Operating instructions

Series S302

Numeric large size displays
with parallel interface

1 Contact

www.siebert-group.com

GERMANY

Siebert Industrieelektronik GmbH
Siebertstrasse, D-66571 Eppelborn
P.O. Box 11 30, D-66565 Eppelborn
Phone +49 (0)6806 980-0, Fax +49 (0)6806 980-999
email info.de@siebert-group.com

AUSTRIA

Siebert Österreich GmbH
Mooslackengasse 17. A-1190 Wien
Phone +43 (0)1 890 63 86-0, Fax +43 (0)14 890 63 86-99
email info.at@siebert-group.com

FRANCE

Siebert France Sarl
33 rue Poincaré, F-57200 Sarreguemines
P.O. Box 90 334, F-57203 Sarreguemines Cédex
Phone +33 (0)3 87 98 63 68, Fax +33 (0)3 87 98 63 94
email info.fr@siebert-group.com

THE NETHERLANDS

Siebert Nederland B.V.
Jadedreef 26, NL-7828 BH Emmen
Phone +31 (0)591-633444, Fax +31 (0)591-633125
email info.nl@siebert-group.com

SWITZERALND

Siebert AG
Bützbergstrasse 2, P.O. Box 91, CH-4912 Aarwangen
Phone +41 (0)62 922 18 70, Fax +41 (0)62 922 33 37
email info.ch@siebert-group.com

2 Legal note

© Siebert Industrieelektronik GmbH

This operation manual has been prepared with the utmost care. However, we do not accept any liability for possible errors. We always appreciate your suggestions for improvement, corrections, comments and proposals. Please contact us: editing@siebert-group.com

Siebert®, LRD® and XC-Board® are registered trademarks of Siebert Industrieelektronik GmbH. All other product names mentioned herein may be trademarks or registered trademarks of their respective owners.

siebert®

Table of contents

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 89/336/EEC (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:
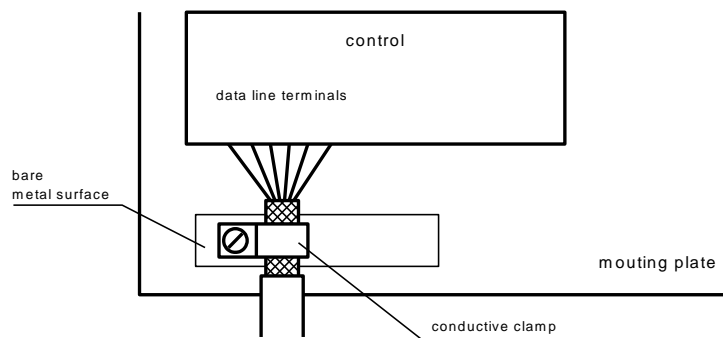
The cable shielding is to be connected at both cable ends. If equipotential bonding currents are expected due to the cable arrangement, electrical isolation is to be performed on one side. In this case, capacitive connection (approx. 0.1µF/600 V AC) of the shielding on the isolated side must occur.

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 7):

S302-xx/xx/xx-xxx/xx-P0

Unit construction

The following figure shows model type S302-05/10/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.
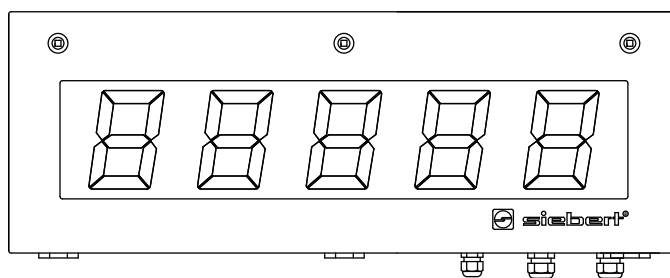
The following figure shows the unit when open.
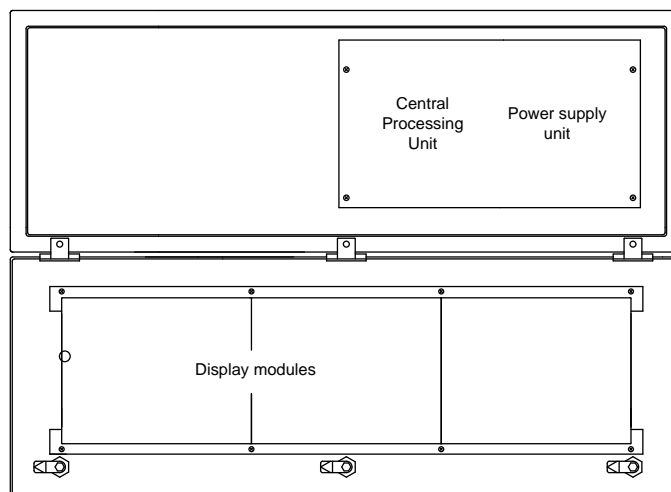
Units with double-sided display show the same information on the front and on the rear side.

