tecsis

Betriebsanleitung
Operating Manual

Informator mit Mikroprozessor
Digital Indicator with Microprocessor

Baureihe/ Model 1926.300
1929.300

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Deutsch

English

English

Safety Instructions

This device is made and tested according to the valid standards of technics and has left the factory in a perfect safety state.

In order to exclude any risk whatsoever for the operator the following points have to be observed:

a) Immediately switch off the unit in case of visible damage or obvious malfunctions.

b) Make it a rule to always disconnect voltage source and unit befor opening it up. The entire unit and its connections have to be fingerproof after installation.

c) Standard regulations for operation and safety for electrical, light and heavy current equipment have to be observed, with particular attention having to be paid to national safety regulations (e.g. VDE 0100).

d) When connecting the unit to other units (e.g. PC) the interconnection has to be designed most thoroughly as internal connections in third-party unity (e.g. connection GND with protective earth) may lead to undesired voltage potentials.

e) The overvoltages applied to the product at the connection terminals have to be limited to values of the overvoltage category II.

Attention: When running electric devices, parts of these will always be highly energised. Unless the warnings are observed serious personal injuries or damage to property may result. Skilled personal only shopuld be allowed to work with this unit. For trouble-free and safe operation of the unit please ensure professional transport, storage, installation and connection as well as proper operation and maintenance.

Skilled personal

Skilled personal are persons familiar with installation, connection, commissioning, and operation of the product and have professional qualification relating to their job.

For example:

- Training or instruction and/or qualification to switch on/off, isolate, ground and mark electric circuits and devices/systems.
- Training or instruction according to the state of the art of safety technology to maintain and operate safety equipment.
- First-aid training.

1.0 Introduction

The indicator 1929.300 is a microprocessor controlled display, supervision and control unit for universal applications. The indicators can be set to the desired measuring range on site by program-control. If necessary a non-linear scaling with upto 10 scaling respectively indicating point is provided.

The indicator posesses a two-coloured display. The desired colour for operation or alarm can be selected. Easy programming is made possible via a help function and a seperate help display.

The are connctions for the following standard signals: 0...20 mA, 4...20 mA, 10...50 mA, 0...5 V, 1...5 V, 0...10 V, 2...10 V, ±100 mV, ±1 V and ±10 V. As a standard the indicator provides two transistor outputs and a relay output. A second relay output is available on request.

If required an analog outout can be obtained to process the sensor signal. The option RS-485 interface allows communication with a host computer; alternatively a digital input to control the indicator can be provided.

2.0 Installation

Before it can actually be used, the indicator will have to be configurated for the customer's application:

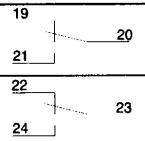
- Connect indicator completely (→ chapter 3.0).
- Switch on supply voltage and wait for segment test to be completed.
- Adjust indicator to the inputs and outputs required (→ chapter 9.0).
- Carry out basic configurations of the indicator (→ chapter 7.0).
- Adjust limit values (→ chapter 6.0).

3.0 Electrical connection

Wiring and commisioning of the unit must be carried out by trained personal. Wrong wiring may lead to the destruction of the indicator, in which case we cannot assume any warranty.

3.1 Terminal configuration

	1926.300	1929.300	
1	input -		
2	Input +	input + V	
3	sense -	input + mV, mA	
4	sense +	free	
5	sensor supply -		
6	sensor supply +		
7	transistor output 1		
8	transistor output 0V		
9	transistor output 2		
10	analog output -		(option)
12	analog output +		
13	mains supply +/~		
14	mains supply -/~		
16	digital input / RS485 B		(option)
17	digital input / RS485 A		
18	RS485 0V		
19	relay 1		
20			
21			
22	relay 2		(option)
23			
24			



The sense cables for positive and negative supply voltage are connected to terminals 3 and 4, to compensate wire resistances and voltage drift of the strain gauge supply.

