



Operating instructions

Series S302

Large size displays
for weighing technology

Devices for standard protocols

1 Contact

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2 Legal note

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3 Safety precautions

Important information

Read these operating instructions before starting the unit. They provide you with important information on the use, safety and maintenance of the units. This helps you to protect yourself and prevent damage to the unit.



Information intended to help you to avoid death, bodily harm or considerable damage to property is highlighted by the warning triangle shown here; it is imperative that this information be properly heeded.

The operating instructions are intended for trained professional electricians familiar with the safety standards of electrical technology and industrial electronics.

Store these operating instructions in an appropriate place.

The manufacturer is not liable if the information in these operating instructions is not complied with.

Safety



Components inside the units are energized with electricity during operation. For this reason, mounting and maintenance work may only be performed by professionally-trained personnel while observing the corresponding safety regulations.

The repair and replacement of components and modules may only be carried out by the manufacturer for safety reasons and due to the required compliance with the documented unit properties.

The units do not have a power switch. They are operative as soon as the operating voltage is applied.

Intended use

The units are intended for use in industrial environments. They may only be operated within the limit values stipulated by the technical data.

When configuring, installing, maintaining and testing the units, the safety and accident-prevention regulations relevant to use in each individual case must be complied with.

Trouble-free, safe operation of the units requires proper transport, storage, installation, mounting and careful operation and maintenance of the units.

Mounting and installation

The attachment options for the units were conceived in such a way as to ensure safe, reliable mounting.



The user must ensure that the attachment hardware, the unit carrier and the anchoring at the unit carrier are sufficient to securely support the unit under the given surrounding conditions.

The units are to be mounted in such a way that they can be opened up while mounted. Sufficient space for the cables must be available in the unit near the cable entries.

Sufficient space is to be kept clear around the units to ensure air circulation and to prevent the build-up of heat resulting from use. The relevant information must be heeded in the case of units ventilated by other means.



When the housing fasteners are opened, the front frame of the housing hinges out upward or downward (depending on the unit version) automatically.

Grounding

All devices are equipped with a metal housing. They comply with safety class I and require a protective earth connection. The connecting cable for the operating voltage must contain a protective earth wire of a sufficient cross section (DIN VDE 0106 part 1, DIN VDE 0411 part 1).

EMC measures

The devices comply with the EU Directive 2004/108/EC (EMC Directive) and provide the required interference immunity. Observe the following when connecting the operating voltage and data cables:

Use shielded data cables.

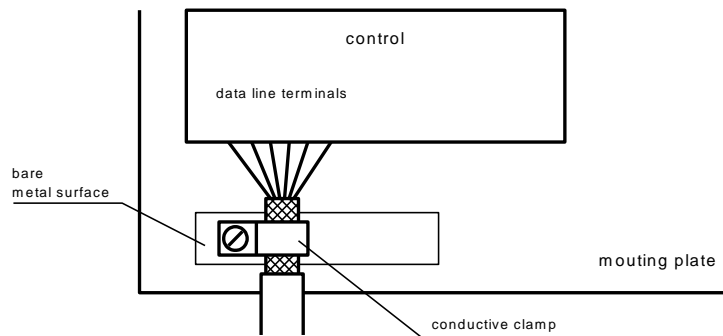
The data and operating voltage cables must be laid separately. They may not be laid together with heavy-current cables or other interference-producing cables.

The cable thickness must be properly assessed (DIN VDE 0100 Part 540).

The cable lengths inside the units are to be kept as short as possible to prevent interference. This applies especially to unshielded operating voltage cables. Shielded cables are also to be kept short due to any interference which might be emitted by the shielding.

Neither excessively long cables nor cable loops may be placed inside the units.

The connection of the cable shielding to the functional ground (PE) must be as short and low-impedance as possible. It should be made directly to the mounting plate over a large area with a conductive clip:



The cable shielding is to be connected at both cable ends. If equipotential bonding currents are expected due to the cable arrangement, electrical isolation is to be performed on one side. In this case, capacitive connection (approx. $0.1\mu\text{F}/600\text{ V AC}$) of the shielding on the isolated side must occur.

Disposal

Units or unit parts which are no longer needed are to be disposed of in accordance with the regulations in effect in your country.

4 Unit description

Model designation

This manual applies to units with the following model designation (x = the 'x's in the model designation indicate the size and design of the units (see Chapter 8):

4 or 5 digits and dimension symbol

S302-Kx/xx/xx-xxx/xx-S0 (Interface RS485/RS232)

S302-Kx/xx/xx-xxx/xx-T0 (Interface TTY 20mA/RS232)

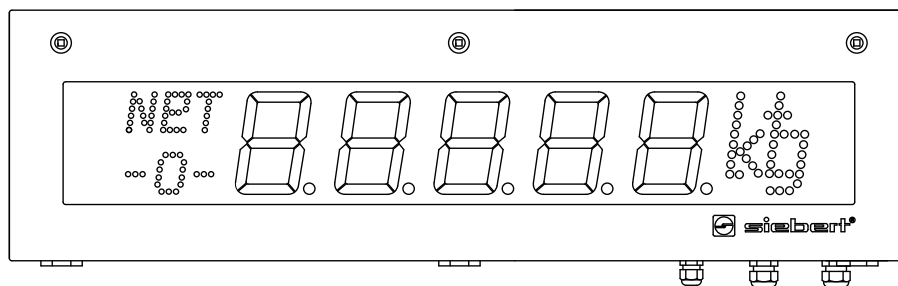
5 digits, dimension symbol and status indicator

S302-Wx/xx/xx-xxx/xx-S0 (Interface RS485/RS232)