Principle circuit diagram
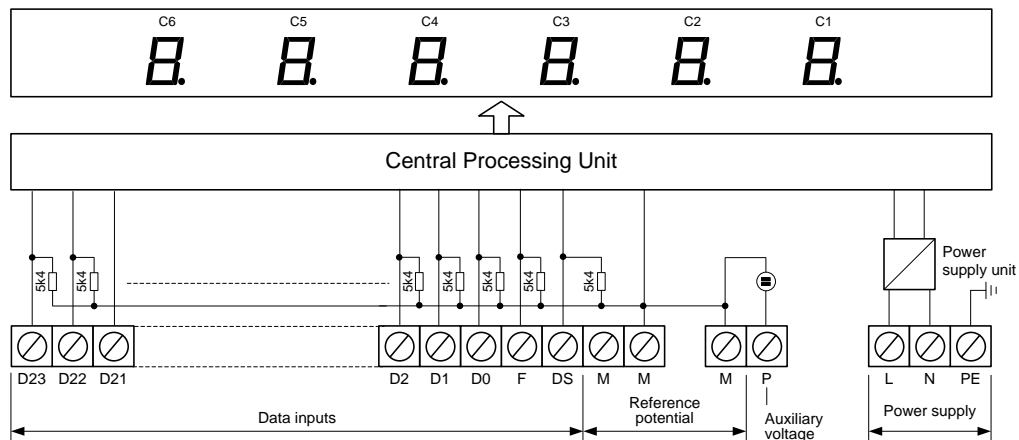
Central Processing Unit

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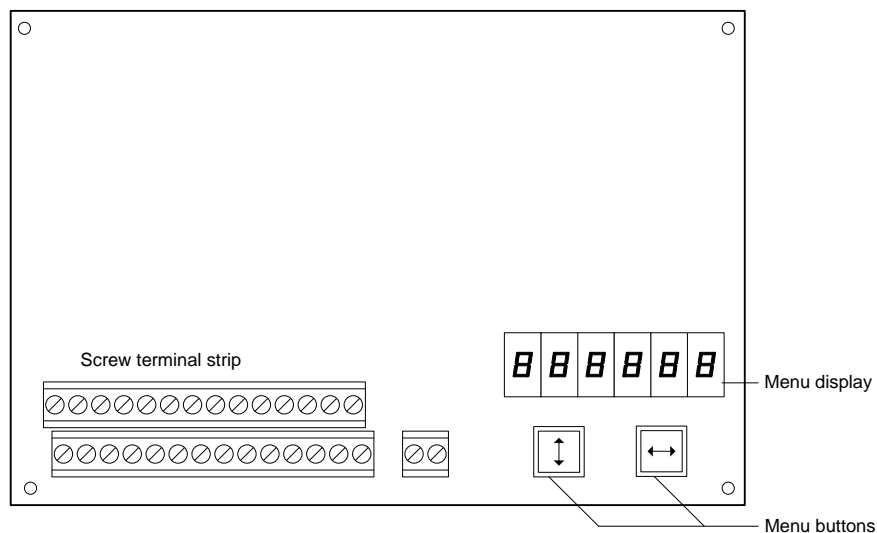
Parallel interface

The parallel interface (Data inputs D23…D0, F, DS) is located on the screw-type terminal strip of the control computer. It is PLC-compatible and 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

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, $OnlinE$ is shown in the menu display in normal operation.

Menu buttons

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

Auxiliary voltage

The units supply terminal P with an auxiliary voltage galvanically isolated from the operating voltage (24 V ± 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.

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

The Siebert logo appears at the top right of the page.

5   Control

The figures in [ ] indicate the lines in the following function table.

Signal evaluation

For all the interfacing modes described below it applies that the data have to be applied to the data inputs for at least 10 ms for a reliable recognition. They can be applied simultaneously so that only one program step is necessary for PLC interfacing.

The data at the inputs D23...D0 must be stable over the pulse duration (approx. 10 ms) at input DS.

The data transfer is effected by the rising edge of the pulse.

The functions flashing [13], blanking [14], decimal point [15] and display test [16] must not become active before reading in of the data to be displayed.

