GESTRA®

GESTRA Steam Systems

URZ 40a

EN
English

Installation Manual 818958-00

Control Element for Actuator URZ 40a

spectorbus CANopen

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Important Notes

Usage for the intended purpose

Use the control element URZ 40a in conjunction with suitable control equipment only for the energizing of electrical actuators with AC motors.

Safety note

The equipment must only be installed and commissioned by qualified and competent staff.

Retrofitting and maintenance work must only be performed by qualified staff who – through adequate training – have achieved a recognized level of competence.

Danger

The terminal strips of the control element URZ 40a are live when the unit is in operation!

There is a possibility of serious injury by electrical current.

Before starting work on the terminal strips (installation, dismantling, connecting the cables), the unit **must always be isolated** from the electrical supply!

ATEX (Atmosphère Explosible)

According to the European Directive 94/9/EC, the equipment must **not** be used in potentially explosive areas.

Explanatory Notes

Scope of supply

URZ 40a

1 control element URZ 40a

2 cable straps for mounting on pipes

1 installation manual

Explanatory Notes – continued –

Description

The control element URZ 40a is designed for actuating control valves driven by electric motors, for applications in control systems in which the data transfer is effected via CAN bus using the CANopen protocol.

The control element URZ 40a can be used for controlling and operating

- a control valve in conjunction with the control unit NRR 2-40 (level control),
- a continuous blowdown valve BAE 4x-40 in conjunction with the control unit LRR 1-40 (continuous boiler blowdown control),
- a control valve in conjunction with the control, operating & display panel SPECTOR*control*,
- a control valve in conjunction with adjustable CANopen control equipment produced by other manufacturers.

The control element URZ 40a is designed for actuating electrical actuators fitted with AC motors with a power consumption of up to 50 W. In addition, the actuator must be equipped with limit switches and a feedback potentiometer for indicating the valve position.

Function

The valve position dictated by the control system is made available in the form of a data message in the CAN bus system. The control element URZ 40a converts the valve position data into a control command and the actuator will be operated until the feedback potentiometer signals that the required valve position has been reached.

For further feedback information, the control element URZ 40a normalizes the value that depends on the valve position and is indicated by the feedback potentiometer (0 – 100 %) and sends it to the CAN bus in the form of a data message.

In addition, the data message (which is sent out cyclically) may contain the following error messages:

- Power failure in actuator
- Excessively high temperature in control element URZ 40a
- Fault in feedback potentiometer (parting of a cable, short circuit)
- Both limit switches have been activated
- Wrong sense of rotation
- Feedback potentiometer immobilized

The actuator motors into the preset safety position if

- the data sending cycle is interrupted, or
- there is a malfunction in the feedback potentiometer.

The activation control of the actuator is switched off if

- both limit switches have been activated
- the sense of rotation is wrong, or
- the feedback potentiometer is immobilized.

If the sense of rotation is wrong or the feedback potentiometer is immobilized, the control element URZ 40a tries to restart after approx. 15 sec.

Technical Data

URZ 40a

Interface
Interface for CAN bus according to ISO 11898, CANopen protocol

Supply voltages
18 – 36 V DC, 0.1 A, protected against polarity reversal
115 – 230 V AC, 4 A, for the motor in the actuator

Inputs
2 inputs for monitoring the limit switches, opto-isolated, 115 – 230 V AC
1 input for detecting zero crossing, opto-isolated, 115 – 230 V AC
1 input for signalling the valve position via feedback potentiometer, 1 kΩ

Outputs
2 volt-free relay contacts for actuating the motor
Contact material AgNi 0.15
Max. contact rating with switching voltages 24 V AC/DC, 115 V AC and 230 V AC:
4 A resistive, inductive

Actuator specification
AC motor 115 – 230 V AC; 50/60 Hz, max. 50 W
Starting capacitor up to 0.47 µF
Integrated RC interference suppression filter
1 kΩ potentiometer

Measuring range
0 – 100 % of the manipulating range, ±1 %

Indicators and adjustors
2 pushbuttons for manual positioning and calibration
5 LEDs for internal status messages
1 ten-pole code switch for setting the node ID and the baud rate
1 four-pole code switch for system configuration

Fault response time
5 s

Power consumption
3 W at 24 V DC

Fuse
Electronic thermal fuse Tmax 85 °C, hysteresis -5 K

Protection
IP 65 to EN 60529

Protection class
2 (totally insulated)

Admissible ambient temperature
Max. 70 °C

Enclosure
Housing material: polycarbonate

Technical Data – continued –

URZ 40a – continued –

Cable entry / electrical connection
For connecting the actuator:
3 cable glands with integral cable strain relief, M16 x 1.5
1 three-pole terminal strip for connecting the potentiometer, conductor size 1.5 mm²
1 nine-pole screw-type terminal strip, conductor size 1.5 mm²
1 two-pole screw-type terminal strip, conductor size 1.5 mm²

