

DA70



Description

The strain sensor DA70 is suitable for strain and force measurement on machine elements under rough conditions. Installation is done quite simply by screwing the sensor with 2 screws M10 on an even material surface.

The connection cable is protected by a non-crushable spiral tube. The areas of application are, for example, force monitoring in agricultural and construction machinery, fill level measurement and strain data acquisition on machine elements. The temperature behavior and conversion factor depend on the geometrical and material pairing of sensor and component. The sensor is calibrated by subjecting the component to a known force.

The Strain sensor DA70 is implemented for the measurement of loads. Application areas are machines, buildings, vehicles, containers and silos. The strain on the surface of the constructional element is measured by the strain sensor due to the bolted-assembly. The DA 70 is also available with integrated evaluation electronics.

Technical Data - Version non amplifiée

Electrical Data

Input resistance	350 Ohm
Tolerance input resistance	50 Ohm
Output resistance	350 Ohm
Tolerance output resistance	50 Ohm
Insulation resistance	5 GOhm
Rated range of excitation voltage f	2.5 ... 5 V
Operating range of excitation voltage f	1 ... 10 V

Precision

Relative linearity error	1 %FS
Relative zero signal hysteresis	1 %FS
Temperature effect on zero signal	0.5 %FS/10K
Temperature effect on characteristic value	1 %RD/10K
Relative creep	1 %FS

Connection Data

Connection type	4 conductor open
Name of the connection	2 x 2 x 0,25 PUR
Cable length	5 m

Temperature

Rated temperature range f	-10 ... 60 °C
Operating temperature range f	-20 ... 70 °C
Storage temperature range f	-20 ... 85 °C
Environmental protection	IP65

Basis Data

Type	Dehnungsaufnehmer
Nominal strain	300 µm/m
Operating strain	150 %FS
Fastening	schrauben (M10)
Material	Tool steel
Surface	electrogalvanized

Strain gauge is used with k-factor = 2.

Technical Data - Version sortie 0-10VDC

Electrical Data

Input resistance	400	Ohm
Tolerance input resistance	60	Ohm
Insulation resistance	5	GOhm
Rated range of excitation voltage f	2.5 ... 5	V
Operating range of excitation voltage f	1 ... 10	V

Output analog

Voltage output f	0 ... 10	V
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Measuring frequency

Data frequency f	5 ... 105	Hz
Sampling frequency	105	Hz

Precision

Relative linearity error	1	%v.S.
Relative zero signal hysteresis	5	%Fn
Temperature effect on zero signal	0.5	%Fn/10K
Temperature effect on characteristic value	1	%Fn/10K
Relative creep	1	%Sn

Supply

Supply voltage f	14 ... 30	V
Current consumption from	15	mA

Connection Data

Connection type	7-Leiter offen
Name of the connection	7x0,14 UNITRONIC FD CP (TP) Plus
Cable length	5 m

Temperature

Rated temperature range f	-10 ... 60	°C
Operating temperature range f	-20 ... 70	°C
Storage temperature range f	-20 ... 85	°C
Environmental protection	IP65	

Basis Data

Type	Dehnungsaufnehmer	
Nominal strain	300	µm/m
Operating strain	150	%Fn
Material	Tool steel	
Surface	electrogalvanized	

Technical Data - Version 0-10VDC avec Offset à 5V

Electrical Data

Input resistance	400	Ohm
Tolerance input resistance	60	Ohm
Insulation resistance	5	GOhm
Rated range of excitation voltage f	2.5 ... 5	V
Operating range of excitation voltage f	1 ... 10	V

Output analog

Voltage output f	0 ... 10	V
Zero adjustment to	5	V

Measuring frequency

Data frequency f	5 ... 105	Hz
Sampling frequency	105	Hz

Precision

Relative linearity error	1	%v.S.
Relative zero signal hysteresis	5	%Fn
Temperature effect on zero signal	0.5	%Fn/10K
Temperature effect on characteristic value	1	%Fn/10K
Relative creep	1	%Sn

Supply

Supply voltage f	14 ... 30	V
Current consumption from	15	mA

Connection Data

Connection type	7-Leiter offen
Name of the connection	7x0,14 UNITRONIC FD CP (TP) Plus
Cable length	5 m