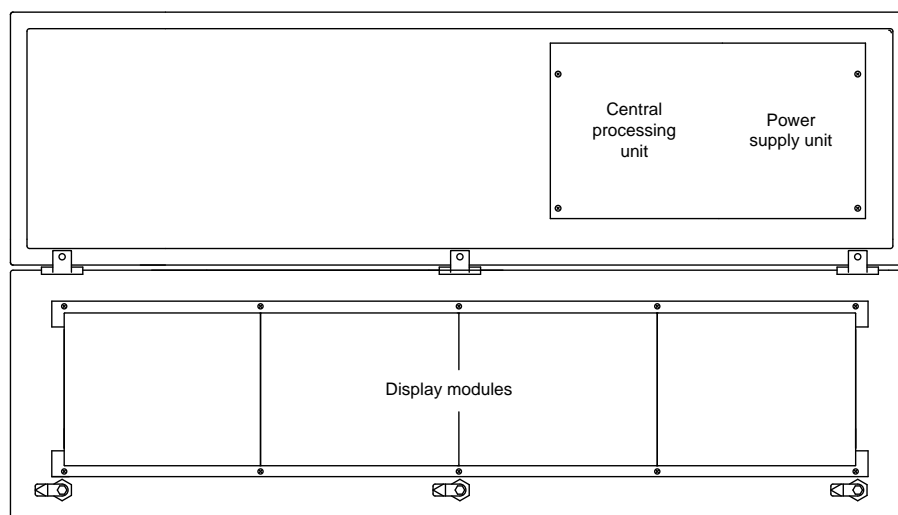
S302-Wx/xx/xx-xxx/xx-T0 (Interface TTY 20mA/RS232)

Unit construction

The following figure shows model type S302-W5/10/xx-xxx/xx-xx as example for the other model types. The front frame of the housing is locked with quick-action releases. When opening the unit the front frame hinges downward.



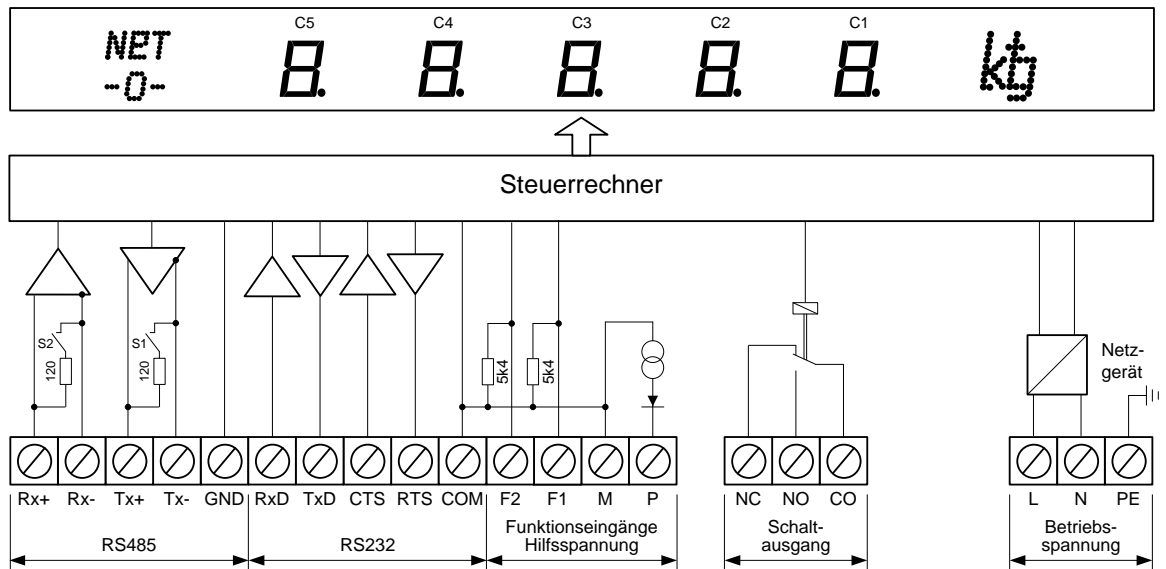
The following figure shows the unit when open.



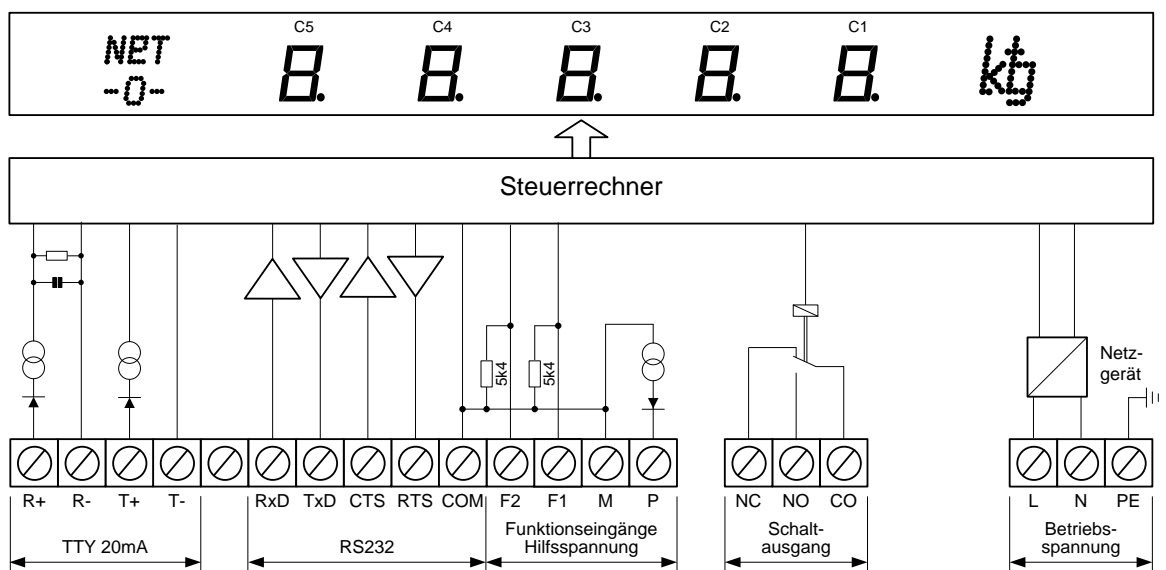
Units with double-sided display show the same information on the front and on the rear side.