For connecting the CAN bus:
M12 sensor connector (male), 5 poles, A coded
M12 sensor connector (female), 5 poles, A coded

Weight
Approx. 0.2 kg

Name plate / identification marks

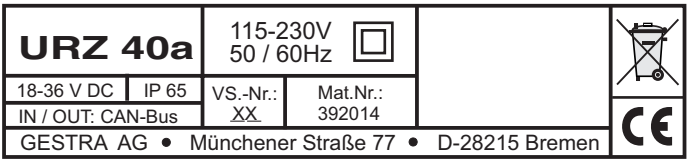


Fig. 1

Dimensions

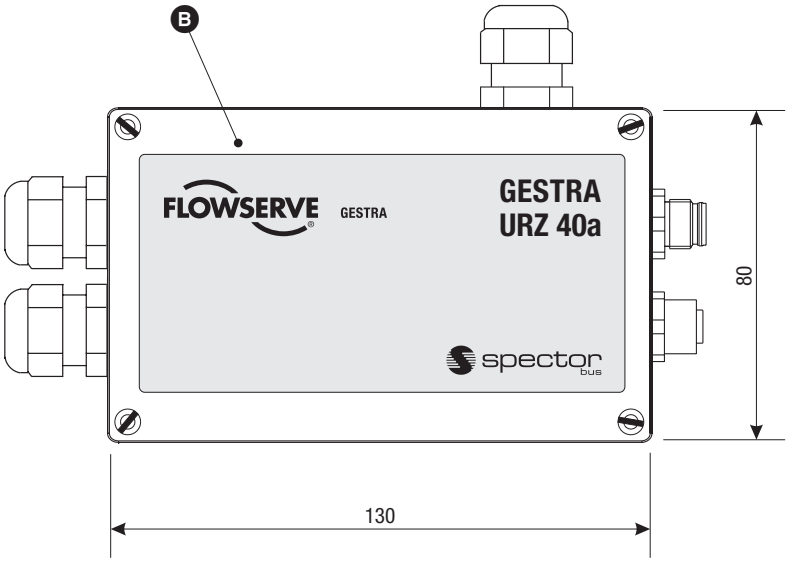


Fig. 2

Functional Elements

URZ 40a

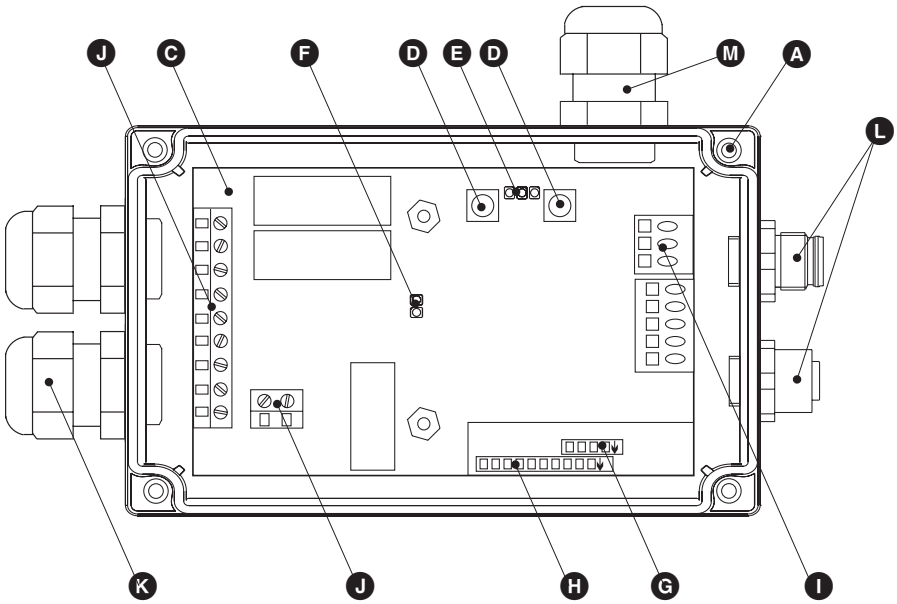


Fig. 3

Technical Data / Functional Elements – continued –

Key

- **A** Cross-recess lid screws
- **B** Housing lid
- **C** Terminal block
- **D** Pushbutton for manual operation
- **E** Light-emitting diodes 1 – 3 (LED 1 green “Power”, LED 2 yellow “Status”, LED 3 red “Malfunction”)
- **F** Light-emitting diodes 4 – 5
- **G** Code switch “System configuration”
- **H** Code switch “Node ID / baud rate”
- **I** Terminal strip for feedback potentiometer
- **J** Terminal strip for connecting the motor
- **K** Cable glands for connecting the motor
- **L** M12 sensor connectors (1 male, 1 female), 5 poles, A coded
- **M** Cable gland for feedback potentiometer

Installation

Control element URZ 40a

The control element URZ 40a is housed in an enclosure designed for wall mounting. To access the mounting holes, undo the lid screws and remove the housing lid. Please use suitable screws to mount the control element URZ 40a.

