

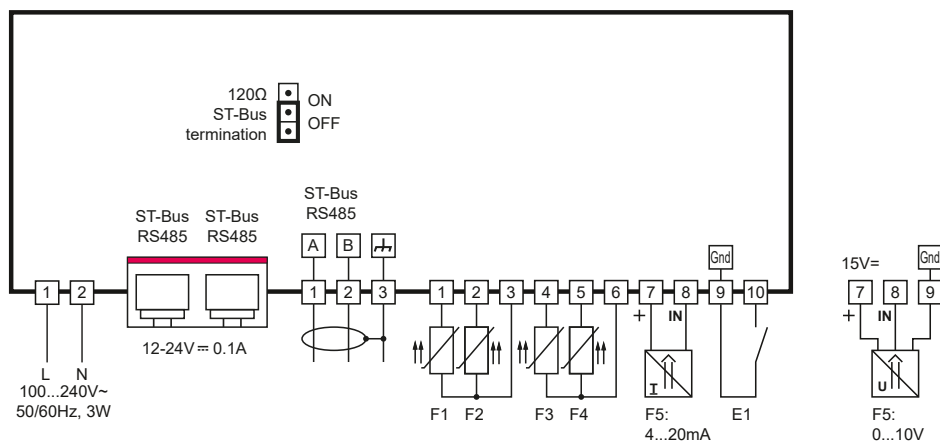
Sensor module

Order no.: 900440.010

As of: 24.04.2026



Wiring diagram



Product description

The sensor box is used in a networked system for the decentralised detection and evaluation of external sensors and actuators that cannot be detected by the temperature controllers connected to the network. These can be temperature sensors or switching contacts, for example, which are connected to the sensor box over a short distance and whose measured values are transmitted loss-free via the ST-Bus.

The device is designed for the connection of up to four resistance sensors and also has an analogue input for 4-20mA or 0-10V for humidity measurement and a switching input.

The address is set using rotary coding switches.

Sensor: Multisensor
Dimensions: 151.5 x 80 x 41 mm / 5.97 x 3.15 x 1.62 in (without connectors)
Tightness: IP20
Connectors: WAGO, RJ45, Screw terminals

Safety instructions



Electrostatically sensitive device

Do not reach into the circuit or into the connectors!
Before working on the device, ensure potential equalisation.



Only insert the plugs in a de-energised state!

Plugging under voltage leads to wear of the contacts and malfunction.

- **Electrical connection is only permitted to authorised technicians**
- The device and the corresponding installations contain live parts. Under no circumstances must the housing be opened by the user. At possible contact with live parts, the equipment is to be separated 2-pole from the supply.
- All sensor and signal lines should be locally separated from mains voltage lines, and not be parallel laid, in order to avoid capacitive or inductive linking.
- No further consumers are to be connected to the net clamps of the controller.
- Do not operate the device in an environment with risk of explosion.
- Disconnect the power plug from the AC outlet if the device is not being used for a long period of time.
- Use isolated supply source while connecting to DC supply via ST-Bus.
- Place the device in a well-ventilated area. Do not place anything on the device that prevents heat dissipation.
- The maximum mounting height is 2 meters from the floor.

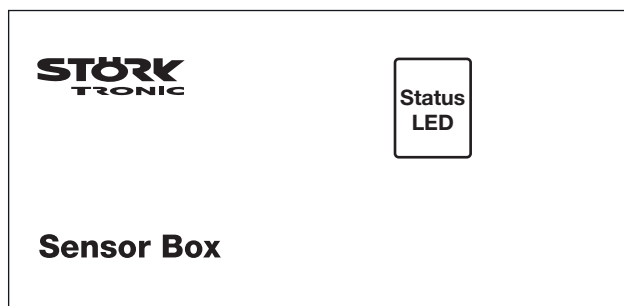
Appropriate use

Installation, connection and commissioning may only be carried out by a qualified electrician.
Arbitrary interventions and manipulations are not permitted.

Device suitable for indoor installation, protect from direct sunlight and UV radiation.