3.2 Connection data

	Characteristics min	Characteristics max	Notes
input mA	0 mA	50 mA	impedance: 10 Ω
input mV (1926)	0 mV	100 mV	impedance: 950 kΩ
input mV (1929)	-100 mV	100 mV	impedance: 950 kΩ
input V	-10 V	10 V	impedance: 950 kΩ
sens. supply (1926)		5 or 10 VDC	max. 60 mA
sens. supply (1929)	24 VDC	24 VDC	max. 30 mA
transistor output		30 VDC / 100 mA	open collector
analog output mA	0 mA	20 mA	load: max. 500 Ω
analog output V	0 V	10 V	load: min. 500 Ω

	Characteristics min	max	Notes
mains supply	90 VAC	264 VAC	power consumption: < 4 Watt
mains supply (option)	20 VAC/ 22 VDC	50 VAC/ 55 VDC	power consumption: < 200 mA
relay output 1		240 VAC / 3 A,	change over contact
relay output 2		110 VAC / 5 A	

Before connecting the unit, please make sure that the permissible voltage and current values will not be exceeded.

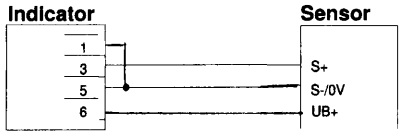
Free terminals are not to be used.

3.3 Connect input signal

Current Inputs

2-wire technology

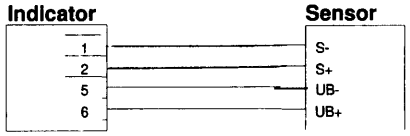
3-wire technology



Voltage Inputs

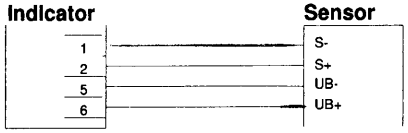
3-wire technology

4-wire technology

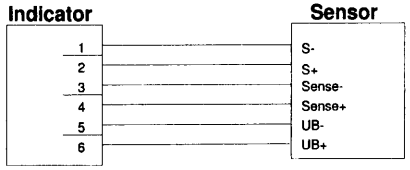


Strain gauge Inputs

4-wire technology

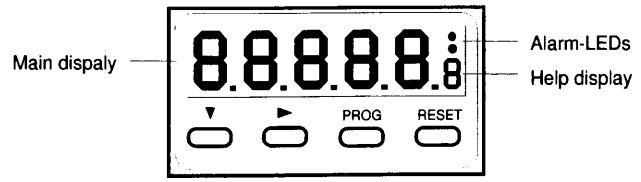


6-wire technology



Note: Drawing was not complete, refer to 4-page datasheet for original. OM. 11/10/05

4.0 Display elements



4.1 Display elements

Display element	Description
Main display:	Displays the value of the selected display function respectively of the selected parameter. *If the help function is enabled additionaly the name of the display function respectively of the parameter is displayed for 3 seconds.*
Help display:	Displays a figure or a symbol to characterize the display function respectively the parameter.
Alarm-LEDs:	The LEDs for Alarm 1 und 2 are illuminated, when the corresponding alarm is active.

4.2 Key functions

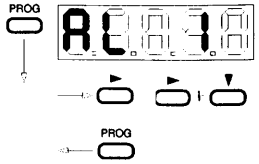
Key	Funktion
▼	decrements a highlighted digit by one (parameter edit)
	presents the next value of a series of choises (parameter edit)
►	enters parameter edit
	moves to the next digit (parameter edit)
PROG	moves to the next display function respectively parameter
	enters an edited value and leaves edit mode
PROG (3 Sek.)	changes from display mode to programming mode
	changes from programming mode to display
RESET	enters the actual measuring value (parameter edit)
	resets the indicated value (display mode)
▼+►	leaves edit mode and returns the parameter to its previous value
▼+PROG (3 Sek.)	changes from display mode to configuration mode
	changes from configuration mode to display mode

5.0 Parameter edit

The parameter to change is displayed.

- Press key ► to enter parameter edit.

Example:



a) Configurate numerical values

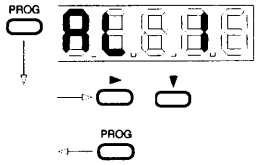
The digit to be set is highlighted (beginning on the lefthand side).