Parallel interfacing in BCD code

In menu item 1 setting 1 is to be selected. The BCD data of all digits and the decimal point (DP5...DP1) are applied to the inputs D23...D0 and transferred with a pulse on input DS in the display [1...6]. The L signal must be active at input F.

If setting 3 is selected in menu item 1, input DS is without function. The display instantly corresponds with the data at the inputs D23...D0.

Parallel interfacing in binary code

In menu item 1 setting 2 is to be selected. The binary coded data of all digits and the decimal point (DP5...DP2) are applied to the inputs D23...D0 and transferred with a pulse on input DS in the display [7...]. The L signal must be active at input F.

If setting 4 is selected in menu item 1, input DS is without function. The display instantly corresponds with the data at the inputs D23...D0.

If the binary value applied to the data inputs is larger than representable in the display ▢ (overflow) appears in the display.

Multiplex interfacing digits uncoded

In menu item 1 setting 5 is to be selected. The BCD data (D3...D0) and the decimal point (D4) are applied individually for each digit with their uncoded digit address (D13...D8) to the respective data inputs and transferred with always one impulse at input DS to the display [8]. The L signal must be active at input F.

Multiplex interfacing digits binary coded

In menu item 1 setting 6 is to be selected. The BCD data (D3...D0) and the decimal point (D4) are applied individually for each digit with their binary digit address to the inputs (011 D10...D8) (p. ex. D10…D8 = 011 corresponds digit C3) and transferred with always one impulse at input DS to the display [9]. The L signal must be active at input F.

Multiplex interfacing BCD-packed

In menu item 1 setting 7 is to be selected. The BCD data for two digits (D7…D4 and D3…D0) is applied with their digit addresses (D9…D8) to the respective data inputs and transferred with an impulse at input DS in the display [10]. The L signal must be active at input F.

The BCD data is assigned to the digits as follows:

D9 = 0, D8 = 0   Digits C2, C1
D9 = 0, D8 = 1   Digits C4, C3
D9 = 1, D8 = 0   Digits C5, C6

Addressing

Several units can be operated by one control interface, by connecting the data inputs in parallel (data bus). In menu item 9, every unit is given an individual address. First a definition is made in menu item 8 whether the address is binary coded [11] or BCD coded [12]. The address code defines the possible number of addresses:

Binary   max. 1024 characters
BCD   max. 400 characters

For the selective interfacing of a unit, its address (D9...D0), an H signal for input F and an impulse are transferred via the data bus. Following the individual interfacing of the unit takes place according to the function table. The unit accepts data via the data inputs until the address of another unit is transmitted via the data bus.

If address 0000 is set in menu item 9, the unit accepts every address. On the other hand, all units can be interfaced simultaneously by transmitting address 0000. Should no addressing of the unit take place, setting 0 is chosen in menu item 8.

Function table

The figures in [ ] refer to the corresponding explanations in the text.

Data inputs		D23	D22	D21	D20	D19	D18	D17	D16	D15	D14	D13	D12
Parallel interfacing in BCD code													
BCD (Units with 1 digit)	[1]	X	X	X	X	DP1	DT	BK	FL	X	X	X	X
BCD (Units with 2 digits)	[2]	X	X	X	DP2	DP1	DT	BK	FL	X	X	X	X
BCD (Units with 3 digits)	[2]	X	X	DP3	DP2	DP1	DT	BK	FL	X	X	X	X
BCD (Units with 4 digits)	[4]	X	DP4	DP3	DP2	DP1	DT	BK	FL	8k	4k	2k	1k
BCD (Units with 5 digits)	[5]	DP5	DP4	DP3	DP2	80k	40k	20k	10k	8k	4k	2k	1k
BCD (Units with 6 digits)	[6]	800k	400k	200k	100k	80k	40k	20k	10k	8k	4k	2k	1k
Parallel interfacing in binary code													
Binary code	[7]	DP5	DP4	DP3	DP2	2^{19}	2^{18}	2^{17}	2^{16}	2^{15}	2^{14}	2^{13}	2^{12}
Multiplex interfacing													
Digits uncoded	[8]	X	X	X	X	X	DT	BK	FL	X	X	C6	C5
Digits binary	[9]	X	X	X	X	X	DT	BK	FL	X	X	X	X
BCD-packed	[10]	X	X	X	X	X	DT	BK	FL	X	X	X	X
Addressing													
Binary address	[11]	X	X	X	X	X	X	X	X	X	X	L	L
BCD address	[12]	X	X	X	X	X	X	X	X	X	X	L	L
Functions													
Flashing	[13]	X	X	X	X	X	X	X	X	X	X	L	H
Blanking	[14]	X	X	X	X	X	X	X	X	X	X	L	L
Decimal point	[15]	X	X	X	X	X	X	X	X	X	X	H	H
Display test	[16]	X	X	X	X	X	X	X	X	X	X	H	L

