

# Piezoelectric force sensor kit SlimLine

## Piezoelectric force sensor kit

Type 9130CA..., 9132CA...,  
9133CA..., 9134CA...,  
9135CA..., 9136CA...,  
9137CA...

Ready-to-connect, compact measuring kit with integrated piezoelectric force sensors or piezoelectric load cells in the SlimLine format. 2, 3 or 4 of the ultra-flat quartz measuring load washers are grouped together in a fixed plug connection. The measurement of the total force (summation signal) or of the partial force (single signal per sensor) can be performed with an appropriate connecting cable.

The SlimLine kit is supplied **uncalibrated**. The piezoelectric force sensors must be calibrated in situ **after** mounting.

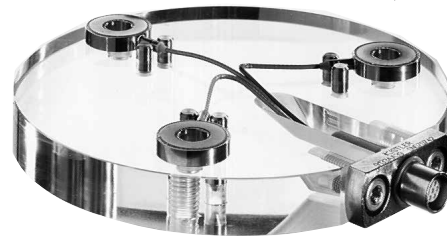
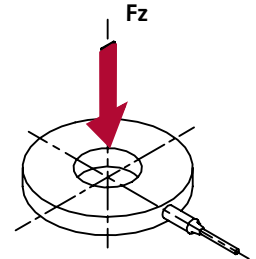
- Flexible, compact installation in structures
- Total or single signals
- Cable length can be chosen for each sensor
- Sensors ground to the same height

### Description

The Kit 913xCA consists of 2, 3 or 4 SlimLine force sensors that are grouped into a single, permanent, plug connection. The cable lengths of the sensors can be individually selected between 0.1 m and 2 m.

The total force to be measured  $F_z$  acts on the sensors through the mounting or preloading elements. Each loaded sensor produces an electrical charge that is proportional to its force component. The charge signals are fed out through electrodes and integrated cables.

The individual sensor cables in the SlimLine kit are guided separately and **inseparably** to the corresponding pin positions of the 7-pin plug connection. With connecting cables Type 1971A or Type 1973A, the signals can be summed or individually passed on to the charge amplifier as necessary.



### Application

SlimLine sensors are particularly suitable for measuring rapidly changing forces thanks to their enormous rigidity. Measurements over several minutes are possible. The extremely compact design is especially convenient for installation in structures such as force plates, fitting strips and follow-on tools. The kit is used in industrial manufacturing processes where forces are monitored or measured. In combination with a ControlMonitor, the kit is ideally suited for quality control and monitoring in industrial series production.

### Application examples

- Monitoring of pressing forces, punching forces, etc.
- Monitoring of follow-on tools
- Measurement of large forces in force shunt mode
- Installation in dynamometers with small dimensions

### Technical data

SlimLine kit	SlimLine Sensor	Range (kN)	Overload (kN)
9130CA...	9130C...	0 ... 3	3,5
9132CA...	9132C...	0 ... 7	8
9133CA...	9133C...	0 ... 14	17
9134CA...	9134C...	0 ... 26	30
9135CA...	9135C...	0 ... 36	42
9136CA...	9136C...	0 ... 62	72
9137CA...	9137C...	0 ... 80	96

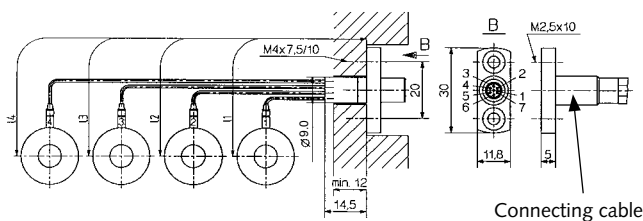


Fig. 1: SlimLine kit

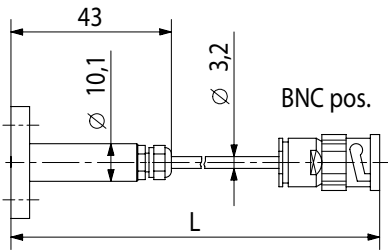
9130CA\_003-419e-04.21

For detailed technical data, please refer to the data sheet or the user manual of the Type 913xC single sensors at [www.kistler.com/force](http://www.kistler.com/force)

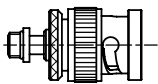
**Connecting cable**

**Connecting cable for total signal (summed)**

Type 1971A1\_, plug connection: BNC pos.