The Sensor Box has a clearly visible status LED that can display the following information:



Blinking red: Active error is present



Lights up green: Device in normal condition, no errors

A parameters

The limit alarms check, if enabled, the measured sensor value against the set limits. If the value goes below or above the corresponding limit value for longer than the set delay time, an alarm is triggered. Only if the measured value returns within the given limits +/- the given hysteresis, the alarm is reset

Name	Description	Setting range	Default value	
A 0	Alarm suppression after power on	1 ... 1440 min	180 min	
Limit alarm 1				
A10	Limit alarm 1: Mode	0: Deactivated 1: Check lower limit 2: Check Upper limit 3: Check lower and upper limit	0	
A11	Limit alarm 1: Lower Limit	-199.0 °C ... A12 / -326°F ... A12	-10.0 °C / 14.0 °F	
A12	Limit alarm 1: Upper Limit	A11 ... 999.0 °C / A11 ... 1830 °F	10.0 °C / 50.0 °F	
A13	Limit alarm 1: Hysteresis	0.1 ... 99.0 °C / 0.2 ... 178 °F	1.0 °C / 1.8 °F	
A14	Limit alarm 1: Delay for alarm	0 ... 999 s	120 s	
Limit alarm 2				
A15	Limit alarm 2: Mode	see A10	0	
A16	Limit alarm 2: Lower Limit	-199.0 °C ... A17 / -326°F ... A17	-10.0 °C / 14.0 °F	
A17	Limit alarm 2: Upper Limit	A16 ... 999.0 °C / A16 ... 1830 °F	10.0 °C / 50.0 °F	
A18	Limit alarm 2: Hysteresis	0.1 ... 99.0 °C / 0.2 ... 178 °F	1.0 °C / 1.8 °F	
A19	Limit alarm 2: Delay for alarm	0 ... 999 s	120 s	
Limit alarm 3				
A20	Limit alarm 3: Mode	see A10	0	
A21	Limit alarm 3: Lower Limit	-199.0 °C ... A22 / -326°F ... A22	-10.0 °C / 14.0 °F	
A22	Limit alarm 3: Upper Limit	A21 ... 999.0 °C / A21 ... 1830 °F	10.0 °C / 50.0 °F	
A23	Limit alarm 3: Hysteresis	0.1 ... 99.0 °C / 0.2 ... 178 °F	1.0 °C / 1.8 °F	
A24	Limit alarm 3: Delay for alarm	0 ... 999 s	120 s	
Limit alarm 4				
A25	Limit alarm 4: Mode	see A10	0	
A26	Limit alarm 4: Lower Limit	-199.0 °C ... A27 / -326°F ... A27	-10.0 °C / 14.0 °F	
A27	Limit alarm 4: Upper Limit	A26 ... 999.0 °C / A26 ... 1830 °F	10.0 °C / 50.0 °F	
A28	Limit alarm 4: Hysteresis	0.1 ... 99.0 °C / 0.2 ... 178 °F	1.0 °C / 1.8 °F	
A29	Limit alarm 4: Delay for alarm	0 ... 999 s	120 s	
Limit alarm 5				
A30	Limit alarm 5: Mode	see A10	0	
A31	Limit alarm 5: Lower Limit	-199.0 [H35] ... A32	-10.0 [H35]	
A32	Limit alarm 5: Upper Limit	A31 ... 999.0 [H35]	10.0 [H35]	
A33	Limit alarm 5: Hysteresis	0.1 ... 99.0 [H35]	1.00 [H35]	
A34	Limit alarm 5: Delay for alarm	0 ... 999 s	120 s	
A99	Password A level	-99..999	0	

b parameters

When activated (**b60** = 1), the digital input will trigger an alarm **b62** [seconds] after the contact is closed.
If **b61** is set to 1, the alarm will be triggered after the contact opens instead.