Principle circuit diagrams

Unit with interface RS485/RS232 (S302-xx/xx/xx-xxx/xx-S0)



Units with interface TTY 20mA/RS232 (S302-xx/xx/xx-xxx/xx-T0)

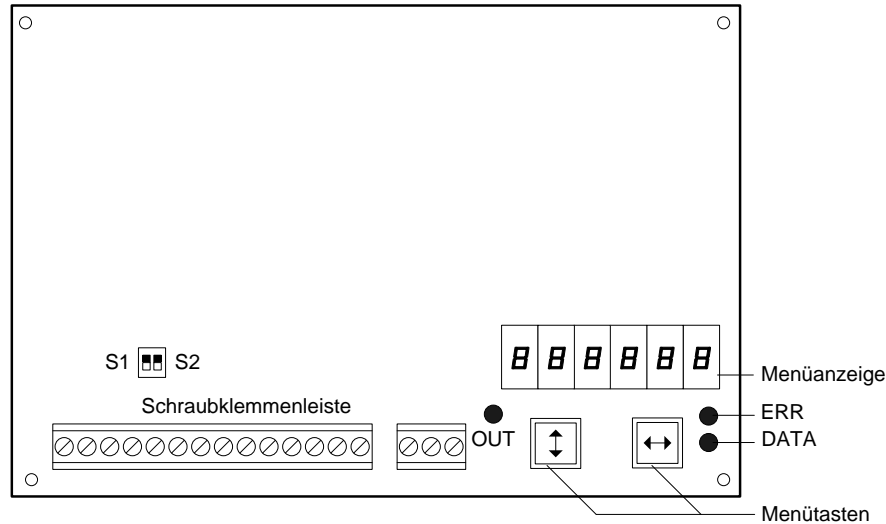


Steuerrechner
 Funktionseingänge
 Hilfsspannung
 Schaltausgang
 Netzgerät
 Betriebsspannung

Central Processing Unit
 Function inputs
 Auxiliary voltage
 Switching output
 Power supply unit
 Power supply

Central Processing Unit

The following figure shows the Central Processing Unit, located in the lower part of the housing.



Switch S1/S2 only with S302-xx/xx/xx-xxx/xx-Sx

Schraubklemmleiste	Screw-type terminal strip
Menüanzeige	Menu display
Menütasten	Menu buttons

Serial Interface

The serial interface is located on the screw-type terminal strip of the control computer. Depending on the unit version it has the following formats:

RS485 and RS232 (S302-xx/xx/xx-xxx/xx-S0)
TTY 20mA and RS232 (S302-xx/xx/xx-xxx/xx-T0)

The type of interface format is set in menu item 1 (see Chapter 6).

The switches S1 and S2 serve for locking the data lines of the RS485 (see Chapter 7).

Preferably, the interfaces RS485 or TTY 20 mA are to be used for activation. They are galvanically isolated from all other electric circuits and provide optimum preconditions for a reliable and safe operation of the devices due to its physical characteristics.

The interface RS232 is determined for testing purposes and is not recommended for activation because of its physical properties.

Function inputs

The function inputs are located on the screw-type terminal strip of the control computer. They allow reduction in brightness and flashing of the display (see Chapter 5).

The function inputs are designed for the following signal voltages:

Signal voltage: L = -3.5...+5 V (open input = L)
H = +18...30 V (active H), M = reference potential

Auxiliary voltage

The units supply terminal P with an auxiliary voltage galvanically isolated from the operating voltage (24 V \pm 20%, max. 50 mA, M = reference potential). It can be used for supplying power to the current loop or as H signal for the function inputs.

Menu display

The parameterization of the units is carried out in a menu of the menu display (see Chapter 6). In normal mode, the menu display corresponds to the main display. For devices with more than six positions, *LINE* is shown in the menu display in normal operation.

Menu buttons

The menu buttons are used to control the menu (see Chapter 6).

Switching output

The devices dispose of a switching output (relay) with potential-free make contact (NC, NO, CO).

Status indicators

The status indicators (LEDs) of the control computer have the following meaning:

DATA	Data are received
ERR	Error in data format
OUT	Switching output is active

Power supply

The screw-type terminals for the power supply are located on the power supply unit in the bottom section of the housing. They have the following designations:

Devices for a power supply 115 V AC or 230 V AC	L, N and PE
Devices for a power supply 24 V DC	+, – and PE

Important note

The displays are output units. They show information received by the weighing computer via the serial interface but they do not determine the content of this information. The weighing computer is responsible for the content of the information. In case of interferences, faulty display etc. the parameterization of the weighing computer is to be checked and its operating instructions must be observed.

We cannot be held liable for damages due to an improper activation of the units or to modifications of the weighing computer properties (protocols, addresses, etc.).

These operating instructions do not substitute the operating instructions of the weighing computer.

5 Control

Serial Interface

Depending on the device model the serial interface has the following formats:

RS485 and RS232 (S302-xx/xx/xx-xxx/xx-S0)

TTY 20mA and RS232 (S302-xx/xx/xx-xxx/xx-T0)

The interface format is set in menu item 1 (see Chapter 7).

With interface RS485 different settings are possible in menu item 1 (see Chapter 7 Notes on RS485 interface configuration).

With interface RS232 the RTS/CTS Handshake is always active.

Interface parameter

Data format, parity, baud rate, protocol and protocol reply are set in menu items 2 to 6.

If format RS232 is selected in menu item 1 the handshake RTS/CTS is always active.