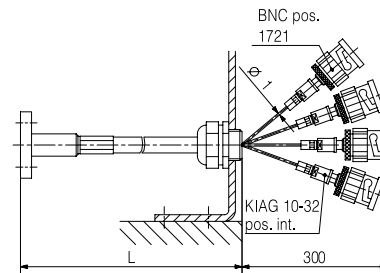


**Coupling Type 1721**



**Connecting cable for single signals**

Type 1973A\_1\_, plug connection: KIAG 10-32 pos. Coupling Type 1721 is supplied



**Compatibilities of cables and charge amplifiers**

Output Signal	Cable/Adapter	Cable Properties	Length [m]		Temp. Range	IEC/EN 60529	Connector Sensor	Connector Amplifier	IEC/EN 60529	Channels																		
			min	max						1	5030A	5039A	5073A...	5074A...	5877B...	5015A...	5018A...	5080A...	5165A...	5167A...	KIDAQ							
sum	1	1971A1x	PFA	0.1	20	-55...200°C	IP65	Fischer 7-pol	BNC pos.	IP40	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓	✓					
		1971A3x	PFA	0.1	20				add. Cable needed		IP65	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-		
		1971A4x	PFA	0.1	20							✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1971A5x	PFA	0.1	20				✓		✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
separate	2, 3, 4	1973A21x	PFA, PUR protection tube	0.1	20	-55...200°C	IP65	Fischer 7-pol	KIAG 10-32 pos.	IP65	✓	✓	✓	-	-	-	-	-	-	-	-	-	-					
		KIAG 10-32 pos.		✓	✓				✓		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
		KIAG 10-32 pos.		✓	✓				✓		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		KIAG 10-32 pos.		✓	✓				✓		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1721	Adapter for cables with KIAG 10-32 pos. int.				-55...200°C	IP65	KIAG 10-32 neg.	IP40	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓	✓							
1729A	Cable gland with KIAG 10-32 pos. int.						KIAG 10-32 neg.		IP65	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-					

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### Optional accessories

	Type
• Preloading disk for SlimLine kit Type 9130CA...	9410A0
• Preloading disk for SlimLine kit Type 9132CA...	9410A2
• Preloading disk for SlimLine kit Type 9133CA...	9410A3
• Preloading disk for SlimLine kit Type 9134CA...	9410A4
• Preloading disk for SlimLine kit Type 9135CA...	9410A5
• Preloading disk for SlimLine kit Type 9136CA...	9410A6
• Preloading disk for SlimLine kit Type 9137CA...	9410A7

### Ordering key for the SlimLine kit

#### Measuring range

Kit with SlimLine sensor Type 9130C...	0
Kit with SlimLine sensor Type 9132C...	2
Kit with SlimLine sensor Type 9133C...	3
Kit with SlimLine sensor Type 9134C...	4
Kit with SlimLine sensor Type 9135C...	5
Kit with SlimLine sensor Type 9136C...	6
Kit with SlimLine sensor Type 9137C...	7

Kit with 2 sensors	2
Kit with 3 sensors	3
Kit with 4 sensors	4

Specify the cable length for each sensor separately  
 $l = 0.1 \dots 2 \text{ m}$   
 ( $l_1 = \dots, l_2 = \dots$ , etc.)

Type 913  CA  9

### Ordering key for connecting cables for total signal (summed)

#### Cable lengths

Standard length, 3 m, BNC pos.	11
Cable length dependent on order, BNC pos.	19
Cable length dependent on order, Mini Coax neg.	29
Cable length dependent on order, TNC pos.	49
Cable length dependent on order, KIAG 10-32 pos.	59

Type 1971A

### Ordering key for connecting cables for single signals

#### For number of sensors

2 sensors	2
3 sensors	3
4 sensors	4

#### Connector type

KIAG 10-32 positive	1
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#### Cable lengths

Standard length, 3 m	1
Cable length dependent on order	9

Type 1973A