Alternatively, the supplied self-adhesive cable clamps can be used to attach the control element URZ 40a to pipes.

Note

After installation, the steps

- connecting the supply voltage
- connecting the limit switches
- connecting the feedback potentiometer
- changing the baud rate
- configuring the control element (see “Commissioning”), and
- changing the node ID (see under “Appendix”)

can be performed in one working step with the enclosure still open.

Electrical Connection

Electrical connection of motor, limit switches and feedback potentiometer

Seven-core cable (e.g. Ölflex Classic 110, manufactured by LAPP, 7 x 0.75 mm²) is required for wiring the motor and the limit switches, max. cable length 1 m. Use screened three-core cable, conductor size 3 x 0.5 mm², for wiring the feedback potentiometer, max. cable length 1 m.

1. Undo the cross-recess lid screws Ⓐ and remove the housing lid Ⓑ.
2. Undo the fastening screws and remove the terminal block Ⓒ.
3. Undo the cable glands Ⓚ, Ⓜ and pull the cables through the glands.
4. Strip off approx. 50 mm of cable insulation coating and remove approx. 5 mm of conductor end insulation.
5. Connect the cables to terminal strips Ⓘ and Ⓙ in accordance with the wiring diagram.
6. Seal the cable entry by tightening cable glands Ⓚ, Ⓜ. Use the supplied sealing plugs to seal off any cable glands that are not used.
7. Replace the terminal block Ⓒ and tighten the fastening screws.

Note

It is not admissible to move the cables with basic insulation for the feedback potentiometer into the mains voltage area.

Electrical Connection – continued –

Bus cable, cable length and conductor size

Screened multi-core twisted-pair control cable (e.g. UNITRONIC® BUS CAN 2 x 2 x .. mm²; Li 2YCY 2 x 2 x .. mm²) **must** be used for the bus line.

Preassembled control cables (equipped with connectors) are available in various lengths as optional extras.

The cable length dictates the baud rate (data transfer rate) between the bus nodes, and the total power consumption of the sensors dictates the conductor size.

S 8	S 9	S 10	Baud rate	Cable length	Number of pairs and conductor size [mm²]
OFF	**ON**	**OFF**	**250 kBit/s**	**125 m**	2 x 2 x 0.34
Factory setting					
ON	ON	OFF	125 kBit/s	250 m	2 x 2 x 0.5
OFF	OFF	ON	100 kBit/s	335 m	2 x 2 x 0.75
ON	OFF	ON	50 kBit/s	500 m	Available on request (depends on the configuration)
OFF	ON	ON	20 kBit/s	1000 m	
ON	ON	ON	10 kBit/s	1000 m	

The baud rate is set at the code switch ❽ (S 8-10), **Fig. 3**. The factory setting for the baud rate of control element URZ 40a is 250 kBit/s (cable length up to 125 m). For longer cable lengths, reduce the baud rate setting accordingly. Make sure that all bus nodes exhibit the same setting.

Changing the baud rate

With the enclosure open:
Set the baud rate at code switch ❽ (switches S8 to S10) in accordance with the baud rate table, using e.g. a screwdriver with a small tip.

Note

The maximum baud rates and cable lengths are based on empirical values obtained by GESTRA. In practice, it may become necessary to reduce the baud rate to ensure trouble-free operation.

Voltage supply of CAN bus

An adequately dimensioned power supply is a prerequisite for trouble-free operation of a CAN bus system.

Please check the power supply of your bus system with the aid of the following table.