- Move with ► key to the adjustable digit.

  By pressing ► key the next digit is selected. From left to right.
- Use ▼ key to set the digit to the desired value.

  By pressing ▼ key the value is decremented by one. 0 is followed by 9.

b) Selct from a series of choises



The whole parameter is highlighted.

- Use ▼ key to select the desired parameter value.

  By pressing ▼ key the next value in the serie is selected.
- Press PROG key to enter the new parameter value and leave the parameter edit. The new paramter value is displayed.

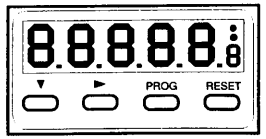
6.0 Display mode

This mode is active after switching on the unit and when leaving one of the other operating modes. The operation mode display mode provides a readout of the measuring value, enables the adjustment of the limit values for alarm 1 and 2 and informs via additional display functions about the status of the process being monitiored.

6.1 Select display functions

Switch on supply voltage and wait for segment test to be completed. The measuring value is indicated.

a) Help function* enabled (standard)



- Press PROG key until name of desired display function is indicated.

  After 3 seconds the device automatically enters the selected display function.

b) Help function* disabled

- Press PROG key until the desired dispaly function is indicated.

* Help function → chapter 7.2

6.2 Sequence of display functions

Process value

Description:
Process value.

High

Description:
Maximum process value.

Key RESET:
Resets the maximum process value to the process value currently being read.

Low

Description:
Minimum process value.

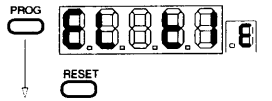
Key RESET:
Resets the minimum process value to the process value currently being read.

Elapsed time

Beschreibung:
Elapsed time for alarm 1.

The value is displayed in mm.ss, until 99 min. 59 sec. then in mmm.m.

Key RESET:
Resets the current value to zero.

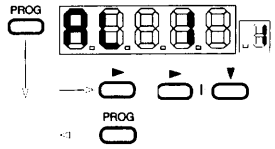


Limit value 1

Description:
Process value at which alarm 1 will activate.

Switching function → chapter 9.2.

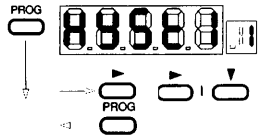
Adjustment:
Adjust the limit value as described in chapter 6.0.*



Hysteresis 1

Adjustment range:
Hysteresis for active alarm 1.

Adjustment:
0.00 bis 100.00% of display range.



Limit value 2

Description:
Process value at which alarm 2 will activate.

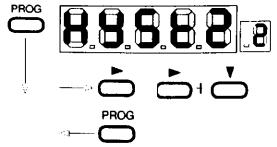
Switching function → chapter 9.2.

Adjustment:
Adjust the limit value as described in chapter 6.0.*

Hysteresis 2

Adjustment range:
Hysteresis for active alarm 2.

Adjustment:
0.00 bis 100.00% of display range.



* The limit values can not be edited if the limit value lock (→ chapter 7.2) is enabled.

Total

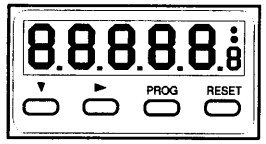
Description:
Accumulted amount of the process values over a programmable time base (→ chapter 9.2).

RESET key:
Resets the actual value to zero.

7.0 Program mode

The operation mode program mode is used to carry out the basic configurations of the device.

7.1 Select paramters



- Switch on supply voltage and wait for segment test to be completed. The measuring value is indicated.
- Hold PROG key for 3 seconds to enter program mode.

  The help indication is highlighted.

  a) Help function enabled (standard)

  - Press PROG key until name of desired program parameter is displayed.

    After 3 seconds the device automatically displays the parameter value.

  - Press ► key to enter parameter edit and adjust the paramter value as discribed in chapter 6.0.

  b) Help function disabled

  - Press PROG key until desired program paramter is displayed.
  - Press ► key to enter parameter edit and adjust the paramter value as discribed in chapter 6.0.
- Hold PROG key for 3 seconds to return to display mode.