If protocol 3964 is selected in menu item 5, 8 bit data format and even parity are set automatically.

If setting 'Echo' is selected in menu item 6, the device transmits the received data telegrams via the serial interface.

Ignore characters

If the characters to be represented in the display do not start on the first data telegram position, in menu item 7 you can set how many preceding characters have to be ignored.

Addressing

If no addressing is desired, select the setting 0 in menu item 8.

If the devices are to be selectively addressable, they receive an individual address. In menu item 8, it is defined if the address has one, two or three digits.

In menu item 9, the address is set (1...999). The address 0 is reserved as broadcast address, with which all devices are addressed. If the device receives the address 0, it does not send back a telegram reply.

If the address 0 is set in menu item 9, the device is addressed with any address but it does not send back a telegram reply.

Dimension symbols

In menu item d you can set a fix dimension symbol.

The dimension symbol is to be controlled with the following commands:

\$D0	No dimension symbol
\$D1	Dimension symbol 'g'
\$D2	Dimension symbol 'kg'
\$D3	Dimension symbol 't'
\$D4	Dimension symbol 'lb'

In Menu item d you choose the setting 0 (no dimension symbol).

A dimension symbol set in menu item d has priority.

The dimension symbol does not appear in the menu display.

Character -0-/NET

The character -0-/NET is to be controlled via the serial interface with the following commands:

\$S0	No symbol
\$S1	Symbol 'PT'
\$S2	Symbol 'NET'
\$S3	Symbol 'T'
\$S4	Symbol '-0-'
\$S5	Symbol '-0-' and 'PT'
S6	Symbol '-0-' and 'NET'
\$S7	Symbol '-0-' and 'T'

The symbols do not show in the menu display.

Switching output

The devices dispose of a switching output (relay) with potential-free change-over contact (NC, NO, CO).

When setting OFF in menu item r, the switching output can be controlled with the following commands:

\$Q@1	Activate switching contact
\$Q@0	Deactivate switching contact

The relay only switches after realized telegram ending

When setting 1, 2 or 4 in menu item r, the command \$Q@1 causes a wiping pulse at the switching output with a duration of 1, 2 or 4 seconds.

When setting A1, A2 or A4 in menu item r, each telegram at the switching output automatically gives a wiping pulse with a duration of 1, 2 or 4 seconds.

The wiping function is suitable, for example, for activating optical or acoustic signal transmitters.

The status indicator OUT of the control computer is lighted with active switching output.

Time-out

In menu item t, it is possible to set whether a time-out occurs, and if so, after what time. Time-out means that minus signs appear on the display if the device has not received a data telegram after a defined time.

Decimal point

A fixed decimal point can be set in menu item A.

The decimal point can also be controlled via the serial interface. In menu item A you must select setting 0 (no decimal point).

A decimal point set in menu item A has priority.

Devices with a LRD[®] display have no decimal points.

Leading zero suppression

In menu item C it is set if leading zeros are to be displayed or suppressed.

Display test

In menu item F, you can set whether a display test is to be performed after the operating voltage is applied.

The display test can also be controlled with the following commands:

\$T1 Display test on
\$T0 Display test off

The display test has priority over blanking and flashing.

Demo operation mode

If the setting *PLRY* is selected in menu item F, random characters are displayed. In this case, it is impossible to control the unit.

Flashing

Flashing of the display can be controlled with the following commands:

\$F1 Flashing on
\$F0 Flashing off

If **\$F1** is sent in the data telegram, the succeeding digits will flash until the end of the data telegram or until **\$F0** is sent in the data telegram.

Flashing of the display can also be activated by application of the H signal to functional input F1 (priority over commands).

For devices provided with an LRD[®] display flashing is not possible.

Brightness

The brightness of the display can be reduced with the following command:

\$L1 Reduced brightness
\$L0 Normal brightness

The brightness of the display can also be reduced with an H signal applied to functional input F2 (priority over commands).

For devices provided with an LRD[®] display brightness reduction is not possible

Blanking

The display can be blanked with the following command (priority over flashing):

\$B1 Blanking on
\$B0 Blanking off

ESC sequences

The character \$ can be used in the commands instead of <ESC>, e.g. <ESC>L1 instead of \$L1.

Character set

20/2B	2D	30	31	32	33	34	35	36	37	38	39	2C/2E
-		0	1	2	3	4	5	6	7	8	9	.
41/61	42/62	43	44/64	45/65	46/66	47/67	48	49	4A/6A	4C/6C	50/70	55
A	b	C	d	E	F	G	H	I	J	L	P	U
59/79	5F	63	68	69	4E/6E	4F/6F	52/72	54/74	75	58/78	other	
y	-	c	h	i	n	o	r	t	u	v	w	x

Power-on reset

After power-on, minus signs are displayed to signalize that the unit is ready for operation. If a display test has been preselected in menu item F, it will run beforehand.

6 Parametrization

Menu

The parameterization of the devices is carried out in a menu in the menu display.

Menu operation

To start the menu, press both menu buttons simultaneously (approx. 1 sec.) until the first menu item appears in the menu display. It is now possible to navigate in the menu as follows:

Next menu item	Shortly press key [↕]
Page menu items forward	Press key [↕] long
Previous menu item	Double-click on key [↕]
Page menu items backward	Double-click on key [↕] and keep it pressed
Next setting	Shortly press key [↔]
Page settings forward	Press key [↔] long
Previous setting	Double-click on key [↔]
Page setting backward	Double-click on key [↔] and keep it pressed

To exit the menu shortly press the key [↕] in menu item U. Depending on the setting in menu item U the settings made are either saved (set) or not saved (escape) or the factory settings are reset (default).

Canceling the menu without saving the settings made is possible by pressing both menu buttons simultaneously (approx. 1 sec.). It will occur automatically if 60 seconds pass without a menu button being pressed.