Data inputs		D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0	F	DS
Parallel interfacing in BCD code															
BCD (Units with 1 digit)	[1]	X	X	X	X	X	X	X	X	8	4	2	1	L	↑
BCD (Units with 2 digits)	[2]	X	X	X	X	80	40	20	10	8	4	2	1	L	↑
BCD (Units with 3 digits)	[3]	800	400	200	100	80	40	20	10	8	4	2	1	L	↑
BCD (Units with 4 digits)	[4]	800	400	200	100	80	40	20	10	8	4	2	1	L	↑
BCD (Units with 5 digits)	[5]	800	400	200	100	80	40	20	10	8	4	2	1	L	↑
BCD (Units with 6 digits)	[6]	800	400	200	100	80	40	20	10	8	4	2	1	L	↑
Parallel interfacing in binary code															
Binary code	[7]	2^{11}	2^{10}	2^9	2^8	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0	L	↑
Multiplex interfacing															
Digits uncoded	[8]	C4	C3	C2	C1	X	X	X	DP	8	4	2	1	L	↑
Digits binary	[9]	X	2^2	2^1	2^0	X	X	X	DP	8	4	2	1	L	↑
BCD-packed	[10]	X	X	2^1	2^0	80	40	20	10	8	4	2	1	L	↑
Addressing															
Binary address	[11]	L	X	2^9	2^8	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0	H	↑
BCD address	[12]	L	X	200	100	80	40	20	10	8	4	2	1	H	↑
Funktions															
Flashing	[13]	L	X	X	X	X	C6	C5	C4	C3	C2	C1	C0	H	↑
Blanking	[14]	H	X	X	X	X	C6	C5	C4	C3	C2	C1	C0	H	↑
Decimal point	[15]	L	X	X	X	X	C6	C5	C4	C3	C2	C1	C0	H	↑
Display test	[16]	L	X	X	X	X	X	X	X	X	X	X	L/H	H	↑

L= L signal H = H signal   X= L- or H signal   ↑ = rising impulse edge ↓ = falling impulse edge
DP5 = Decimal point digit C5, DP4 = digit C4 etc.

Decimal point

A fixed decimal point can be set in menu item A. If the decimal point is controlled via the data inputs [1…5, 8…9], in menu item A the setting 0 (no decimal point) is to select.

The decimal point can also be transferred in the display [15] with an H signal on the data inputs D6...D1 (equal digit C6...C1) and an impulse at the DS input. The H signal must be active at input F. With an H signal on input D0 it is transferred in all digits

A decimal point set in menu item A has priority over a decimal point activated via the data inputs.

Units with 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. A static display test is carried out as long as an H signal is applied to input D18 (DT) [1...4, 8…10]

The display test can also be activated by means of a signal applied to input D0 (H signal = on, L signal = off) and an impulse on input DS [16]. The H signal must be active at input F.

The display test has priority over blanking and flashing.

Flashing

The complete display flashes as long as an H signal [1...4, 8…10] is applied to input D16 (FL).

Flashing of individual digits can be activated with an H signal on the inputs D6...D1 (equal to digit C6...C1) and an impulse at the DS input [13]. The H signal must be active at input F. An H signal on input D0 causes the flashing of all digits

For units provided with a LRD® display flashing is not possible.

Blanking

The display is blank as long as an H signal [1...4, 8...10] is applied to input D17 (BK).

Blanking of individual digits can be activated with an H signal on the inputs D6...D1 (equal to digit C6...C1) and an impulse at the DS input [14]. The H signal must be active at input F. An H signal on input D0 effects a blanking of all digits.

Blanking has priority over flashing and the display test has priority over both.

Demo operation mode

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

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.

Character set

In menu item 3 you can select between a numerical font (0...9 and special characters) and a hexadecimal font (0...9, A...F).

8	4	2	1	Numeric	Hexadecimal
L	L	L	L	0	0
L	L	L	H	1	1
L	L	H	L	2	2
L	L	H	H	3	3
L	H	L	L	4	4
L	H	L	H	5	5
L	H	H	L	6	6
L	H	H	H	7	7
H	L	L	L	8	8
H	L	L	H	9	9
H	L	H	L	Blank	A
H	L	H	H	-	b
H	H	L	L	C	C
H	H	L	H	o	d
H	H	H	L	L	E
H	H	H	H	H	F

L = L signal ,H = H signal

A hexadecimal font is not possible for interfacing in binary code.