Name	Description	Setting range	Default value	
b60	E1 Function	0: disabled 1: Error E1	0	
b61	E1 inversion	0: not inverted 1: inverted	0	
b62	E1 Alarm delay	0 ... 999s	0 s	
b99	Password b level	-99..999	0	

H parameters

Name	Description	Setting range	Default value	
H01	Mains frequency	0: Auto 1: 50Hz 2: 60Hz	0	
H10	Actual value sensor F1	-		
H11	Offset correction sensor F1	-15.0...+15.0 °C / -27.0...+27.0 °F	0.0 °C / 0.0 °F	
H13	Sensor selection F1	0: disabled 1: PTC (KTY81-121) (°C) 2: Pt1000 (2-wire) (°C) 3: Pt100 (2-wire) (°C) 4: NTC	3	
H14	Software filter F1	1 ... 128	30	
H15	Actual value sensor F2	-		
H16	Offset correction sensor F2	-15.0...+15.0 °C / -27.0...+27.0 °F	0.0 °C / 0.0 °F	
H18	Sensor selection F2	See H13	0	
H19	Software filter F2	1 ... 128	30	
H20	Actual value sensor F3	-		
H21	Offset correction sensor F3	-15.0...+15.0 °C / -27.0...+27.0 °F	0.0 °C / 0.0 °F	
H23	Sensor selection F3	See H13	0	
H24	Software filter F3	1..128	30	
H25	Actual value sensor F4	-		
H26	Offset correction sensor F4	-15.0...+15.0 °C / -27.0...+27.0 °F	0.0 °C / 0.0 °F	
H28	Sensor selection F4	See H13	0	
H29	Software filter F4	1 ... 128	8	
H30	Actual value sensor F5	-		
H31	F5 reference value at 4mA/0V	-999.9 ... H32 (-99.99 for pressure)	0.00	
H32	F5 reference value at 20mA/10V	H31 ... 999.9 (99.99 for pressure)	99.99	
H33	F5 sensor type	0: deactivated 1: 4-20mA 2: 0-10V	0	
H34	F5 software filter	1..128	8	
H35	Unit selection F5	1: 0.00 Bar (absolute, "barA") 2: 0.00 Bar (relative, "barg") 3: 0.0 °C 4: 0.0 % 5: 0.0 % RH 6: 0.0 µ Siemens 7: 0.0 cm	1	
H40	NTC reference 1 temperature	H46 ... H47 °C/°F	-40 °C / -40 °F	
H41	NTC reference 1 resistance	0.01 ... 500.00 kΩ	188.50 kΩ	
H42	NTC reference 2 temperature	H46 ... H47 °C/°F	0 °C / 32 °F	
H43	NTC reference 2 resistance	0.001 ... 50.000 kΩ	27.280 kΩ	
H44	NTC reference 3 temperature	H46 ... H47 °C/°F	40 °C / 104 °F	
H45	NTC reference 3 resistance	0.001 ... 50.000 kΩ	5.827 kΩ	
H46	Maximum temperature NTC	H47 ... 300 °C / H47 ... 572 °F	150 °C / 302 °F	
H47	Minimum temperature NTC	-100 ... H46 °C / -148 ... H46 °F	-50 °C / -58 °F	
H62	H62 not active			
H63	H63 not active			
H64	H64 not active			
H66	H66 not active			
H67	H67 not active			
H68	H68 not active			
H69	H69 not active			
H99	Password H level	-99..999	0	

J parameters

Name	Description	Setting range	Default value	
J01	Parameter set	0: -	0	
J02	Restore parameter set	0: deactivated +1: Setpoints +2: Controller configuration +4: Operating hours +8: Passwords +16: Network parameters (L0, L10-L13)	0	
Jr1	Software version	-		
Jrc	Jrc Internal			
JH1	JH1 Internal			
JH2	JH2 Internal			
RSC	RSC Internal			
RSS	RSS Internal			
DBG	DBG Internal			
FIF	FIF Internal			
PA	Password parameter level	-99..999	-38	
PU	Password USr level	-99..999	-19	
J99	Password level J	-99..999	0	

L parameters

Set ST-Bus address



Rotary encoder with setting range 0...99



The sensor module can be addressed via the ST-Bus to the address set here. Each bus device must have its own address. No addresses may occur more than once.

The bus address is either set by using the rotary encoder on the controller board or, in case the encoder is set to 0, the value of **L0**.