Electrical Connection – continued –

Voltage supply of CAN bus – continued –

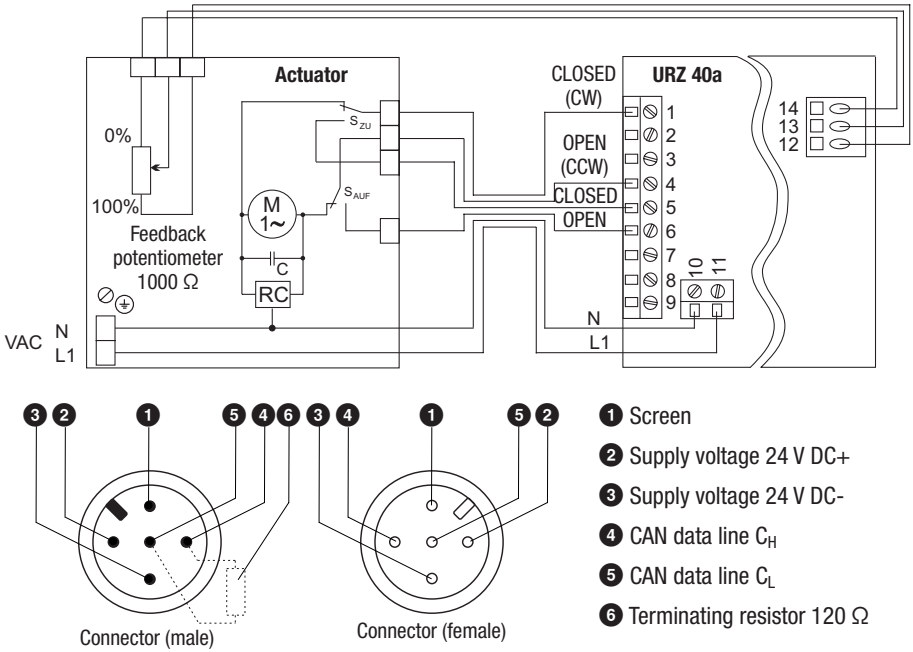
Controllers with power supply	Qty	x	Power output per item of equipment	=	**Sum 1**
		x	**6 W**	=	**W**
Sensor, transmitter, control elements, control terminal & display unit URB 1	Qty	x	Power output per item of equipment	=	**Sum**
		x	**3 W**	=	**W**
Control terminal & display unit URB 2		x	**5 W**	=	**W**
			Sum 2	=	**W**

If sum **2** exceeds sum **1**, provide the CAN bus with 24 V DC from a separate, stabilized safety power supply unit (e.g. SITOP Smart 24 V 2.5 A).

The power supply unit must meet the requirements of DIN VDE 0106 (safe isolation) and be provided with an overcurrent protective device according to EN 61010-1/VDE 0411.

In this case, the CAN bus power supply must not be connected to the control units (terminals 1 and 5).

Wiring diagram for control element URZ 40a



❶ Screen
❷ Supply voltage 24 V DC+
❸ Supply voltage 24 V DC-
❹ CAN data line C_H
❺ CAN data line C_L
❻ Terminating resistor 120 Ω

Pin assignment of male and female connectors for CAN bus lines

Fig. 4

Electrical Connection – continued –

Attention

- Wire the CAN bus in series. Star-type wiring is not permitted!
- Connect the screens of bus lines **once** to the central earthing point (CEP).
- If two or more system components are connected in a CAN bus system, provide the first and the last device with a terminating resistor of 120 Ω (terminal C_L / C_H).
- The CAN bus network must not be interrupted during operation!
  Note that an interruption will trigger an alarm.

Tools

- Screwdriver for slotted screws, size 2.5, completely insulated according to VDE 0680-1
- Screwdriver for cross-recess screws, size 2
- Screwdriver (5.5/100)

Basic Settings

Factory setting

Control element URZ 40a

The control element URZ 40a has the following factory-set default values:

- Node ID: 049
- Baud rate: 250 kBit/s (125 m cable length)
- Code switch Ⓖ: All switches in the position OFF

Commissioning

Danger

The terminal strips of the control element URZ 40a are live when the unit is in operation!

There is a possibility of serious injury by electrical current.

Before starting work on the terminal strips (installation, dismantling, connecting the cables), the unit **must always be isolated** from the electrical supply!

Safety note

For commissioning, however, the supply voltage must be switched on again. The equipment must therefore only be installed and commissioned by qualified and competent staff.

Attention

Before starting with commissioning, switch the code switch Ⓖ S2 to ON (manual operation)!

Checking the electrical connection

Before commissioning, please check the following:

- Are the limit switches and the feedback potentiometer connected correctly according to the wiring diagram?
- Is the wiring of all the CAN bus devices in accordance with the wiring diagrams?
- Is the polarity correct throughout the whole bus line?
- Is the bus line of both of the end nodes provided with a 120 Ω terminating resistor?

Switching on the supply voltage

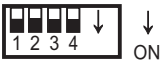
Switch on the supply voltage for the CAN bus system and for the motor.

The green bus LED 4 then flashes or is illuminated, **Fig. 6**.

Check the supply voltage of the CAN bus system. The two end-of-line devices must be supplied with a voltage of > 24 V DC. If this is not the case, check the supply voltage of the CAN bus; see section “Electrical Connection”.

Configuring the control element URZ 40a

The configuration is set at the **code switch Ⓖ**, **Fig. 3**. To do this, open the enclosure and set the switches S1 to S4 in accordance with the table by means of a small-tipped screwdriver.