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 Ξ 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 item		Settings	Display
1	Control	Parallel BCD*	$1 \quad 1$
		Parallel binary	$1 \quad 2$
		Parallel BCD, without DS	$1 \quad 3$
		Parallel binary, without DS	$1 \quad 4$
		Multiplex BCD, digits uncoded	$1 \quad 5$
		Multiplex BCD, digits binary	$1 \quad 6$
		Multiplex BCD-packed	$1 \quad 7$
3	Character set	Numerical + special characters*	$C \quad 0-9$
		Hexadezimal	$C \quad 0-F$
8	Address code	No addressing*	$8 \quad 0$
		Binary	$8 \quad bin$
		BCD	$8 \quad bcd$
9	Address	Binary 0000*…0123, BCD 0000*…0399	$9 \quad 0000$
A	Decimal point	No decimal point*	$A \quad 0$
		Decimal point digit C1	$A \quad 1$
		Decimal point digit C2	$A \quad 2.$
		↓	↓
		Decimal point digit C6	$A \quad 6.$
C	Leading zeros	Leading zeros not displayed*	$C \quad 00$
		Leading zeros diplayed	$C \quad 0000$
F	Display test	No display test at power-on*	$F \quad ----$
		Display test at power-on	$F \quad 8888$
		Demo operation mode	$F \quad PLAY$
U	Save	Save parameters* (Set)	$U \quad SEt$
		Not saving parameters (Escape)	$U \quad ESC$
		Restore to factory settings (Default)	$U \quad dEF$

7 Technical data

Unit properties

The model designation is structured as follows:

S302 – ☐☐ / ☐☐☐ / ☐☐☐ – ☐☐☐☐ / ☐☐☐ – ☐☐

No dimension symbol	0	
Dimension symbol	F	
1 Digit	1	
2 Digits	2	
↓	↓	
8 Digits	8	
Character height 25 mm	0 3	
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, SMD technology		
LED for outdoor use	2	
LRD®	4	
Character color red	R	
Character color green	G	
Character color white	W	
Character color red/green/orange switchable	M	
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	
Interface	x x	

Max. power consumption

Units with one-sided display	[VA][1]		Units with double-sided display	[VA][1]
1 digit			1 digit	
S302-x1/10/xx-1xx/xx-xx	12 (50)		S302-x1/10/xx-2xx/xx-xx	16 (91)
S302-x1/16/xx-1xx/xx-xx	22 (50)		S302-x1/16/xx-2xx/xx-xx	35 (91)
S302-x1/25/xx-1xx/xx-xx	26		S302-x1/25/xx-2xx/xx-xx	42
2 digits			2 digits	
S302-x2/06/xx-1xx/xx-xx	12		S302-x2/06/xx-2xx/xx-xx	15
S302-x2/10/xx-1xx/xx-xx	15 (50)		S302-x2/10/xx-2xx/xx-xx	21 (91)
S302-x2/16/xx-1xx/xx-xx	37 (50)		S302-x2/16/xx-2xx/xx-xx	66 (91)
S302-x2/25/xx-1xx/xx-xx	46		S302-x2/25/xx-2xx/xx-xx	83
3 digits			3 digits	
S302-x3/06/xx-1xx/xx-xx	13		S302-x3/06/xx-2xx/xx-xx	17
S302-x3/10/xx-1xx/xx-xx	17 (50)		S302-x3/10/xx-2xx/xx-xx	26 (91)
S302-x3/16/xx-1xx/xx-xx	51 (50)		S302-x3/16/xx-2xx/xx-xx	92 (91)
S302-x3/25/xx-1xx/xx-xx	63		S302-x3/25/xx-2xx/xx-xx	116
4 digits			4 digits	
S302-x4/06/xx-1xx/xx-xx	14		S302-x4/06/xx-2xx/xx-xx	19
S302-x4/10/xx-1xx/xx-xx	21 (50)		S302-x4/10/xx-2xx/xx-xx	33 (91)
S302-x4/16/xx-1xx/xx-xx	64 (50)		S302-x4/16/xx-2xx/xx-xx	119 (91)
S302-x4/25/xx-1xx/xx-xx	79		S302-x4/25/xx-2xx/xx-xx	150
5 digits			5 digits	
S302-x5/06/xx-1xx/xx-xx	15		S302-x5/06/xx-2xx/xx-xx	21
S302-x5/10/xx-1xx/xx-xx	23 (50)		S302-x5/10/xx-2xx/xx-xx	38 (91)
S302-x5/16/xx-1xx/xx-xx	77 (50)		S302-x5/16/xx-2xx/xx-xx	146 (91)
S302-x5/25/xx-1xx/xx-xx	96		S302-x5/25/xx-2xx/xx-xx	184
6 digits			6 digits	
S302-x6/03/xx-1xx/xx-xx	16		S302-x6/03/xx-2xx/xx-xx	23
S302-x6/06/xx-1xx/xx-xx	16		S302-x6/06/xx-2xx/xx-xx	23
S302-x6/10/xx-1xx/xx-xx	26 (50)		S302-x6/10/xx-2xx/xx-xx	43 (91)
S302-x6/16/xx-1xx/xx-xx	91 (50)		S302-x6/16/xx-2xx/xx-xx	173 (91)
S302-x6/25/xx-1xx/xx-xx	113		S302-x6/25/xx-2xx/xx-xx	217
7 digits			7 digits	
S302-x7/06/xx-1xx/xx-xx	17		S302-x7/06/xx-2xx/xx-xx	25
S302-x7/10/xx-1xx/xx-xx	30 (50)		S302-x7/10/xx-2xx/xx-xx	51 (91)
S302-x7/16/xx-1xx/xx-xx	104 (50)		S302-x7/16/xx-2xx/xx-xx	200 (91)
S302-x7/25/xx-1xx/xx-xx	130		S302-x7/25/xx-2xx/xx-xx	250
8 digits			8 digits	
S302-x8/06/xx-1xx/xx-xx	18		S302-x8/06/xx-2xx/xx-xx	27
S302-x8/10/xx-1xx/xx-xx	32 (50)		S302-x8/10/xx-2xx/xx-xx	55 (91)