The encoder should only be changed while the board is not powered. In any case the system needs a power cycle for the changed encoder value to be applied.

Changes to **L0**, when used, will be applied immediately.

Note: Both values can be set differently, but **L0** is only effective if the rotary coding switch = 0!

Parameter	Function description	Setting range	Default value	
L0	Own address ST-Bus	1 ... 250	1	
L99	Password L level	-99 ... 999	0	

Parameter description

A0 Alarm suppression after power on

Triggering of an alarm is suppressed for the set time after powering on the sensor box. This is to allow the device to reach the working temperature range without triggering of an alarm.

A10, A15, A20, A25, A30

Mode of Limit alarm 1...5

Here you can activate the respective alarm. You can use either only the lower or upper limit or both.

A11, A16, A21, A26, A31

Lower limit of Limit alarm 1...5

A12, A17, A22, A27, A32

Upper limit of Limit alarm 1...5

These limit values are used for monitoring the respective measuring value. They are absolute values. If the value increases above or falls below the upper and lower limits, an alarm as specified in **A10** will be triggered after the time set with **A14**.

A13, A18, A23, A28, A33

Hysteresis of Limit alarm 1...5

The alarm contact hysteresis is set asymmetrically, downward at the upper alarm value and upward at the lower alarm point.

A14, A19, A24, A29, A34

Alarm delay of Limit alarm 1...5

If the measured value exceeds the limits set above, an alarm will be triggered. Based on the alarm delay time set here, triggering of the alarm will be delayed.

A99 Password for parameter level A–

With this parameter, you can set the password for parameter level **A–**.

b60 Function E1

An error contact function can be assigned to this switching input.

b61 Switching mode E1

Here, you can define if the switching input is used in normal mode (activated when closed) or inverted mode (activated when opened).

b62 Alarm delay of input E1

Based on the alarm delay time set here, triggering of the alarm will be delayed after the contact is activated.

b99 Password for parameter level b–

With this parameter, you can set the password for parameter level **b–**.

H1 Mains frequency

In this parameter, you must define the mains frequency.

H10, H15, H20, H25

Actual value sensor F1 ... F4

These parameters show the actual value of the respective sensor. They are calculated as:

Actual value =
actual measured value + offset correction

Actual value correction must be defined in the following parameters. This corrects actual value deviations due to unfavourable sensor location.

H11, H16, H21, H26

Offset correction F1...F4

With these parameters it is possible to correct actual value deviations caused by sensor tolerances, very long sensor cables or structural protections (e.g. ex-barriers), for example. The value defined here is added to the measured value.

H13, H18, H23, H28

Sensor selection F1...F4

With this parameter, you can define the sensor type.

H14, H19, H24, H29, H34

Software filter F1...F5

In these parameters, you can define how many measured values are to be used for calculating a mean value. A mean value is calculated from the last measured values, with the oldest measured value being deleted (so called "Moving Average Filter").

H30 Actual value sensor F5

This parameter shows the actual value of the sensor F5.

H31: Value F5 4mA / 0V

You can define via this parameter which value is to be displayed in the case of a current of 4mA/0V. The value to be displayed for 20mA/10V can be defined in the next parameter. The actual measured value is calculated as linear interpolation between these two values.

H32: Value F5 20mA / 0V

You can define via this parameter which value is to be displayed in the case of a current of 20mA/10V. The display value for 4mA/0V is defined in the previous parameter. The actual measured value is calculated as linear interpolation between these two values.

H33 Sensor type F5

With this parameter, you can define the sensor type of sensor F5 (current or voltage sensor).

H35 Unit selection F5

Here you can define a unit for sensor F5. This is used to show the unit in a connected display unit (Commander).

H40 ... H47

These parameters are used to define the characteristics of an NTC sensor, if used.

H99 Password for parameter level H–

With this parameter, you can set the password for parameter level **H–**.

J1 Parameter set

This parameter is to set certain predefined data sets. These are preset by Störk-Tronic. If a new data set is imported, all previously set parameters are overwritten. They can be changed freely afterwards.