Ⓖ 

Toggle switch = white

Configuring the control element URZ 40a – continued –

Code switch Ⓖ		Function
S1	OFF	Actuator safety position CLOSED
	ON	Actuator safety position OPEN
S2	OFF	Automatic operation
	ON	Manual operation
S3	OFF	Calibration of feedback potentiometer not active
	ON	Calibration of feedback potentiometer active by pressing button
S4	OFF	Monitoring of limit switch; switch functions as a make contact
	ON	Monitoring of limit switch; switch functions as a break contact

Actuator safety position

Switch Ⓖ S1 is used to define the safety position of the actuator.
The actuator motors into the preset safety position if

- the data sending cycle is interrupted or
- there is a malfunction in the feedback potentiometer.

Calibrating the feedback potentiometer

The actuator is equipped with a feedback potentiometer for indicating the valve position.
Please calibrate the feedback potentiometer as follows:

- Press the blue button until the limit switch CLOSED switches off the actuator.
- Set the code switch Ⓖ S3 to the position ON and press the blue button again. This calibrates the 0 % valve position.
- Set the code switch Ⓖ S3 to the position OFF again.
- Press the red button until the limit switch OPEN switches off the actuator.
- Set the code switch Ⓖ S3 back to the position ON and press the red button again. This calibrates the 100 % valve position.
- After completing the calibration procedure, set the code switch Ⓖ S3 back to the position OFF.

The green LED 1 flashes during the calibration procedure, **Fig. 5.**

Monitoring of the limit switches

If the contacts of the limit switches are directly accessible, the control element URZ 40a can also be used to monitor the function of the switches. In this case, the indicating signal must be configured according to the operational mode of the limit switches.

- If the limit switches function as break contacts for the indicating signal, set the code switch Ⓖ S4 to the position ON.
- If the limit switches function as make contacts for the indicating signal, then set the code switch Ⓖ S4 to the position OFF.

On completion of commissioning:

- Set the code switch Ⓖ S2 back to OFF (automatic operation).
- Replace the housing lid Ⓑ and tighten the lid screws Ⓐ.

Operation

Automatic operation

The yellow LED 2 flashes while the actuator is energized and the valve is moving, **Fig. 5.**
LED 2 remains illuminated when the actuator has reached its limit position.

Manual operation

Open the enclosure and set the code switch Ⓖ S2 to the position ON (manual operation). The green LED 1 flashes rapidly. Depending on the desired direction, press the blue button (actuator closes) or the red button (actuator opens). The yellow LED 2 flashes while the button is pressed and remains illuminated when the limit position has been reached, **Fig. 5.**

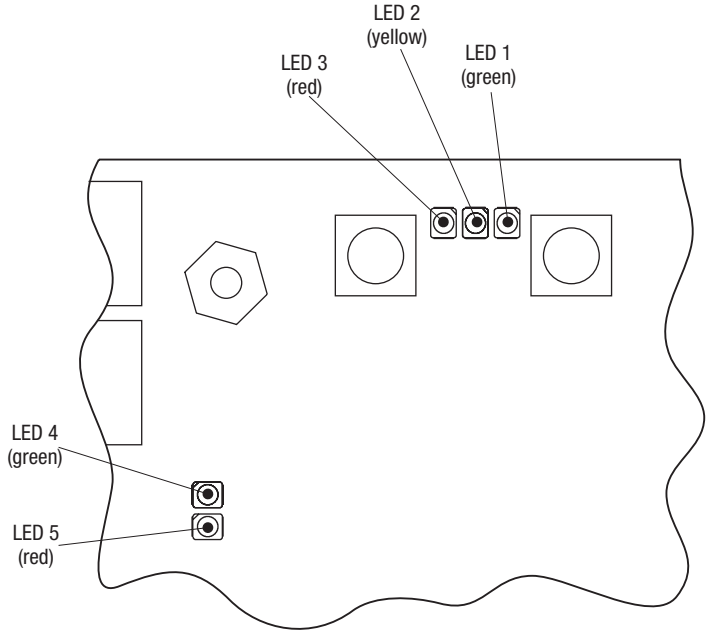


Fig. 5

LED 1 – 4, meaning of the displays

Display	Status
LED 1 is illuminated	Control element is in operation
LED 1 is flashing	Feedback potentiometer is being calibrated
LED 1 is flashing rapidly	Control element is in manual mode
LED 2 is flashing	Actuator is energized and moving the valve
LED 2 is illuminated	Actuator has reached its limit position
LED 4 is illuminated	CAN node has been started