[1]   The values given are approximate values. 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.
( )   Values in parentheses are valid for LRD[®] versions.

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).

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-side display

The following figure shows unit versions S302-04/10/4x-1xx/xx-xx and
S302-F3/10/4x-1xx/xx-, representing the other unit versions listed in the following table.
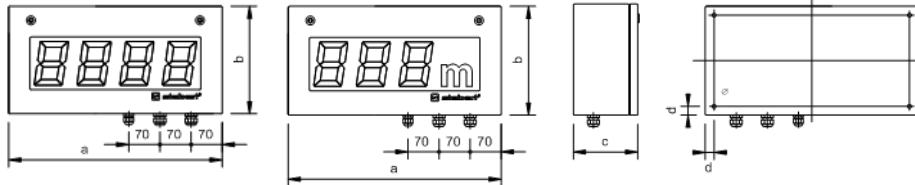
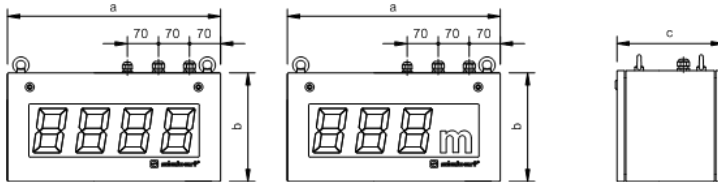| 1 digit		a [mm]	b [mm]	c [mm]	d [mm]	Ø [mm]	Weight [kg] [1]
S302-01/10/xx-1xx/xx-xx		330 [2]	245	110 (145)	16	7	6 (7) [2]
S302-01/16/xx-1xx/xx-xx		390	300	110 (145)	20	9	7 (9)
S302-01/25/xx-1xx/xx-xx		570	400	110	20	9	11
2 digits	**1 digit + dimension symbol**						
S302-02/06/xx-1xx/xx-xx	-	300 [3]	185	110	16	7	5 [3]
S302-02/10/xx-1xx/xx-xx	S302-F1/10/xx-1xx/xx-xx	330 [2]	245	110 (145)	16	7	6 (7) [2]
S302-02/16/xx-1xx/xx-xx	S302-F1/16/xx-1xx/xx-xx	390	300	110 (145)	20	9	7 (9)
S302-02/25/xx-1xx/xx-xx	S302-F1/25/xx-1xx/xx-xx	570	400	110	20	9	11
3 digit	**2 digit + dimension symbol**						
S302-03/06/xx-1xx/xx-xx	S302-F2/06/xx-1xx/xx-xx	300 [3]	185	110	16	7	5 [3]
S302-03/10/xx-1xx/xx-xx	S302-F2/10/xx-1xx/xx-xx	480	245	110 (145)	16	7	8 (9)
S302-03/16/xx-1xx/xx-xx	S302-F2/16/xx-1xx/xx-xx	670	300	110 (145)	20	9	11 (13)
S302-03/25/xx-1xx/xx-xx	S302-F2/25/xx-1xx/xx-xx	1030	400	110	20	9	18
4 digit	**3 digit + dimension symbol**						
S302-04/06/xx-1xx/xx-xx	S302-F3/06/xx-1xx/xx-xx	300 [3]	185	110	16	7	5 [3]
S302-04/10/xx-1xx/xx-xx	S302-F3/10/xx-1xx/xx-xx	480	245	110 (145)	16	7	8 (9)
S302-04/16/xx-1xx/xx-xx	S302-F3/16/xx-1xx/xx-xx	670	300	110 (145)	20	9	11 (13)
S302-04/25/xx-1xx/xx-xx	S302-F3/25/xx-1xx/xx-xx	1030	400	110	20	9	18
5 digit	**4 digit + dimension symbol**						
S302-05/03/xx-1xx/xx-xx	-	300 [3]	185	110	16	7	5 [3]
S302-05/06/xx-1xx/xx-xx	S302-F4/06/xx-1xx/xx-xx	400	185	110	16	7	6