J2 Parameter Reset

With this parameter the parameters of the current parameter set (see **J1**) can be reset to their default settings.

To determine the value of the parameters to be reset, the values of the following bit mask must be added.

Bit	Value	Function
0	+1	Setpoints
1	+2	Controller configuration
2	+4	Operating hours
3	+8	Passwords
4	+16	Network parameters

Depending on the set bit, the corresponding parameters are reset to factory settings, depending on the current parameter set (according to **J1**).

Jr1 Software version

Here, the software version of the controller is displayed.

J99 Password for parameter level J–

With this parameter, you can set the password for parameter level **J–**.

L0 ST-bus own address

With the address set here, the Sensor Box can be addressed via the ST-Bus. Each bus client must have its own address. Addresses must be unique, i.e. must not be assigned several times.

L99 Password for parameter level L–

With this parameter, you can set the password for parameter level **L–**.

**Usr level**

Name	Function	Setting range	Default value	
H13	Sensor selection F1	0: deactivated 1: PTC (KTY81-121) (°C/°F) 2: Pt1000(°C/°F) 3: Pt100 (°C/°F) 4: NTC (°C/°F)	3	
H18	Sensor selection F2	see H13	0	
H23	Sensor selection F3	see H13	0	
H28	Sensor selection F4	see H13	0	
H33	Sensor selection F5	0: deactivated 1: Current (4mA - 20 mA) 2: Voltage (0 - 10 V)	0	

Ram values

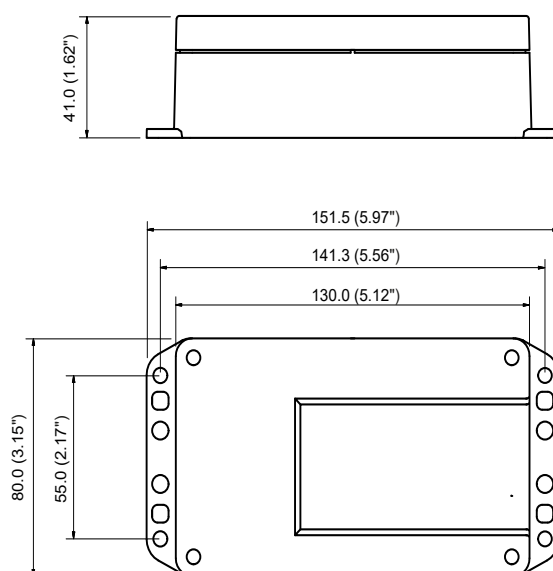
Bus ID	Function
H10	Sensor 1
H15	Sensor 2
H20	Sensor 3
H25	Sensor 4
H30	Sensor 5
FF1	Intern
FF2	Intern
FF3	Intern
FF4	Intern
FF5	Intern
FF6	Intern
FRQ	Measured frequency on mains
ZCU	Measured voltage on mains

Status messages

These messages can be indicated by any connected Commander, Connect, Cloud Connect or ST-Studio.

Mes- sage	Cause	Action
F1L	Short circuit at F1 or sensor not connected, but not deactivated with H13=0	Connect sensor or deactivate it with H13=0 .
F1H	Sensor F1 open or not connected, but not deactivated with H13=0	Connect sensor or deactivate it with H13=0 .
F2L	Short circuit at F2 or sensor not connected, but not deactivated with H18=0	Connect sensor or deactivate it with H18=0 .
F2H	Sensor F2 open or not connected, but not deactivated with H18=0	Connect sensor or deactivate it with H18=0 .
F3L	Short circuit at F3 or sensor not connected, but not deactivated with H23=0	Connect sensor or deactivate it with H23=0 .
F3H	Sensor F3 open or not connected, but not deactivated with H23=0	Connect sensor or deactivate it with H23=0 .
F4L	Short circuit at F4 or sensor not connected, but not deactivated with H28=0	Connect sensor or deactivate it with H28=0 .
F4H	Sensor F4 open or not connected, but not deactivated with H28=0	Connect sensor or deactivate it with H28=0 .
F5L	Short circuit at F5 or sensor not connected, but not deactivated with H33=0	Connect sensor or deactivate it with H33=0 .
F5H	Sensor F5 open or not connected, but not deactivated with H33=0	Connect sensor or deactivate it with H33=0 .
Tmin1	Measured value at F1 below alarm limit A11	
Tmax1	Measured value at F1 above alarm limit A12	
Tmin2	Measured value at F2 below alarm limit A16	
Tmax2	Measured value at F2 above alarm limit A17	
Tmin3	Measured value at F3 below alarm limit A21	
Tmax3	Measured value at F3 above alarm limit A22	
Tmin4	Measured value at F4 below alarm limit A26	
Tmax4	Measured value at F4 above alarm limit A27	
Tmin5	Measured value at F5 below alarm limit A31	
Tmax5	Measured value at F5 above alarm limit A32	
E1	Alarm "E1" (see parameter b60)	
EP0	Error program memory	Repair Sensor Box
EP1	Error parameter memory	Repair Sensor Box