Temperature

Rated temperature range f	-10 ... 60	°C
Operating temperature range f	-20 ... 70	°C
Storage temperature range f	-20 ... 85	°C
Environmental protection	IP65	

Basis Data

Type	Dehnungsaufnehmer	
Nominal strain	300	µm/m
Operating strain	150	%Fn
Material	Tool steel	
Surface	electrogalvanized	

Technical Data - Version sortie 4-20 mA

Electrical Data

Input resistance	400	Ohm
Tolerance input resistance	60	Ohm
Insulation resistance	5	GOhm
Rated range of excitation voltage f	2.5 ... 5	V
Operating range of excitation voltage f	1 ... 10	V

Output analog

Current output f	4 ... 20	mA
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Measuring frequency

Data frequency f	5 ... 105	Hz
Sampling frequency	105	Hz

Precision

Relative linearity error	1	%v.S.
Relative zero signal hysteresis	5	%Fn
Temperature effect on zero signal	0.5	%Fn/10K
Temperature effect on characteristic value	1	%Fn/10K
Relative creep	1	%Sn

Supply

Supply voltage f	14 ... 30	V
Current consumption from	15	mA

Connection Data

Connection type	7-Leiter offen
Name of the connection	7x0,14 UNITRONIC FD CP (TP) Plus
Cable length	5 m

Temperature

Rated temperature range f	-10 ... 60	°C
Operating temperature range f	-20 ... 70	°C
Storage temperature range f	-20 ... 85	°C
Environmental protection	IP65	

Basis Data

Type	Dehnungsaufnehmer	
Nominal strain	300	µm/m
Operating strain	150	%Fn
Material	Tool steel	
Surface	electrogalvanized	

Technical Data - Version sortie 4-20mA avec offset à 12mA

Electrical Data

Input resistance	400	Ohm
Tolerance input resistance	60	Ohm
Insulation resistance	5	GOhm
Rated range of excitation voltage f	2.5 ... 5	V
Operating range of excitation voltage f	1 ... 10	V

Output analog

Current output f	4 ... 20	mA
Zero adjustment to	12	mA

Measuring frequency

Data frequency f	5 ... 105	Hz
Sampling frequency	105	Hz

Precision

Relative linearity error	1	%v.S.
Relative zero signal hysteresis	5	%Fn
Temperature effect on zero signal	0.5	%Fn/10K
Temperature effect on characteristic value	1	%Fn/10K
Relative creep	1	%Sn

Supply

Supply voltage f	14 ... 30	V
Current consumption from	15	mA

Connection Data

Connection type	7-Leiter offen
Name of the connection	7x0,14 UNITRONIC FD CP (TP) Plus
Cable length	5 m

Temperature

Rated temperature range f	-10 ... 60	°C
Operating temperature range f	-20 ... 70	°C
Storage temperature range f	-20 ... 85	°C
Environmental protection	IP65	

Basis Data

Type	Dehnungsaufnehmer	
Nominal strain	300	µm/m
Operating strain	150	%Fn
Material	Tool steel	
Surface	electrogalvanized	

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Strain gauge is used with k-factor = 2.





Pin Configuration

Symbol	Description	Wire colour	PIN
Ub	Supply voltage (24V or 12V DC)	brown	1
GND	Connect ground, supply voltage	white	2
Ua	Output signal 4...20mA / 0...10V	green	3
Tara	Control input for zero balance	yellow	4
Scale	Control input for amplification factor	grey	5
SW	Threshold output	pink	6
GND	Connect ground, signal	blue	7
	shiled (is not connected with the housing)	transparent	

With integrated electronics GSV-15L / GSV-6L.

Ground signal connected to ground supply internally.

accessories

Description	Description
	Aktivator-11 Spray 200ml; Activator solvent-based for anaerobic adhesives;
	Loxeal-8521 Retainer anaerobic for DA70, DA90, DA120, high-strength; -55°C ...+ 150°C;



Order options

Type	Description
DA70e 010/105/3,5	Output 0...10V, 100 Hz, input ± 0.1 mV/V ... 3.5 mV/V (standard type)
DA70e 4-20/105/3,5	Output 4...20mA, 100 Hz, input ± 0.1 mV/V ... 3.5 mV/V