Once the menu is closed, the device behaves in the same manner as when the operating voltage was applied.

In the menu mode the character $\bar{\text{E}}$ appears in the main display. Control of the display is not possible in menu mode.

Menu table

The menu items are displayed in the following menu table. The factory settings are marked with an *. Individual menu items or settings can be suppressed in another menu item, depending on the unit version or setting.

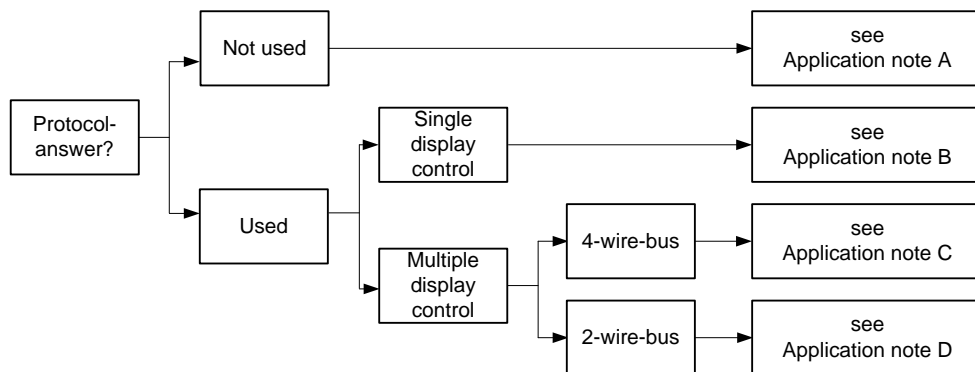
Menu point	Settings	Menu display
01 Serial interface	RS232	1 232
	RS485	1 485
	RS485 (4-wire bus)	1 4854
	RS485 (2-wire bus)	1 4852
	TTY 20mA	1 444
02 Data format	7 Bit + even and odd parity	2 7b iE
	8 bit with or without parity*	2 8b iE
03 Parität	No parity*	3 nonE
	Odd parity	3 odd
	Even parity	3 EvEn
04 Baud rate	1200	4 1200
	2400	4 2400
	4800	4 4800
	9600*	4 9600
	19200	4 192
05 Protocol	CR/LF*	5 crLF
	STX/ETX	5 S-E
	3964	5 3964
06 Protocol reply	No protocol reply*	6 nonE
	ACK/NAK	6 RcnR
	Echo	6 ECHO
07 Ignore characters	Ignore no character*	7 00
	Ignore first charcter	7 01
	Ignore first two characters	7 02
	↓	↓
	Ignore first 99 characters	7 99
08 Address length	No addressing*	8 0
	1 digit	8 1
	2 digits	8 2
	3 digits	8 3
09 Address	Address 0*	9 000
	Address 1	9 001
	↓	↓
	Address 999	9 999

d	Dimension symbol	No dimension symbol*	d	0
		Dimension symbol 'g'	d	1
		Dimension symbol 'kg'	d	2
		Dimension symbol 't'	d	3
		Dimension symbol 'lb'	d	4
r	Switching output	No wiping pulse*	r	OFF
		Wiping pulse 1 sec.	r	1
		Wiping pulse 2 sec.	r	2
		Wiping pulse 4 sec.	r	4
		Automatic wiping pulse 1 sec.	r	R1
		Automatic wiping pulse 2 sec.	r	R2
		Automatic wiping pulse 4 sec.	r	R4
t	Time-out	No time-out*	t	0
		Time-out after 2 s	t	2
		Time-out after 4 s	t	4
		Time-out after 8 s	t	8
		Time-out after 16 s	t	16
		Time-out after 32 s	t	32
		Time-out after 64 s	t	64
		Time-out after 128 s	t	128
A	Decimal point	No decimal point*	A	0
		Decimal point digit C1	A	1
		Decimal point digit C2	A	2
		↓	↓	
		Decimal point digit C5	A	5
C	Leading zeros	Leading zeros not displayed*	C	00
		Leading zeros displayed	C	0000
F	Display test	No display test at power on*	F	----
		Display test at power on	F	BBBB
		Demo operation mode	F	PLAY
U	Saving	Saving parameters* (Set)	U	SEt
		Not saving parameters (Escape)	U	ESc
		Restore to factory settings (Default)	U	dEF

7 Notes on RS485 interface configuration

Menu settings

The interface format RS485 allows the settings *4B5*, *4B54* and *4B52* in the menu item 1 (see Chapter 6). The selected setting depends on whether the protocol reply is to be sent by the display:



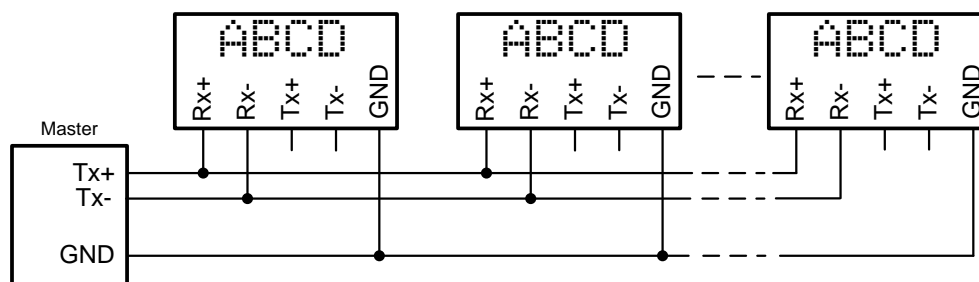
If the display should not send a protocol reply (normal case), application example A applies for activating one or more displays.

If a protocol reply is expected, a differentiation has to be made whether one single unit or more units are to be activated. If one single unit is activated, application example B is valid.

