GESTRA® Industrial Electronics

Level Electrode Type NRG 26-40 With CAN Bus

CANopen

Issue Date: 11/00

NRG 26-40 **B1**

System Description

The level electrode NRG 26-40 works according to the capacitance measurement principle. The NRG 26-40 is used for signalling different levels in conductive and non-conductive liquids:

- Water level maintained within the control band defined by two preset limits.

Use level electrode NRG 26-40 in combination with level switch type NRS 2-40 or further system components. The level data are transferred to the level switch or another system component via the CAN data bus. The controller and the electrode use the CANopen protocol.

Application

The NRG 26-40 is designed to detect and signal different levels in electrically conductive and non-conductive liquids. It is appropriate for use in the power supply, water and chemical industries and particularly suitable for applications in steam boilers and feedwater tanks.

Max. Pressure / Temperature Rating

32 barg / 238 °C

Design

- NRG 26-40 screwed ¾" BSP, DIN ISO 228

Function

The principle of capacitance measurement is applied to determine the level. The electrode rod and the vessel wall form the plates of a capacitor. If the level of the dielectric located between these two capacitor plates changes, the current which flows through the plates changes proportionally to the level. A dielectric is by definition an insulating substance, which excludes many liquids such as water. In order to receive a useful measuring result the measuring rod, which is submerged to varying depths in the liquid, must be completely insulated. After the calibration of the zero point / measuring range (0 % / 100 %) the level can be read off from a remote display unit. The level measuring range can be changed during operation.

At regular intervals the level electrode NRG 26-40 sends a data signal to the level switch NRS 2-40 or level controller NRR 2-40. The data transfer is effected by means of a CAN bus according to DIN ISO 11898 using the CAN open protocol.

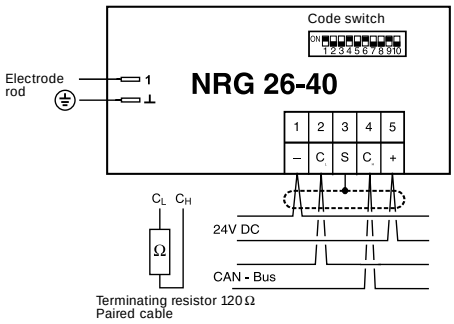
CAN Bus

All level and temperature switches, controllers and electrodes are interconnected by means of a CAN bus. The data exchange is effected by means of a CAN bus according to DIN ISO 11898 using the CANopen protocol. Every item of equipment features an electronic address (Node ID). The four-core bus cable serves as power supply and data highway for high-speed data exchange.

NRG 26-40 is configured at our works and ready for service with other GESTRA components.

NRG 26-40 can be used straight away without having to set the Node ID.

Wiring Diagram



Technical Data

Type Approval N°
TÜV · WR · 98-399

Max. service pressure
32 barg at 238 °C

Connections
Screwed ¾" BSP, DIN ISO 228

Materials

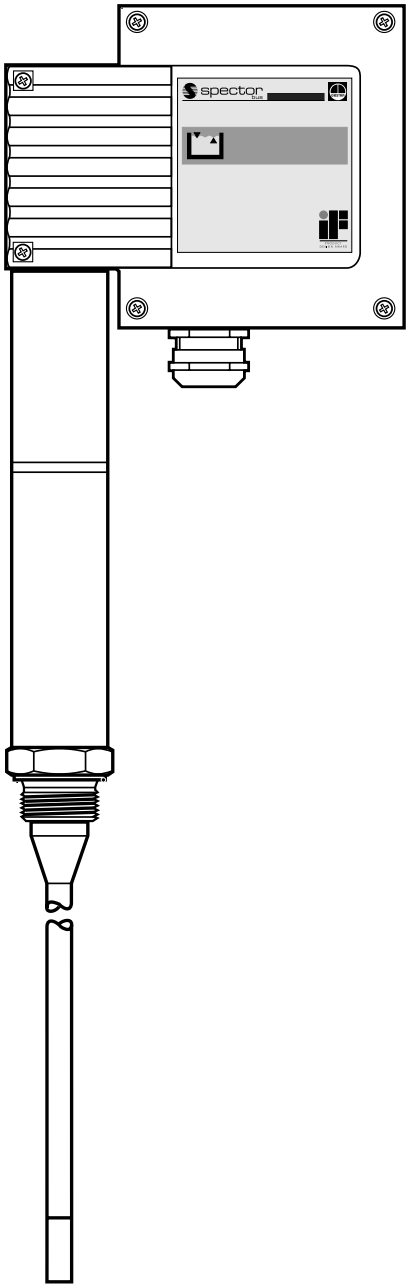
Case:	Die cast aluminium 3.2161 (G AlSi8Cu3)
Stem:	S. S. 1.4571 (CrNiMoTi 17 12 2)
Measuring electrode:	S. S. 1.4571 (CrNiMoTi 17 12 2)
Electrode insulation:	PTFE

Length supplied
300 mm to 2000 mm

Supply voltage
18 – 36 V DC

Current consumption
65 mA

Fuse
Thermal fuse T_{max} = 80 °C



spector bus

B1 NRG 26-40

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An Invensys company

Technical Data – continued –

Data exchange
CAN bus acc. to DIN ISO 11898,
CANopen protocol

Indicators and adjustors
1 green LED for indication “Cyclic data signal”
1 red LED “Bus fault”
1 ten-pole code switch for Node ID and Baud rate

Cable entry
Cable gland with integral cable clamp
1 x PG 16

Protection
IP 65 to DIN EN 60529

Max. admissible ambient temperature
70 °C

Weight
approx. 2.5 kg

Important Note

Use paired multiconductor control cable, e. g. 2 x 2 x 0.8 mm for wiring. Max. cable length 250 m.

