4 limit value switches
- Trigger mode (external or level)
- Automatic parameterization for dynamic applications
- Stainless steel
- Integral overload protection
- Degree of protection IP68/IP69K
- PC software for parameter setup and dynamic analysis
- Various options and accessories are available



DIMENSIONS

5 ... 20 kg



SPECIFICATIONS

Type			FIT5A					
Accuracy class ¹⁾			C3					
Number of load cell verification intervals	n_{LC}		3000					
Fraction	P_{LC}		0.8					
Maximum capacity	E_{max}	kg	5	10	20	30	50	
Minimum load cell verification interval (standard)	v_{min}	g	0.5	1	2	5	5	
Minimum load cell verification interval (option)	v_{min}	g	0.2	0.5	1	2	5	
Temperature coefficient of the zero signal per 10 K (standard) ¹⁾²⁾	TC_0	% of C_n	± 0.0160			0.0260	0.0160	
Temperature coefficient of the zero signal per 10 K (option) ¹⁾²⁾	TC_0		± 0.0064	± 0.0080		± 0.0106	± 0.064	
Maximum platform size		mm	400 x 400					
Nominal (rated) sensitivity	C_n	digit	1000000					
Zero signal			0 ± 100000					
Temperature coefficient of the sensitivity per 10 K in the temperature range ⁴⁾ +20 ... +40°C -10 ... +20°C	TC_S	% of C_n	± 0.0218					
Non-linearity ⁴⁾	d_{lin}		± 0.0150					
Relative reversibility error ⁴⁾	d_{hy}		± 0.0166					
Minimum dead load output return	MDLOR		± 0.0166					
Off-center load error ³⁾			± 0.0166					
Nominal (rated) ambient temperature range	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 max. 120 mm eccentricity			150					
Relative vibrational stress at max. 50 mm eccentricity	F_{srel}		70					
Nominal (rated) displacement ⁵⁾	s_{nom}	mm	< 0.2					
Weight, approx.	m	kg	1.6					
Degree of protection per DIN EN 60529 (IEC 529)			IP68 (test condition 1 m water column / 100 h); IP69K (water at high pressure, steam cleaner) ⁶⁾					
Voltage supply Operating voltage (DC) Power consumption Start-up current	U_B	V W A	+10 ... +30 ≤ 2 < 0.2					
Measuring body material			Stainless steel 1.4545 ⁷⁾					
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					

Type			FIT5A
Accuracy class ¹⁾			C3
Number of load cell verification intervals	n _{LC}		3000
Maximum number of bus nodes			90
CANopen interface (CANopen/DeviceNet)			Standard CiA DS301
Baud rate		baud	10000 ... 1000000
Maximum cable length		m	≤ 5000 (10 kBaud) ... ≤ 100 (500 kBaud) ... ≤ 25 (1 MBaud)

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

2) "Test Certificate" extension in preparation.

3) As per OIML R76.

4) The values for non-linearity (d_{lin}), relative reversibility error (d_{hy}) and temperature coefficient of sensitivity (TC_S) are recommended values. The sum of these values is within the cumulated error limits according to OIML R60.

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

6) Based on DIN 40050, Part 9 specifications, for road vehicles.

7) As per EN 10088-1.

SPECIFICATIONS (CONTINUED)

DeviceNet			Release 2.0 DVA
Baud rate		baud	125000 ... 500000
Maximum cable length		m	≤ 5000 (10 kBaud) ... ≤ 100 (500 kBaud)
Diagnostics bus RS-485 2-wire (extended version E)			
Baud rate		baud	38400
Maximum cable length		m	500
Asynchronous interface RS-485 4-wire (socket 1)			
Baud rate		baud	1200/2400/4800/9600/19200/38400/57600/115200
Maximum cable length		m	500
Trigger input (socket 1)			
Input voltage		V	0 ... +12
Low level		V	< 1
High level		V	> 4
Input resistance		kΩ	70
Control inputs (extended version E, socket 2) ¹⁾			
Input voltage		V	0 ... +30
Low level		V	< 6
High level		V	> 10
Input resistance		kΩ	9
Control outputs (extended version E, socket 2) ¹⁾			
External supply voltage		V	+11 ... +30
Max. current per output		A	< 0.5
Max. total current of all outputs		A	< 1

1) The signals apply to GND of socket 1.

ELECTRICAL CONNECTION



FIT5A 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 'Cables and plugs', which can be found in the load cell accessories section on our website <https://www.hbm.com/en/0339/load-cell-accessories/>

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

FIT5A 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

Pin		Wiring code for 1-KAB165 ¹⁾	Wiring code for 1-KAB173 ¹⁾
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 'Cables and plugs', which can be found in the load cell accessories section on our website <https://www.hbm.com/en/0339/load-cell-accessories/>
- 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 (B3644).

PRODUCT NUMBERS (OVERVIEW)

Type	1-FIT5A	
Accuracy class	C3 (OIML)	
Maximum capacity	Ordering number	Remarks
5 kg	1-FIT5AEB3/5KG-1	2 sockets, RS-485, 2 inputs & 4 outputs, diagnosis channel
5 kg	1-FIT5AEC3/5KG-1	2 sockets, CANopen, 2 inputs & 4 outputs, diagnosis channel
5 kg	1-FIT5AED3/5KG-1	2 sockets, DeviceNet, 2 inputs & 4 outputs, diagnosis channel
10 kg	1-FIT5AEB3/10KG-1	2 sockets, RS-485, 2 inputs & 4 outputs, diagnosis channel
10 kg	1-FIT5AEC3/10KG-1	2 sockets, CANopen, 2 inputs & 4 outputs, diagnosis channel
10 kg	1-FIT5AED3/10KG-1	2 sockets, DeviceNet, 2 inputs & 4 outputs, diagnosis channel
20 kg	1-FIT5AEB3/20KG-1	2 sockets, RS-485, 2 inputs & 4 outputs, diagnosis channel
20 kg	1-FIT5AEC3/20KG-1	2 sockets, CANopen, 2 inputs & 4 outputs, diagnosis channel
20 kg	1-FIT5AED3/20KG-1	2 sockets, DeviceNet, 2 inputs & 4 outputs, diagnosis channel

K-FIT5A..., OPTIONAL VERSIONS

Order no.	
K-FIT5A	
Code	Option 1: Mechanical design
N	Standard
Code	Option 2: Accuracy class
C3	C3
Code	Option 3: Maximum capacity
5	5 kg
10	10 kg
20	20 kg
30	30 kg
50	50 kg
Code	Option 4: Explosion protection
N	No ATEX
Code	Option 5: Electrical connection
N	Socket
Code	Option 6: Miscellaneous
VA	Y = 10000; 30 kg only: 6000
VB¹⁾	5 kg: Y = 25000; 10 ... 20 kg: Y = 20000; 30 kg: Y = 15000; 50 kg: Y = 25000
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

K-FIT5A - **N** - **C** **3** - **2** **0** - **N** - **N** - **V** **A** - **B** - **E**

1) "Test Certificate" extension in preparation.