If several units are to be activated, a bus wiring is necessary. You have to differentiate, if a 4-wire bus (full-duplex) or a 2-wire bus (half-duplex) is used. Application example C applies for 4-wire bus and application example D applies for 2-wire bus.

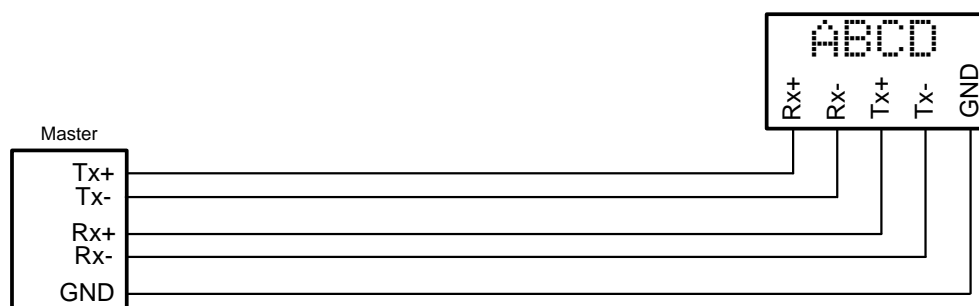
Applikation example A

Setting in menu item 1: RS485
Setting in menu item 6: No protocol reply



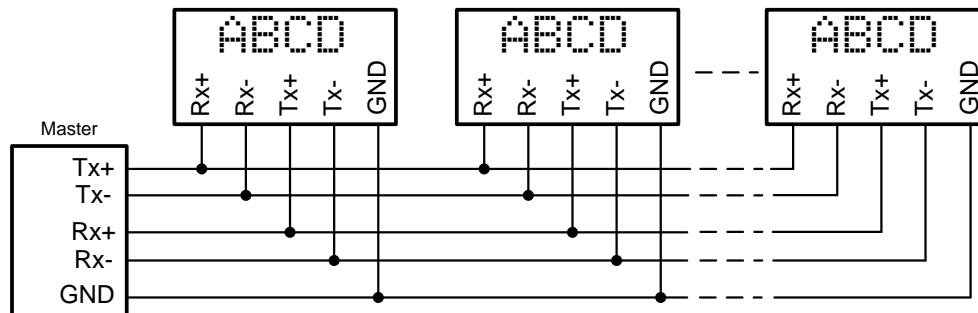
Applikation example B

Setting in menu item 1: RS485
Setting in menu item 6: ACK/NAK (recommended)



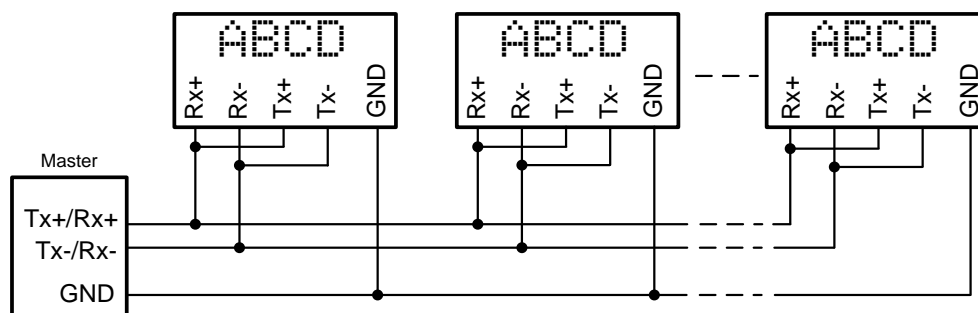
Applikation example C

Setting in menu item 1: RS485.4
 Setting in menu item 6: ACK/NAK (recommended)



Applikation example D

Setting in menu item 1: RS485.2
 Setting in menu item 6: ACK/NAK (recommended)



Data lines

To achieve the highest possible interference immunity, the data lines of the RS485 have to be terminated on both ends. The required resistors are provided in the control computer and can be connected on the screw terminal strip with the switches S1 (Tx) and S2 (Rx) (see Chapter 4, Principle Circuit Diagram).

The polarization of the data lines must be ensured by means of the master.

For the data lines, you always have to ensure that:

Shielded twisted-pair cables of sufficiently large cross-section are used

The shielding is connected on both line ends

For the signal ground (GND) use a wire pair short-circuited on both ends in the data cable. The shielding may not be used as the signal ground

A twisted pair of conductors is used each for Tx+ and Tx- and for Rx+ and Rx-. Non-observance of this instruction causes the protective function of the twisted-pair cable to be lost.

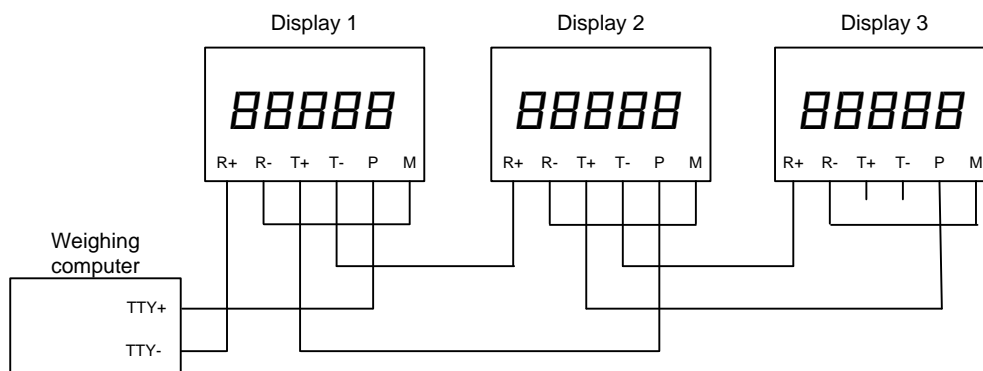
Improperly terminated data lines cause faults during data transfer.