System Malfunctions

LED 2 – 5, error indicators and remedial action

Display	Possible cause	Remedy
LED 3 is flashing	No communication possible between **control element URZ 40a** and the **control unit**	Check the 24 V bus supply, wiring, configuration of the LW electrodes (jumpers), node ID, baud rate and terminating resistors. After making any changes, switch off the mains voltage, wait approx. 5 sec. and then switch on again.
	No communication possible between **control element URZ 40a** and the **control unit**. Malfunction occurs after lengthy intervals.	There is a source of interference near the equipment. Suppress interference from contactors and actuators by installing RC combinations as per manufacturer's instructions. Take measures against high-frequency interference.
LED 3 is flashing slowly	Admissible temperature within the enclosure of the control element has been exceeded.	Check installation of the control element.
LED 3 is flashing rapidly	Malfunction in the feedback potentiometer, or limit switch defective, or supply voltage for the motor is missing.	Check the supply voltage and actuator.
LED 5 is flashing	Faulty communication in the CAN bus system.	Check the 24 V bus supply, wiring, configuration of the level limiters, node ID, baud rate and terminating resistors. After making any changes, switch off the mains voltage, wait approx. 5 sec. and then switch on again.

Measures against high-frequency interference

Provide all connected contactors and actuators with RC combinations (according to the manufacturer's instructions) in order to suppress interference.

Should sporadic failures occur in installations susceptible to faults (e.g. malfunctions due to out-of-phase switching operations), we recommend the following measures for suppressing interference:

HF interference suppression of the power supply by means of ferrite rings, and
HF interference suppression of the CAN bus line by means of hinged-shell ferrite rings.

Causes

Malfunctions occur if CAN bus components have been mounted or configured incorrectly or if electronic component parts are defective, or in the event of excessive heat in the equipment or electrical interference in the supply system. Further malfunctions include:

- Faulty communication in the CAN bus system
- 24 V PSU in the control unit is overloaded.

Note

Before carrying out the systematic fault finding procedure, please check:

Wiring:
Is the wiring in accordance with the wiring diagrams?
Is the polarity correct throughout the whole bus line?
Is the bus line of each of the end nodes provided with a 120 Ω terminating resistor?

Node ID:
Are all the node IDs set correctly?
Do not use a node ID twice!

Baud rate:
Is the length of the cable in accordance with the adjusted baud rate?
Is the baud rate the same for all devices?

Systematic malfunction analysis

The sources of malfunctions occurring in CAN bus systems operating with several bus-based stations must be analysed systematically, since faulty components or incorrect settings can give rise to negative interactions with intact bus devices in the CAN bus system. These unwanted interactions can cause error messages in fully functional bus devices, which will make fault detection even more difficult.

System Malfunctions – continued –

Systematic malfunction analysis – continued –

We recommend the following faultfinding procedure:

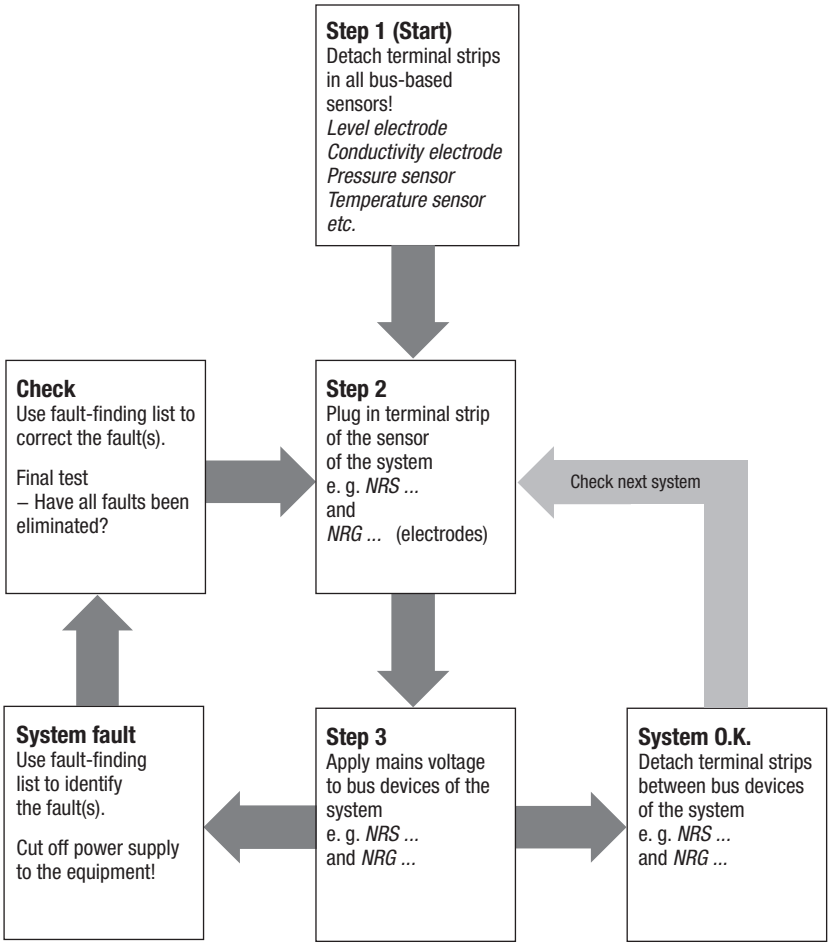


Fig. 6

If faults occur that are not listed above or cannot be corrected, please contact our service centre or authorized agency in your country.