S302-05/10/xx-1xx/xx-xx	S302-F4/10/xx-1xx/xx-xx	680	245	110 (145)	16	7	10 (12)
S302-05/16/xx-1xx/xx-xx	S302-F4/16/xx-1xx/xx-xx	960	300	110 (145)	20	9	14 (17)
S302-05/25/xx-1xx/xx-xx	S302-F4/25/xx-1xx/xx-xx	1500	400	110	20	9	24
6 digit	**5 digit + dimension symbol**						
S302-06/03/xx-1xx/xx-xx	S302-F5/03/xx-1xx/xx-xx	300 [3]	185	110	16	7	5 [3]
S302-06/06/xx-1xx/xx-xx	S302-F5/06/xx-1xx/xx-xx	400	185	110	16	7	6
S302-06/10/xx-1xx/xx-xx	S302-F5/10/xx-1xx/xx-xx	680	245	110 (145)	16	7	10 (12)
S302-06/16/xx-1xx/xx-xx	S302-F5/16/xx-1xx/xx-xx	960	300	110 (145)	20	9	14 (17)
S302-06/25/xx-1xx/xx-xx	S302-F5/25/xx-1xx/xx-xx	1500	400	110	20	9	24
7 digit	**6 digit + dimension symbol**						
-	S302-F6/03/xx-1xx/xx-xx	300 [3]	185	110	16	7	5 [3]
S302-07/06/xx-1xx/xx-xx	S302-F6/06/xx-1xx/xx-xx	510	185	110	16	7	7
S302-07/10/xx-1xx/xx-xx	S302-F6/10/xx-1xx/xx-xx	870	245	110 (145)	16	7	12 (14)
S302-07/16/xx-1xx/xx-xx	S302-F6/16/xx-1xx/xx-xx	1100	300	110 (145)	20	9	16 (20)
S302-07/25/xx-1xx/xx-xx	S302-F6/25/xx-1xx/xx-xx	1730	400	110	20	9	28
8 digit	**7 digit + dimension symbol**						
S302-08/06/xx-1xx/xx-xx	S302-F7/06/xx-1xx/xx-xx	510	185	110	32	7	7
S302-08/10/xx-1xx/xx-xx	S302-F7/10/xx-1xx/xx-xx	870	245	110 (145)	32	7	12 (14)

[1] The figures shown for weight are approximate.
[2] Units with Profibus interface: a = 480 mm, Weight = 8 (9) kg
[3] Units with Profibus interface or integrated heating: a = 400 mm, Weight = 6 kg;
Units with Profibus interface and integrated heating: a = 510 mm, Weight = 7 kg
( ) Values in round brackets are valid for LRD® versions.

Units with double-side display

The following figure shows unit versions S302-04/10/4x-2xx/xx-xx and
S302-F3/10/4x-2xx/xx-, representing the other unit versions listed in the following table.

Units with character height of 25 mm (S302-xx/03/xx-2xx/xx-xx) and 57 mm (S302-xx/06/xx-2xx/xx-xx) are provided with 2 eyes instead of 4.