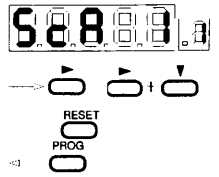
7.2 Sequence of parameter

Scaling value 1

Description:
Input value of the first scaling point.*

RESET key:
Inputs the input value currently being read.

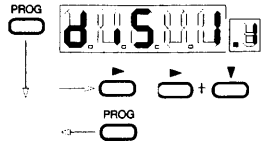
Adjustment range: 0.00% to 100.00%
Default value: 0.00



Display point 1

Description:
Display value of the first scaling point.*

Adjustment range: -19999 to 99999
Default value: 0

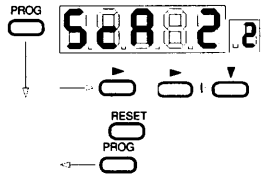


Scaling value 2

Description:
Input value of the second scaling point.*

RESET key:
Inputs the sensor value currently being read.

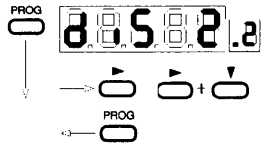
Adjustment range: 0.00% to 100.00%
Default value: 100.00



Display value 2

Description:
Display value of the second scaling point.*

Adjustment range: -19999 to 99999
Default value: 10000

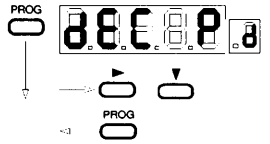


* For non linear scaling (→ chapter 8.3) up to 10 scaling points are available. The scaling is complete if the last scaling value was set to 100.00.

Decimal point

Description:
Position of the decimal point.

Adjsutment range: 0 to 0.0000
Default value: 0.00

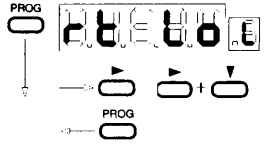


Retransmission low

Description:
Display value which corresponds to the minimum analog output signal.

Example:
4 mA for 4...20 mA output.

Adjustment range: -19999 to 99999
Standardwert: 0.00

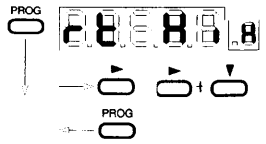


Retransmission high

Beschreibung:
Display value which corresponds to the maximum analog output signal.

Example:
20 mA for 4...20 mA output

Adjustment range: -19999 to 99999
Default value: 100.00

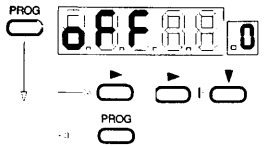


* The program parameter retransmission low and high can only be edited if the analog output (→chapter 9.2) is enabled.

Offset

Description:
Offset value

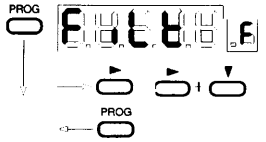
Adjustment range: -19999 to 99999
Default value: 0.00



Filter

Description:
Filter function

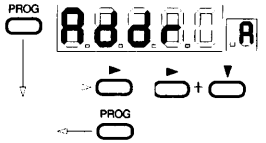
Adjustm. range: 0.0 (filter off) to 100.0
Default value: 2.00



Communication address

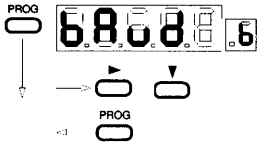
Description:
Communication adress

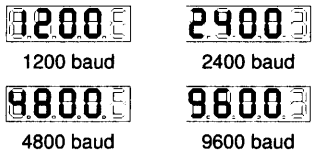
Adjustment range: 1 to 99
Default value: 1



Baud Rate

Description:
Baud Rate*





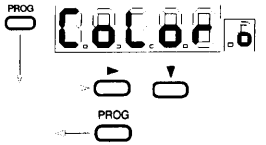
1200 baud | 2400 baud | 4800 baud | 9600 baud

* This parameter is displayed only, if the serial interface (→ chapter 9.2) is activ.

Display color

Desciption:
Display color during operation and alarm condition.

