

FIT[®]5X

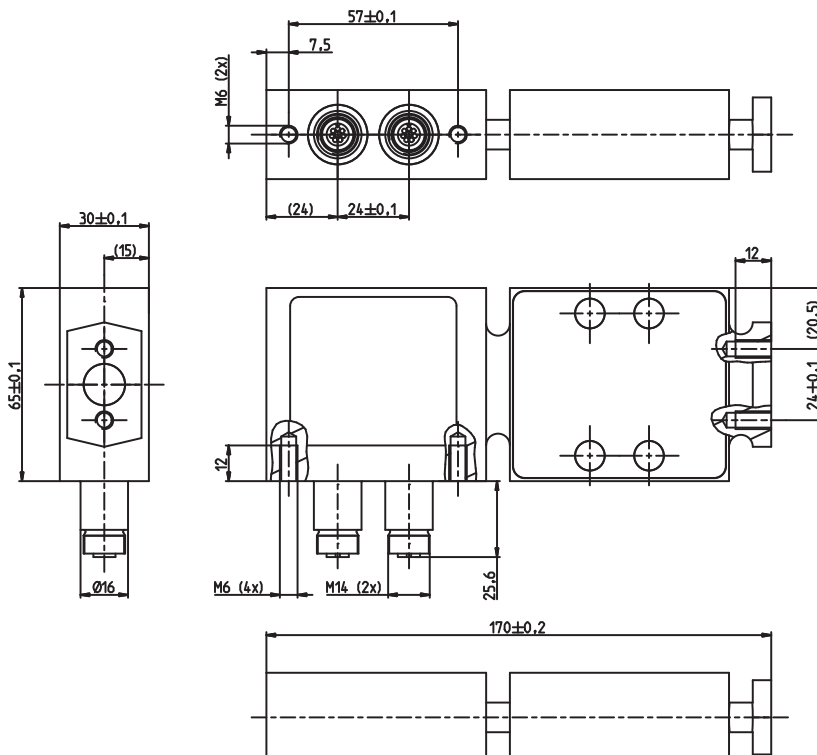
Digital load cell for dynamic weighing

SPECIAL FEATURES

- Accuracy class C3 with OIML R60 test report
- Maximum capacities 5 kg ... 20 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



Dimensions in mm (1 mm = 0.03937 inches)

SPECIFICATIONS

Type			FIT5X		
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
Minimum load cell verification interval (standard)	v_{min}	g	0.5	1	2
Temperature coefficient of the zero signal per 10 K (standard) ¹⁾²⁾	TC_0	% of C_n	±0.0160		
Temperature coefficient of the zero signal per 10 K (option) ¹⁾²⁾	TC_0		±0.0064	±0.0080	
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⁾			±0.0233		
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	U_B	V	+10 ... +30		
Operating voltage (DC)		W	≤2		
Power consumption		A	<0.2		
Start-up current					
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		
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)		
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) ⁸⁾		
Input voltage	V	0 ... +30
Low level	V	<6
High level	V	>10
Input resistance	kΩ	9
Control outputs (extended version E, socket 2) ⁸⁾		
External supply voltage	V	+11 ... +30
Max. current per output	A	<0.5
Max. total current of all outputs	A	<1

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.

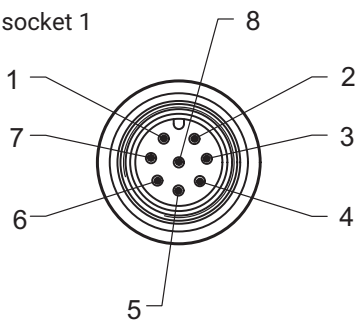
6) Based on DIN 40050, Part 9 specifications, for road vehicles.

7) As per EN 10088-1.

8) The signals apply to GND of socket 1.

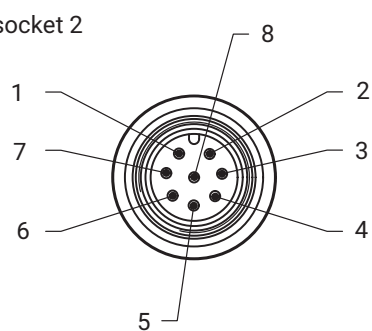
ELECTRICAL CONNECTION

Device socket 1



8-pin device socket(s)

Device socket 2



FIT5X 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.

FIT5X 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

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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-FIT5X	
Accuracy class	C3 (OIML)	
Maximum capacity	Ordering number	Remarks
5 kg	1-FIT5XEB3/5KG-1	2 sockets, RS-485, 2 inputs & 4 outputs, diagnosis channel
5 kg	1-FIT5XEC3/5KG-1	2 sockets, CANopen, 2 inputs & 4 outputs, diagnosis channel
5 kg	1-FIT5XED3/5KG-1	2 sockets, DeviceNet, 2 inputs & 4 outputs, diagnosis channel
10 kg	1-FIT5XEB3/10KG-1	2 sockets, RS-485, 2 inputs & 4 outputs, diagnosis channel
10 kg	1-FIT5XEC3/10KG-1	2 sockets, CANopen, 2 inputs & 4 outputs, diagnosis channel
10 kg	1-FIT5XED3/10KG-1	2 sockets, DeviceNet, 2 inputs & 4 outputs, diagnosis channel
20 kg	1-FIT5XEB3/20KG-1	2 sockets, RS-485, 2 inputs & 4 outputs, diagnosis channel
20 kg	1-FIT5XEC3/20KG-1	2 sockets, CANopen, 2 inputs & 4 outputs, diagnosis channel
20 kg	1-FIT5XED3/20KG-1	2 sockets, DeviceNet, 2 inputs & 4 outputs, diagnosis channel

K-FIT5X..., OPTIONAL VERSIONS

K-FIT5X		
1	Code	Option 1: Mechanical design
	N	Standard
2	Code	Option 2: Accuracy class
	C3	C3
3	Code	Option 3: Nennlast
	5	5 kg
	10	10 kg
	20	20 kg
4	Code	Option 4: Explosion protection
	N	No ATEX
5	Code	Option 5: Electrical connection
	N	Socket
6	Code	Option 6: Miscellaneous
	VA	Y = 10000
7	Code	Option 7: Interface
	B	Serial interface RS-485
	C	Serial interface CANopen
	D	Serial interface DeviceNet
8	Code	Option 8: Interface
	S	Socket, with trigger
	E	2 sockets, with diagnostics bus as well as inputs and outputs

K-FIT5X - **N** - **C 3** - **2 0** - **N** - **N** - **V A** - **B** - **E**

1 2 3 4 5 6 7 8

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