When installing the level electrode in hot-water or steam boilers observe the relevant safety regulations.

Order and Enquiry Specification

GESTRA Level electrode type NRG 26-40 CANopen

Associated Level Switch

- Level switch type NRS 2-40 CANopen

Ancillary Unit

- Level controller type NRR 2-40 CANopen
- Visual display unit type URB 1 CANopen

A Flange PN 40, DN 50 (2"), DIN ISO 2527
Flange PN 40, DN 100 (4"), DIN ISO 2527

B For the approval of the boiler standpipe with connecting flange the relevant regulations must be considered.

C Vent hole

D High water (HW)

E Electrode rod d = 15 mm

F Protection tube ≥ DN 80 mm

G Electrode distance

H Low water (LW)

I Reducer K-88.9 x 3.2 – 42.4 x 2.6 W

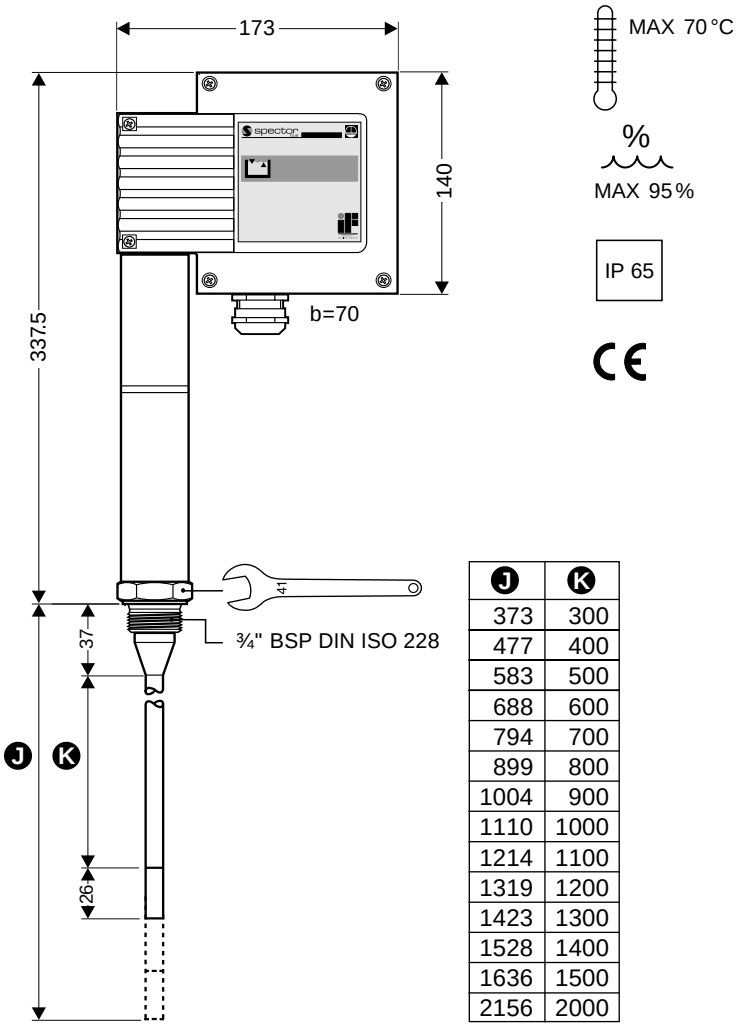
J Max. length of installation at 238 °C

K Effective measuring range

Supply in accordance with our general terms of business.

810367-01/1100c

Dimensions



J	K
373	300
477	400
583	500
688	600
794	700
899	800
1004	900
1110	1000
1214	1100
1319	1200
1423	1300
1528	1400
1636	1500
2156	2000

Fig. 1 *NRG 26-40*

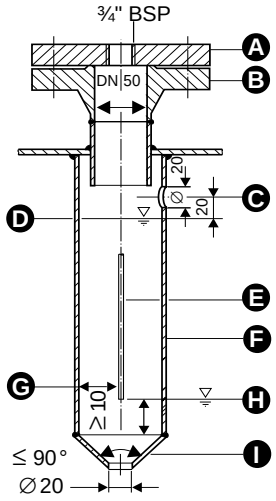


Fig. 2 *Protection tube for installation of electrode inside the boiler*

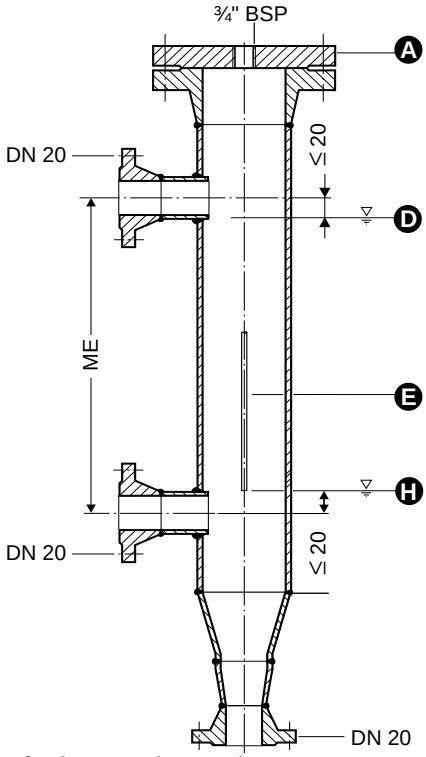


Fig. 3 *External measuring pot*