1 digit		a [mm]	b [mm]	c [mm]	Weight [kg] [1]
S302-01/10/xx-2xx/xx-xx		330 [2]	245	170 (240)	9 (11) [2]
S302-01/16/xx-2xx/xx-xx		390	300	170 (240)	11 (12)
S302-01/25/xx-2xx/xx-xx		570	400	170	17
2 digit	1 digit + dimension symbol				
S302-02/06/xx-2xx/xx-xx	-	300 [3]	185	170	7 [3]
S302-02/10/xx-2xx/xx-xx	S302-F1/10/xx-2xx/xx-xx	330 [2]	245	170 (240)	9 (9) [2]
S302-02/16/xx-2xx/xx-xx	S302-F1/16/xx-2xx/xx-xx	390	300	170 (240)	11 (11)
S302-02/25/xx-2xx/xx-xx	S302-F1/25/xx-2xx/xx-xx	570	400	170	17
3 digit	2 digit + dimension symbol				
S302-03/06/xx-2xx/xx-xx	S302-F2/06/xx-2xx/xx-xx	300 [3]	185	170	7 [3]
S302-03/10/xx-2xx/xx-xx	S302-F2/10/xx-2xx/xx-xx	480	245	170 (240)	12 (15)
S302-03/16/xx-2xx/xx-xx	S302-F2/16/xx-2xx/xx-xx	670	300	170 (240)	17 (19)
S302-03/25/xx-2xx/xx-xx	S302-F2/25/xx-2xx/xx-xx	1030	400	170	27
4 digit	3 digit + dimension symbol				
S302-04/06/xx-2xx/xx-xx	S302-F3/06/xx-2xx/xx-xx	300 [3]	185	170	7 [3]
S302-04/10/xx-2xx/xx-xx	S302-F3/10/xx-2xx/xx-xx	480	245	170 (240)	12 (15)
S302-04/16/xx-2xx/xx-xx	S302-F3/16/xx-2xx/xx-xx	670	300	170 (240)	17 (19)
S302-04/25/xx-2xx/xx-xx	S302-F3/25/xx-2xx/xx-xx	1030	400	170	27
5 digit	4 digit + dimension symbol				
S302-05/03/xx-2xx/xx-xx	-	300 [3]	185	170	7 [3]
S302-05/06/xx-2xx/xx-xx	S302-F4/06/xx-2xx/xx-xx	400	185	170	8
S302-05/10/xx-2xx/xx-xx	S302-F4/10/xx-2xx/xx-xx	680	245	170 (240)	15 (19)
S302-05/16/xx-2xx/xx-xx	S302-F4/16/xx-2xx/xx-xx	960	300	170 (240)	21 (26)
S302-05/25/xx-2xx/xx-xx	S302-F4/25/xx-2xx/xx-xx	1500	400	170	36
6 digit	5 digit + dimension symbol				
S302-06/03/xx-2xx/xx-xx	S302-F5/03/xx-2xx/xx-xx	300 [3]	185	170	7 [3]
S302-06/06/xx-2xx/xx-xx	S302-F5/06/xx-2xx/xx-xx	400	185	170	8
S302-06/10/xx-2xx/xx-xx	S302-F5/10/xx-2xx/xx-xx	680	245	170 (240)	15 (19)
S302-06/16/xx-2xx/xx-xx	S302-F5/16/xx-2xx/xx-xx	960	300	170 (240)	21 (27)
S302-06/25/xx-2xx/xx-xx	S302-F5/25/xx-2xx/xx-xx	1500	400	170	36
7 digit	6 digit + dimension symbol				
-	S302-F6/03/xx-2xx/xx-xx	300 [3]	185	170	7 [3]
S302-07/06/xx-2xx/xx-xx	S302-F6/06/xx-2xx/xx-xx	510	185	170	9
S302-07/10/xx-2xx/xx-xx	S302-F6/10/xx-2xx/xx-xx	870	245	170 (240)	18 (23)
S302-07/16/xx-2xx/xx-xx	S302-F6/16/xx-2xx/xx-xx	1100	300	170 (240)	24 (29)
S302-07/25/xx-2xx/xx-xx	S302-F6/25/xx-2xx/xx-xx	1730	400	170	42
8 digit	7 digit + dimension symbol				
S302-08/06/xx-2xx/xx-xx	S302-F7/06/xx-2xx/xx-xx	510	185	170	9
S302-08/10/xx-2xx/xx-xx	S302-F7/10/xx-2xx/xx-xx	870	245	170 (240)	18 (23)

[1]   The figures shown for weight are approximate.
[2]   Units with Profibus interface: a = 480 mm, Weight = 12 (15) kg
[3]   Units with Profibus interface or integrated heating: a = 400 mm, Weight = 8 kg;
      Units with Profibus interface and integrated heating: a = 510 mm, Weight = 9 kg
( )   Values in round brackets are valid for LRD® versions.