Interface TTY 20mA

An auxiliary voltage for supply of the current loop ($24\text{ V} \pm 20\%$, max. 50 mA, M = reference potential), which is galvanically separated from the operating voltage, is supplied by the units on terminal P.

Moreover, the units send the received data telegrams via the serial interface (T+/T-). If the menu item 6 (protocol reply) is included in the menu, the setting 'Echo' has to be selected.

These properties allow the technically correct activation of several display panels as shown below:



8 Technical data

Unit properties

The model designation is structured as follows:

S302	-	[] []	/	[] []	/	[] []	-	[] [] [] []	/	[] []	-	[] []
Dimension	K	:	:	:	:	:	:	:	:	:	:	:
Dimension, -0-/NET	W	:	:	:	:	:	:	:	:	:	:	:
4 Digits	1	:	:	:	:	:	:	:	:	:	:	:
5 Digits	2	:	:	:	:	:	:	:	:	:	:	:
Character height 57 mm	0 6	:	:	:	:	:	:	:	:	:	:	:
Character height 100 mm	1 0	:	:	:	:	:	:	:	:	:	:	:
Character height 160 mm	1 6	:	:	:	:	:	:	:	:	:	:	:
Character height 250 mm	2 5	:	:	:	:	:	:	:	:	:	:	:
LED Standard	0	:	:	:	:	:	:	:	:	:	:	:
LED for outdoor use	2	:	:	:	:	:	:	:	:	:	:	:
Character color red	R	:	:	:	:	:	:	:	:	:	:	:
Character color green	G	:	:	:	:	:	:	:	:	:	:	:
Character color white	W	:	:	:	:	:	:	:	:	:	:	:
Display readable on one side	1	:	:	:	:	:	:	:	:	:	:	:
Display readable on both sides	2	:	:	:	:	:	:	:	:	:	:	:
Steel sheet housing, coated	0	:	:	:	:	:	:	:	:	:	:	:
Steel sheet housing, bilayer painting	1	:	:	:	:	:	:	:	:	:	:	:
Stainless steel housing V2A, coated	2	:	:	:	:	:	:	:	:	:	:	:
Stainless steel housing V2A, brushed	3	:	:	:	:	:	:	:	:	:	:	:
Stainless steel housing V4A, brushed	5	:	:	:	:	:	:	:	:	:	:	:
Protection type IP54	0	:	:	:	:	:	:	:	:	:	:	:
Protection type IP65	1	:	:	:	:	:	:	:	:	:	:	:
Protection type IP54 with climate adjustment	2	:	:	:	:	:	:	:	:	:	:	:
Protection type IP54 with climate adjustment and heating	4	:	:	:	:	:	:	:	:	:	:	:
Wall mounting, cable entry point from the bottom	0	:	:	:	:	:	:	:	:	:	:	:
Wall mounting, cable entry point from the top	1	:	:	:	:	:	:	:	:	:	:	:
Hanging installation, cable entry point from the bottom	2	:	:	:	:	:	:	:	:	:	:	:
Hanging installation, cable entry point from the top	3	:	:	:	:	:	:	:	:	:	:	:
Wall mounting and hanging installation, cable entry point from the bottom	4	:	:	:	:	:	:	:	:	:	:	:
Wall mounting and hanging installation, cable entry point from the top	5	:	:	:	:	:	:	:	:	:	:	:
Power supply 230 V AC ±15 %, 50 Hz	A	:	:	:	:	:	:	:	:	:	:	:
Power supply 24 V DC ±15 %	B	:	:	:	:	:	:	:	:	:	:	:
Power supply 115 V AC ±15 %, 60 Hz	C	:	:	:	:	:	:	:	:	:	:	:
Serial interface RS485 and RS232	S 0	:	:	:	:	:	:	:	:	:	:	:
Serial interface TTY 20mA and RS232	T 0	:	:	:	:	:	:	:	:	:	:	:

Max. power consumption

Units with dimension symbol	[VA]
4 digits, one-sided display	
S302-K4/06/0x-1xx/xx-xx	approx. 14
S302-K4/10/0x-1xx/xx-xx	approx. 21
S302-K4/16/0x-1xx/xx-xx	approx. 64
S302-K4/25/0x-1xx/xx-xx	approx. 79
5 digits, one-sided display	
S302-K5/06/0x-1xx/xx-xx	approx. 15
S302-K5/10/0x-1xx/xx-xx	approx. 23
S302-K5/16/0x-1xx/xx-xx	approx. 77
S302-K5/25/0x-1xx/xx-xx	approx. 96

Units with dimension symbol	[VA]
4 digits, double-sided display	
S302-K4/06/0x-2xx/xx-xx	approx. 19
S302-K4/10/0x-2xx/xx-xx	approx. 33
S302-K4/16/0x-2xx/xx-xx	approx. 119
S302-K4/25/0x-2xx/xx-xx	approx. 150
5 digits, double-sided display	
S302-K5/06/0x-2xx/xx-xx	approx. 21
S302-K5/10/0x-2xx/xx-xx	approx. 38
S302-K5/16/0x-2xx/xx-xx	approx. 146
S302-K5/25/0x-2xx/xx-xx	approx. 184

Units with dimension symbol and -0-/NET symbol	[VA]
5 digits, one-sided display	
S302-W5/06/0x-1xx/xx-xx	approx. 17
S302-W5/10/0x-1xx/xx-xx	approx. 30
S302-W5/16/0x-1xx/xx-xx	approx. 104
S302-W5/25/0x-1xx/xx-xx	approx. 130

Units with dimension symbol and -0-/NET symbol	[VA]
5 digits, double-sided display	
S302-W5/06/0x-2xx/xx-xx	approx. 25
S302-W5/10/0x-2xx/xx-xx	approx. 51
S302-W5/16/0x-2xx/xx-xx	approx. 200
S302-W5/25/0x-2xx/xx-xx	approx. 250

The power consumption for the unit version model S302-xx/xx/0x-xxx/xx-xx is also valid for the unit version S302-xx/xx/2x-xxx/xx-xx (LEDs for external use).

