AST Gruppe
Angewandte System Technik

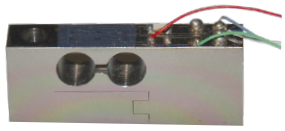
KA-LF
Miniature Force Transducer with Overload Protection

Applications

- Accurate measurement of small forces
- Assembly technology, robotics
- Automation technology
- Material testing equipment

Features

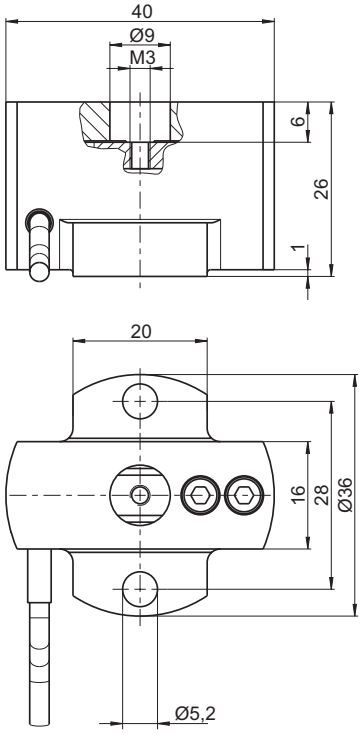
- 2.5N up to 100N
- Integrated overload protection of up to 1000%
- Thin film technology
- Small dimensions
- Made from stainless steel
- Environmantel protection IP 42
- Nominal displacement 0.05-0.1mm

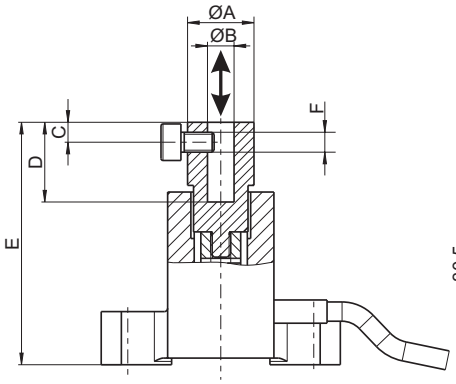


Options

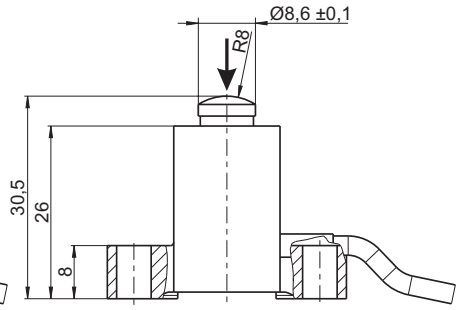
- integrated amplifier - analog output 4 ... 20mA
- CANopen-Interface

Dimension (mm)





KA-LF with XKM 131/XKM 132
for tensile and compressive force

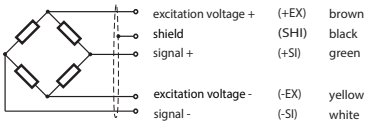


KA-LF with XKM 130
for compressive force

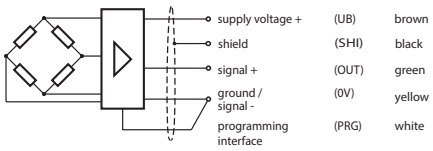
Force Application	A	B	C	D	E	F
XKM 131	14	$6{,}35^{H6}$	4,8	12,3	38,2	M4
XKM 132	10	4^{H6}	3	12	36,5	M3

Wiring Code Cable length 3m

KA-LF

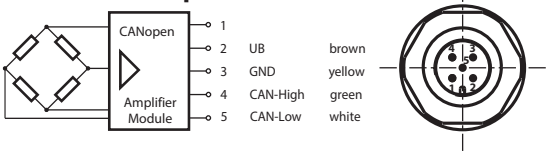


KA-LF-E / 4 ... 20mA



with integrated amplifier
(0V and PRG to be connected by the customer)

KA-LF-E / CANopen



Specifications

Accuracy Class	% F_{nom}	DMS 0.05	4 . ..20mA 0.1	CANopen 0.05
Rated force (F_{nom})	N	2.5/ 5/ 10/ 20/ 50/ 100	2.5/ 5/ 10/ 20/ 50/ 100	2.5/ 5/ 10/ 20/ 50/ 100
Breaking force (F_B)	% F_{nom}	>1000 >500	>1000 >500	>1000 >500
Lateral force limit (F_Q)	% F_{nom}	150	150	150
Rated characteristic value (C_{nom})	mV/V	1		
Reference excitation voltage (Uref)	VDC	10		
Input resistance (R_e)	kΩ	ca. 5		
Output resistance (R_a)	kΩ	ca. 5		
Relative linearity error (d_{lin})	%	0.05	0.1	0.05
Relative reversibility error (v)	%	0.05	0.05	0.05
Temperature effect on zero signal (TK_0)	%/10K	≤ 0.4	-	0.05
Temperature effect on characteristic value (TK_C)	%/10K	≤ 0.2	-	0.05
Temperature coefficient amplification	%/10K	-	0.1	0.05
Temperature coefficient zero point	%/10K	-	0.1	0.05
Relative creep over 30 minutes ($d_{cr, F+E}$)	%	0.05	0.1	0.05
Tolerance of output signal	%	-	0.1	0.1
Tolerance of zero signal	%	20	≤ 3	≤ 3
Conversion rate	Hz	-	-	8000
Transmission rate - adjustable	kBit/s			125/ 250/ 500
Protocol				CANopen CiA 404
Number of PDO - configurable				4
Module address - adjustable				1 ... 126, 127 reserved
Resolution ADU	bit			16
Reference temperature (T_{ref})	°C	+23	+23	+23
Rated temperature range ($B_{T, nom}$)	°C	-20 ... +60	-20 ... +60	-20 ... +60
Opearting temperature range ($B_{T, G}$)	°C	-30 ... +70	-30 ... +70	-30 ... +70
Storage temperature range ($B_{T, S}$)	°C	-40 ... +70	-40 ... +70	-40 ... +70
Environmental protection (EN 60529)		IP 42	IP 42	IP 42
Interference immunity		-	DIN EN 61000-6-2	DIN EN 61000-6-2
Interference emission		-	DIN EN 55011-B	DIN EN 55011-B
Supply voltage	VDC		18 ... 24 ... 36	18 ... 24 ... 36
Input current	mA		35 (at 24V)	-
Power consumtion without output currents	mW		<700	<700
Output signal for compressive force (0...F_N)				
- Current output signal	mA		4 ... 20 (300 Ω)	-

All data according VDI/VDE/DKD 2638

Order Example

Type Code	Description
KA-LF/10N/0.05	Force transducer 10N with 0.05% accuracy class Accuracy class Rated force Model
KA-LF-E/5N/0.05/CANopen	Force transducer 5N with 0.05% accuracy class and integrated CANopen Output CANopen Accuracy class Rated load E = Integrated electronic Model
KA-LF-E/100N/0.1/24V/4...20mA	Force transducer 100N with 0,1% accuracy class and integrated amplifier Output signa. Supply voltage Accuracy class Rated load E = Integrated electronic Model

Options

	Type Code	Description
Force application	XKM 130	Button for compressive force
	XKM 131	Force application for tensile and compressive force 2.5N up to 100N
	XKM 132	Force application for tensile and compressive force 2.5N up to 100N