Default value: green → red



Display	Display color	Description
	red	Display is always red.
	green	Display is always green.
	green → red	Operation: display is green. Alarm: display is red.
	red → green	Operation: display ist red. Alarm: display is green.

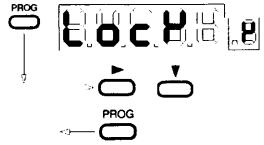
Alarm Lock

Description:
Adjustability of the limit values via the front keys.

Default value: disabled


disabled


enabled



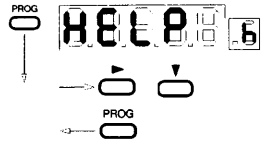
Help function

Description:
Help function., the parameter name appears for 3 seconds in the main display.

Default value: Help-yes


Help-yes


Help-no

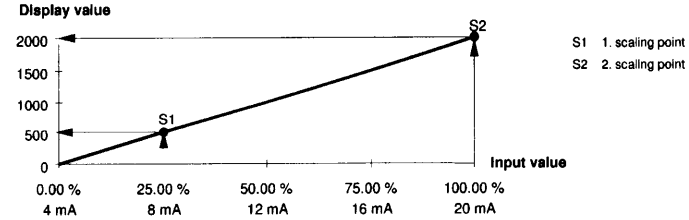


8.0 Scaling

By means of the scaling the transformation of the input values into any display values is carried out.

8.1 Linear scaling

The linear scaling consists of a straight line, specified by two points. The gradient and the offset are automatically calculated from the two scaling points S1 and S2. A scaling point always consists of a input value and the corresponding display value.

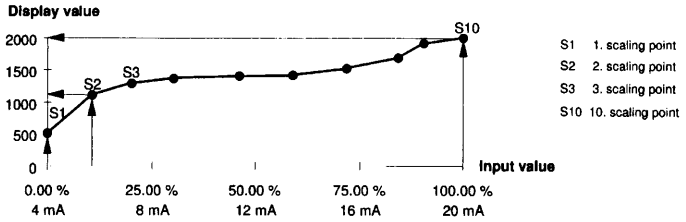


8.2 Negative scaling

A reverse proportional scaling (negative scaling) is possible.

8.3 Non linear scaling

A non linear scaling can be approximated via a graph, consisting of up to 10 scaling points.



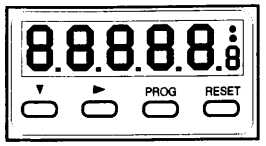
The following table illustrates the devision of the different measuring ranges. Each measuring range is devided into four devisions of the same size.

Input signal	0.00%	25.00%	50.00%	75.00%	100.00%
0...20 mA	0 mA	5 mA	10 mA	15 mA	20 mA
4...20 mA	4 mA	8 mA	12 mA	16 mA	20 mA
10...50 mV	10 mV	20 mV	30 mV	40 mV	50 mV
0...5 V	0.00 V	1.25 V	2.50 V	3.75 V	5 V
1...5 V	1 V	2 V	3 V	4 V	5 V
0...10 V	0.0 V	2.5 V	5.0 V	7.5 V	10 V
2...10 V	2 V	4 V	6 V	8 V	10 V
0...100 mV	0 mV	25 mV	50 mV	75 mV	100 mV
± 100 mV	-100 mV	-50 mV	0 mV	50 mV	100 mV
± 1 V	-1.0 V	-0.5 V	0.0 V	0.5 V	1 V
± 10 V	-10 V	-5 V	0 V	5 V	10 V

9.0 Configuration mode

The configuration mode serves to adapt the device to the required in- and outputs.

9.1 Select parameters



- Switch on supply voltage and wait for segment test to be completed. The measuring value is indicated.
- Hold keys ▼ and PROG for 3 seconds to enter configuation mode.

The help display is highlighted.

a) Help function enabled (standard)

- Press PROG key until name of desired configuration parameter is indicated.

  After 3 seconds the device automatically displays the value of the selected configuration parameter.
- Press ► key to enter edit mode and adjust the parameter value as discribed in chapter 6.0.

b) Help function disabled

- Press PROG key until the desired configuration parameter is displayed.
- Press ► key to enter edit mode and adjust the parameter value as discribed in chapter 6.0.