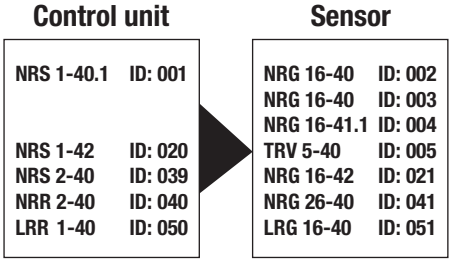
CAN Bus Settings

CAN bus

All level, conductivity and temperature controllers and the associated electrodes are interconnected by means of a CAN bus using the CANopen protocol. All devices have an electronic address – the node ID. The four-core bus cable serves as power supply and data highway for high-speed data exchange.

The CAN address (node ID) can be set between 2 and 122.

Factory setting of the node IDs



Individual node IDs must be set manually at the device itself. Please observe the corresponding installation manuals of the equipment!

Node ID

If the devices are to be assigned different node IDs, the node IDs for the individual nodes must be defined as follows, because of their mutual dependency:

Example of continuous blowdown control

Control element URZ 40a for electrical actuators with AC motor	Controller LRR 1-40	Conductivity electrode LRG 1.-40	Spare	
X – 1	X	X + 1	X + 2	
49	50	51	52	**Factory setting**

Reserved range

Changing the node ID

With the enclosure open:
Set the baud rate at switches S1 to S7 of code switch **H** **(Fig. 3)** in accordance with the table of node IDs **(Fig. 7)**, using e.g. a screwdriver with a small tip.

CAN Bus Settings – continued –

Danger

The terminal strips of the control element URZ 40a are live when the unit is in operation!

There is a possibility of serious injury by electrical current.

Before starting work on the terminal strips (installation, dismantling, connecting the cables), the unit **must always be isolated** from the electrical supply!

Attention

A node ID must never be used twice in a CAN bus system.
The node ID 0 is not permitted.

Table of node IDs

A maximum of 123 nodes (devices) can be managed on a CAN bus. Each node is given a separate address (node ID), which can be set at the 10-pole code switch ❶, **Fig. 3**.

❶ 

Toggle switch = white

		Node ID	49
S1	**ON**	1	
S2	OFF	2	
S3	OFF	4	
S4	OFF	8	
S5	**ON**	16	
S6	**ON**	32	
S7	OFF	64	

(Factory setting)

❶ 

Toggle switch = white

		Node ID	89
S1	**ON**	1	
S2	OFF	2	
S3	OFF	4	
S4	**ON**	8	
S5	**ON**	16	
S6	OFF	32	
S7	**ON**	64	

(Example)

Fig. 7

S 8	S 9	S 10	Baud rate	Cable length
OFF	**ON**	**OFF**	**250 kBit/s**	**125 m**
Factory setting				
ON	ON	OFF	125 kBit/s	250 m
OFF	OFF	ON	100 kBit/s	335 m
ON	OFF	ON	50 kBit/s	500 m
OFF	ON	ON	20 kBit/s	1000 m
ON	ON	ON	10 kBit/s	1000 m

CAN Bus Message

Object dictionary

Index (hex)	Subindex (hex)	Access	Data type	Designation	Description
Tx PDO 1					
2001	1	RO	Uint8	VIst	Valve actual pos. in %
2001	2	RO	Uint8	VSol	Valve required pos. in %
2001	3	RO	Uint8	VHys	Hysteresis in %
2001	4	RO	Uint8	VSts	Status
2001	5	RO	Uint8	VErr	Error messages
2001	6	RO	Uint8	VTmp	Temperature in the enclosure in °C
2001	7	RO	Uint16	VRoh	Filtered raw value from potentiometer
Tx PDO 2					
2005	1	RO	Uint16	Kal0	Calibration value 0 %
2005	2	RO	Uint16	Kal1	Calibration value 100 %
2005	3	RO	Uint16	VRoh	Filtered raw value from potentiometer
2005	4	RO	Uint8	TmpSW	Temperature switching threshold
2005	5	RO	Uint8	TiOut	TimeOut in 100 ms
Calibration parameters					
2003	1	RW	Uint16	Kal0	Calibration value 0 %
2003	2	RW	Uint16	Kal1	Calibration value 100 %
2003	3	RW	Uint16	KaIm	Minimum digit spacing
Other settings					
2004	1	RW	Uint8	TmpSW	Temperature switching threshold
2004	2	RW	Uint8	TiOut	TimeOut in 100 ms
2004	3	RW	Uint8	VHys	Hysteresis in %
2004	4	RW	Uint8	VBlock	Blocking detection in 100 ms