Digital inputs	E1:	external potential-free contact, supplied from the controller with approx. 5mA		
Measuring inputs	F1:	Resistance sensor PTC, NTC, Pt100-2, Pt1000-2		
	F2:	Resistance sensor PTC, NTC, Pt100-2, Pt1000-2		
	F3:	Resistance sensor PTC, NTC, Pt100-2, Pt1000-2		
	F4:	Resistance sensor PTC, NTC, Pt100-2, Pt1000-2		
		Measuring range:	Pt100-2	-100...+450°C -148°F ... +842°F
			PTC	-50...+150°C -58°F ... +302°F
			NTC	-50...+150°C -58°F ... +302°F
		Pt1000	-150...+400°C -238°F ... +752°F	
	F5:	Current sensor	I	4 ... 20mA
		Voltage sensor	U	0 ... 10V
Measuring accuracy in relation to the controller at 25°C / 77°F: +/-0.5 °C / +/-0.9 °F and +/-0.5% of the measuring range				
Power supply	100-240V~, 50/60 Hz 12-24V= via ST-Bus (isolated voltage), 100 mA Power consumption: 3 W			
Connectors	WAGO, 2 pole, spacing 4.4 mm 2x RJ45 Screw terminal, 3-pole, spacing 3.5mm/0.14", for cables up to 1.5 mm² Screw terminal, 10-pin, spacing 3.5mm/0.14", for cables up to 1.5 mm²		Power supply ST-Bus	
Environmental conditions	Storage temperature:	-20...+70°C	-4...158°F	
	Operating temperature:	0...+55°C	32...131°F	
	Relative humidity:	max. 75% without dew		
Weight	approx. 205g			
Tightness	IP20			
Protection class	Protection class II, insulated installation			
ST-Bus interface	Shielded 2-wire cable, twisted pair, 57600 baud, maximum cable length 1000m Interface driver: RS485, the network must be set up in line topology with a 120 Ohm terminating resistor on both ends.			
Installation data	Material:	Ultramid® A3X2G5		
	Dimensions:	151.5 x 80 x 41 mm / 5.97 x 3.15 x 1.62 in (without connectors)		



Mounting instructions

- Maximum mounting height: 2 m
- Use appropriate screws (M4) and anchors for mounting (no countersunk screws, as these can damage the material)
- Only use the outermost holes for mounting (see drawing above)
- Protect from weather conditions (sun, rain, etc.)
- Protect from strong vibrations, corrosive gases, excessive dirt or humidity
- Mount out of reach of children



Product details

Product name: Sensor Box

Model Numbers: 900440.x, where x can be a number between 001 and 999

Federal Communications Commission (FCC) Supplier's Declaration of Conformity

Note: The statements below regarding FCC are only valid for products that are shipping to the United States.

Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Responsible Party:

Stork-Tronic USA, Inc.
268 Rain Berry Avenue
33570 Ruskin, FL
Email: fcc@stoerk-tronic.com

Innovation, Science and Economic Development Canada (ISED) Supplier's Declaration of Conformity

Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

Déclaration de conformité

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.