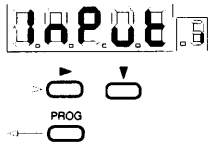
- Hold keys ▼ and PROG for 3 seconds to return to display mode.

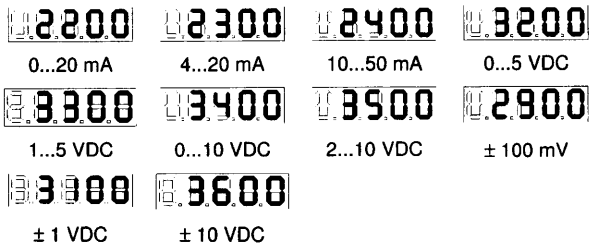
9.2 Sequence of parameters

Input signal

Description:
Input signal

This parameter only appears when using model 1929.300.





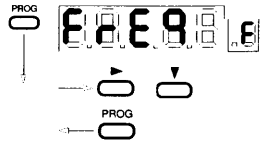
Power supply frequency

Description:
Power supply frequency

The parameter is indicated when using devices not supplied by the mains.

Default value: 50 Hz

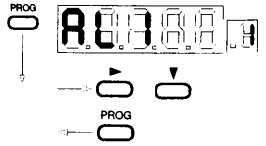
50 Hz 60 Hz



Alarm 1

Description:
Switching function of Alarm 1.

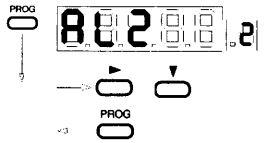
Default value: High

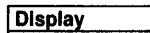
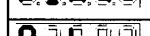


Alarm 2

Description:
Switching function of Alarm 2.

Default value: none

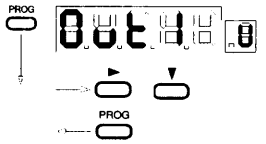


Display	Switch. funct.	Description
	High	The Alarm activates when the process value exceeds the limit value.
	Low	The Alarm activates when the process value is less than the limit value.
	none	Alarm disabled

Output 1

Description:
Switching function of transistor output 1 and relay output 1

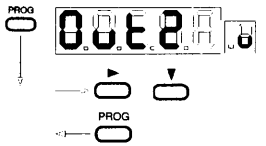
Default value: direct action



Output 2

Description:
Switching function of transistor out put 2 and relay output 2

Default value: direct action

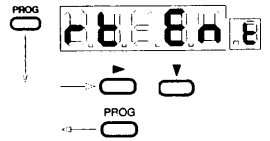


Display	Switch. funct.	Description
	direct action	Output 1 is active when Alarm 1 is active and is inactive when Alarm 1 is inactive.
	reverse action	Output 1 is active when Alarm 1 is inactive and is inactive when Alarm 1 is active.
	dircet action , latching	Output 1 is active when Alarm 1 is acitve and can only be set inactive by using the RESET key.
	reverse action, latching	Output 1 is active when Alarm 1 is inactive and can only be set inactive by using the RESET key.
	direct action	Output 2 is active when Alarm 2 is active and is inactive when Alarm 2 is inactive.
	reverse action	Output 2 is active when Alarm 2 is inactive and is inactive when Alarm 2 is active.
	direct action to 1 or 2	Output is active when at least one of the two Alarms is active
	reverse avtion to 1 or 2	Output is active when none of the two Alarms is active.

Retransmission output

Description:
Analogue output signal*

Default value: none



none 0...5 VDC

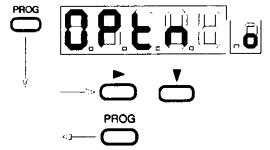
1...5 VDC 0...10 VDC 2...10 VDC

0...20 mA 4...20 mA

* The modul für the analogue output is as a standard set to current ranges (jumper on outer pins). If you intend to use voltage ranges, please set the jumper to the inner pins.