PDO

Ident	Statically mapped objects
T x PDO 1 self	2001 01, 2001 02, 2001 03, 2001 04, 2001 05, 2001 06, 2001 07
T x PDO 2 self	2005 01, 2005 02, 2005 03, 2005 04, 2005 05

CAN Bus Message – continued –

Information contained in the CAN bus transmit message (PDO 1)

Identifier URZ 40a	**180 (hex) + node ID**
Byte 0	Valve actual pos. in %
Byte 1	Valve required pos. in %
Byte 2	Hysteresis in %
Byte 3 Status	Bit 0 (0 x 01) Valve closing actuated Bit 1 (0 x 02) Valve opening actuated Bit 2 (0 x 04) Limit position closed Bit 3 (0 x 08) Limit position open Bit 4 (0 x 10) Remote operation Bit 5 (0 x 20) Automatic operation (direct with probe) Bit 6 (0 x 40) Manual operation Bit 7 (0 x 80) Calibration (0 x 0 x) Safety position actuated
Byte 4 Fault	Bit 0 (0 x 01) TimeOut / BusOff Bit 1 (0 x 02) Limit switch plausibility Bit 2 (0 x 04) Actuator blocked Bit 3 (0 x 08) Potentiometer fault (cable break, short circuit) Bit 4 (0 x 10) Temperature threshold exceeded Bit 5 (0 x 20) Both buttons pressed Bit 6 (0 x 40) Calibration error Bit 7 (0 x 80) 230 V not available
Byte 5	Temperature in the enclosure in °C
Byte 6: H Byte 7: L	Filtered raw value from potentiometer

Information contained in the CAN bus transmit message (PDO 2)

Identifier URZ 40a	**280 (hex) + node ID**
Byte 0: H Byte 1: L	Calibration value 0 %
Byte 2: H Byte 3: L	Calibration value 100 %
Byte 4: H Byte 5: L	Filtered raw value from potentiometer
Byte 6	Temperature switching threshold
Byte 7	TimeOut in 100 ms

CAN Bus Message – continued –

Valve control

	Data type	Designation	Description
R x PDO 1 Automatic identifier URZ 40a: 200 (hex) + node ID			
Byte 0: H Byte 1: L	Uint16	Signature	Fixed at 5A3A hex
Byte 2	Uint8	AMode	Automatic only 20 hex
Byte 3	Uint8	Set point	Set point in %
R x PDO 2 Remote identifier URZ 40a: 300 (hex) + node ID			
Byte 0: H Byte 1: L	Uint16	Signature	Fixed at 5A3A hex
Byte 2	Uint8	RMode	Auto 20 hex, manual 40 hex
Byte 3	Uint8	Set point / cmd	Set point in % or command

RMode = manual (command)	
55 hex	Open the valve
AA hex	Close the valve
00 hex	Stop the valve
3A hex	Use current position as 0 % calibration value
A3 hex	Use current position as 100 % calibration value
nn hex	Stop the valve

Priorities	
Manual / calibration	Highest priority
Remote	
Automatic	Lowest priority

Note

The PDO must be transmitted cyclically at certain intervals, otherwise the device will respond with TimeOut. The factory setting for the transmit cycle is 5 seconds.

The switching threshold for TimeOut can be adjusted under: Object Dictionary, Other Settings, 2004 hex, Subindex 2 (units in 100 ms).

Decommissioning

Danger

The terminal strips of the control element URZ 40a are live when the unit is in operation!

There is a possibility of serious injury by electrical current.

Before starting work on the terminal strips (installation, dismantling, connecting the cables), the unit **must always be isolated** from the electrical supply!

URZ 40a

First disconnect the limit switches, the feedback potentiometer and the motor, and then pull the cables out of the cable glands. Pull off the male and female connectors of the CAN bus lines, and then connect them to each other.

Attention: An interruption of the CAN bus line will trigger an alarm.

Dismantle the control element URZ 40a.

Disposal

URZ 40a

Dismantle the control element URZ 40a and separate the waste materials according to the list of materials.

Electronic components (e.g. circuit boards) must be disposed of separately!

For the disposal of the control element, observe the statutory regulations on waste disposal.

Appendix

Declaration of Conformity CE

We hereby declare that the control element **URZ 40a** conforms to the following European Directives:

- Low Voltage Directive (LVD) 73/23/EEC, as amended by 93/68/EEC
- EMC Directive 89/336/EEC, as amended by 93/68/EEC

This declaration is no longer valid if modifications are made to the equipment without prior consultation with us.

Bremen, 20 June 2006
GESTRA AG

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818958-00/05-2010cm (808722-01) · GESTRA AG · Bremen · Printed in Germany