For units with built-in heating, the values for power consumption specified in the table increase by approx. 10 – 100 VA (exact values on request), depending on the unit size.

Switching output

Maximum switching voltage 30 V AC/DC
Maximum switching current 500 mA (ohmic load)

Screw-type terminals

Control computer Capacity of terminals 0,14...1,5 mm²
Power supply Capacity of terminals 0,2...4 mm²

Housing colors

Case front RAL 5002 ultramarine
Case rear part RAL 7035 light grey

Front frame

S302-xx/xx/xR-xxx/xx-xx Plastic, tinted red, non-reflective
S302-xx/06/xG-xxx/xx-xx Plastic, tinted green, non-reflective
S302-xx/10/xG-xxx/xx-xx Plastic, tinted green, non-reflective
Other model types Plastic, clear, non-reflective

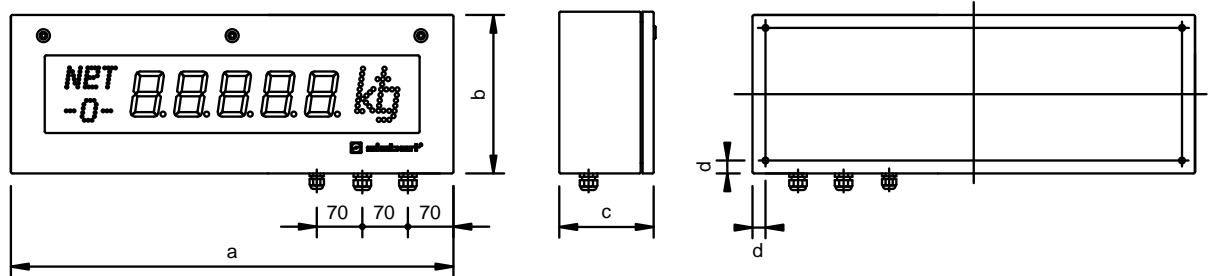
Ambient conditions

Operating temperature 0...55 °C
Storage temperature -30...85 °C
Relative humidity max. 95 % (non-condensing)

Measurements and Weights

Units with one-sided display

The following figure shows unit version S302-04/10/4x-1xx/xx-xx, representing the other unit versions listed in the following table.



Units with dimension symbol

4 digits	a [mm]	b [mm]	c [mm]	d [mm]	Ø [mm]	weight [kg] ¹⁾
S302-K4/06/xx-1xx/xx-xx	400	185	110	16	7	6
S302-K4/10/xx-1xx/xx-xx	680	245	145	16	7	12
S302-K4/16/xx-1xx/xx-xx	960	300	145	20	9	17
S302-K4/25/xx-1xx/xx-xx	1500	400	165	20	9	32
5 digits						
S302-K5/06/xx-1xx/xx-xx	400	185	110	16	7	6
S302-K5/10/xx-1xx/xx-xx	680	245	145	16	7	12
S302-K5/16/xx-1xx/xx-xx	960	300	145	20	9	17
S302-K5/25/xx-1xx/xx-xx	1500	400	165	20	9	32

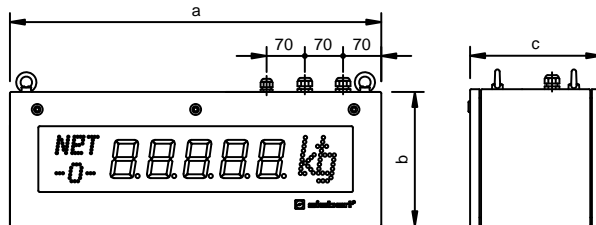
Units with dimension symbol and symbol -0-/NET

5 digits	a [mm]	b [mm]	c [mm]	d [mm]	Ø [mm]	weight [kg] ¹⁾
S302-W5/06/xx-1xx/xx-xx	510	185	110	16	7	7
S302-W5/10/xx-1xx/xx-xx	870	245	145	16	7	14
S302-W5/16/xx-1xx/xx-xx	1100	300	145	20	9	20
S302-W5/25/xx-1xx/xx-xx	1730	400	165	20	9	37

¹⁾ The figures shown for weight are approximate.

Units with double-sided display

The following figure shows unit version S302-04/10/4x-2xx/xx-xx, representing the other unit versions listed in the following table.



Units with character height of 57 mm
(S302-xx/06/xx-2xx/xx-xx) are provided with 2 eyes
instead of 4.

Units with dimension symbol

4 digits	a [mm]	b [mm]	c [mm]	weight [kg] ¹⁾
S302-K4/06/xx-2xx/xx-xx	400	185	170	9
S302-K4/10/xx-2xx/xx-xx	680	245	240	19
S302-K4/16/xx-2xx/xx-xx	960	300	240	26
S302-K4/25/xx-2xx/xx-xx	1500	400	270	45
5 digits				
S302-K5/06/xx-2xx/xx-xx	400	185	150	9
S302-K5/10/xx-2xx/xx-xx	680	245	240	19
S302-K5/16/xx-2xx/xx-xx	960	300	240	27
S302-K5/25/xx-2xx/xx-xx	1500	400	270	46

Units with dimension symbol and symbol -0-/NET

5 digits	a [mm]	b [mm]	c [mm]	d [mm]	Ø [mm]	weight [kg] ¹⁾
S302-W5/06/xx-1xx/xx-xx	510	185	110	16	7	7
S302-W5/10/xx-1xx/xx-xx	870	245	145	16	7	14
S302-W5/16/xx-1xx/xx-xx	1100	300	145	20	9	20
S302-W5/25/xx-1xx/xx-xx	1730	400	165	20	9	37

¹⁾ The figures shown for weight are approximate.