Options

Description:
Function of the installed option board.
Default value:
none



Display	Function	Description
	none	No board installed.
	Security	When the digital input is active program and configuration mode can not be accessed.

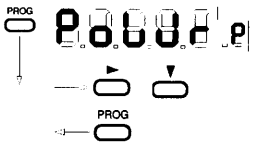
tArE	Tare	When the digital input is acitve the currently measured process value is saved as a negative offset. The offset takes effect immediately.
Comm	Communication	The option RS 485 interface is installed.

Power supply
Power supply

Description:
Strain gauge voltage

This parameter is only displayed when using model 1926.300.

Default value: 5 V

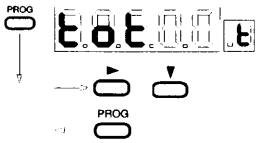


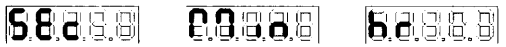
5 VDC 10 VDC

Total

Description:
Time base for accumulated amount of the process value

Default value: Seconds





Seconds Minutes Hours

Technologies for Sensors Indicators and Systems

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zertifiziert nach DIN ISO 9001
DQS Reg. Nr. 4326
Certified according to DIN ISO 9001
DQS Reg. No. 4326
Certifié suivant DIN ISO 9001
DQS Reg. No. 4326

EG-Konformitätserklärung	Declaration of Conformity	Declaration de Conformité
Dokument Nr.: DC07.208.004	**Document No.:** DC07.208.004	**Document Nr.:** DC07.208.004
Wir erklären in alleiniger Verantwortung, daß die mit CE gekennzeichneten Produkte	We declare under our sole responsibility, that the CE marked products	Nous déclarons sous notre seule responsabilité que les appareils marqués CE
Baureihe: 1926.300 1929.300	**Model:** 1926.300 1929.300	**Série:** 1926.300 1929.300
Beschreibung: Drucksensor für allgemeine Anwendungen	**Description:** Pressure transducer for general applications	**Description:** Transmetteurs de pression pour applications standard
gemäß gültigem Datenblatt: DD744	**according to the actual leaflet:** DE744	**selon bulletin en vigueur:** DF744
die Anforderungen der EMV-Richtlinie 89/336/EWG, 92/31/EWG erfüllen.	fulfills the regulations of the EMC Directive 89/336/EEC, 92/31/EEC.	sont conformes aux exigences EMC de la directive 89/336/EEC, 92/31/EEC.
Die Prüfung der Geräte wurde entsprechend den EMV-Normen	The devices have been tested according to the EMC norm:	Les appareils ont été vérifés suivant les normes EMC:
EN 61326:1997/A1:1998	EN 61326:1997/A1:1998	EN 61326:1997/A1:1998

durchgeführt.

tecsis GmbH

Offenbach, 15.01.2003

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Geschäftsführer:
Reinhold Ost
Karl-Robert Leiomann

Fehlermeldungen

Erkennt die Digitalanzeige unzulässige Betriebszustände, so wird eine entsprechende Fehlermeldung angezeigt.

Folgende Fehlermeldungen sind definiert:

Zu großer Wert (Over) — Diese Fehlermeldung erscheint, wenn der Meßwert 5% größer ist als der maximale Meßwert.

Zu kleiner Wert (Under) — Diese Fehlermeldung erscheint, wenn der Meßwert 5% geringer ist als der minimale Meßwert.

Sensorbruch (Break) — Diese Fehlermeldung erscheint, wenn das Gerät für 2 Sekunden kein Eingangssignal erhält.

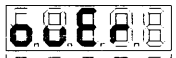
Diese Fehlermeldung erscheint nur für Sensorsignale mit Offset (4...20 mA).

Malfunction messages

A corresponding malfunction code will be displayed as soon as the indicator detects an operating state that is not permissible.

Malfunction codes are defined as follows:

Over range — This message appears if the process value exceeds the maximum display value by 5%.



Under range — This message appears if the process value is lower than the minimum display value by 5%.

Sensor break — This message appears if the device does not receive an input signal for 2 seconds.

This message only appears for sensor signals with an offset (4...20 mA).