Operating instructions

Series SX602

Alphanumeric large size displays with parallel interface

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Chapter 1 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 are 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 are 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 infeed.

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.

Battery replacement

The units have a lithium battery used for data security of the real-time clock. The battery can explode if replaced improperly.

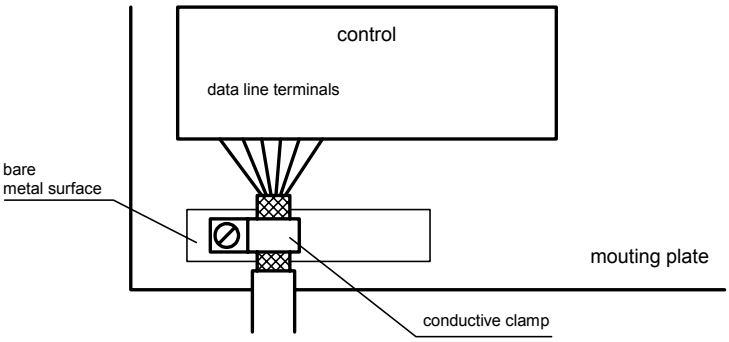
Grounding

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).

EMV-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.

Chapter 2 Unit description

Model designation

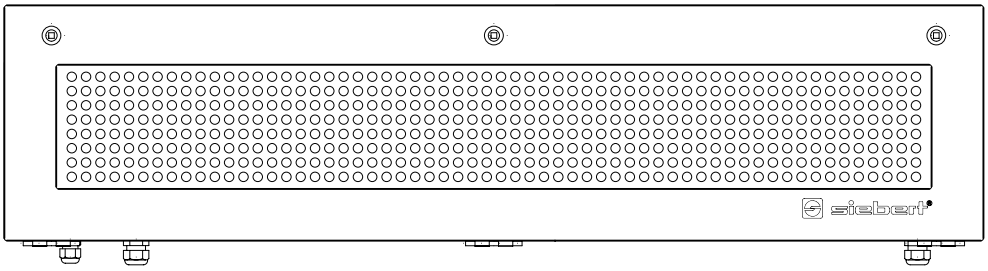
The model designation of the units is:

SX602-xxx/xx/xx-xxx/xx-P0

x = The 'x's in the model designation indicate the size and design of the units (see Chapter 9).

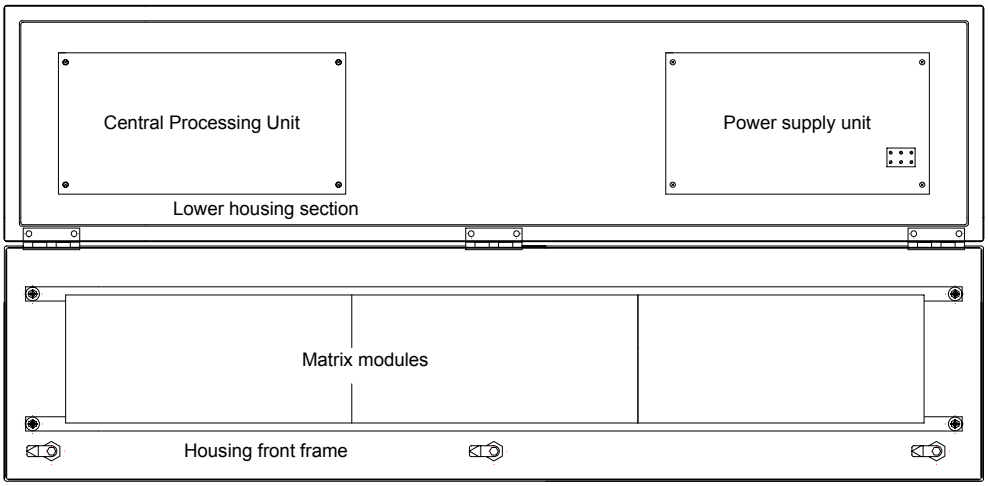
Unit construction

The following figure shows model type SX602-10/10/xx-xxx/xx-xx as example for the other model types. The front frame of the housing is locked with quick-action releases and can be hinged downward for opening the unit.



The following figure shows the unit when open and reveals the modular construction of the units. All components, controls and connections are directly accessible.

The display modules (LED matrix modules) are found inside the housing front frame. The control computer and power supply unit are located in the lower housing section.



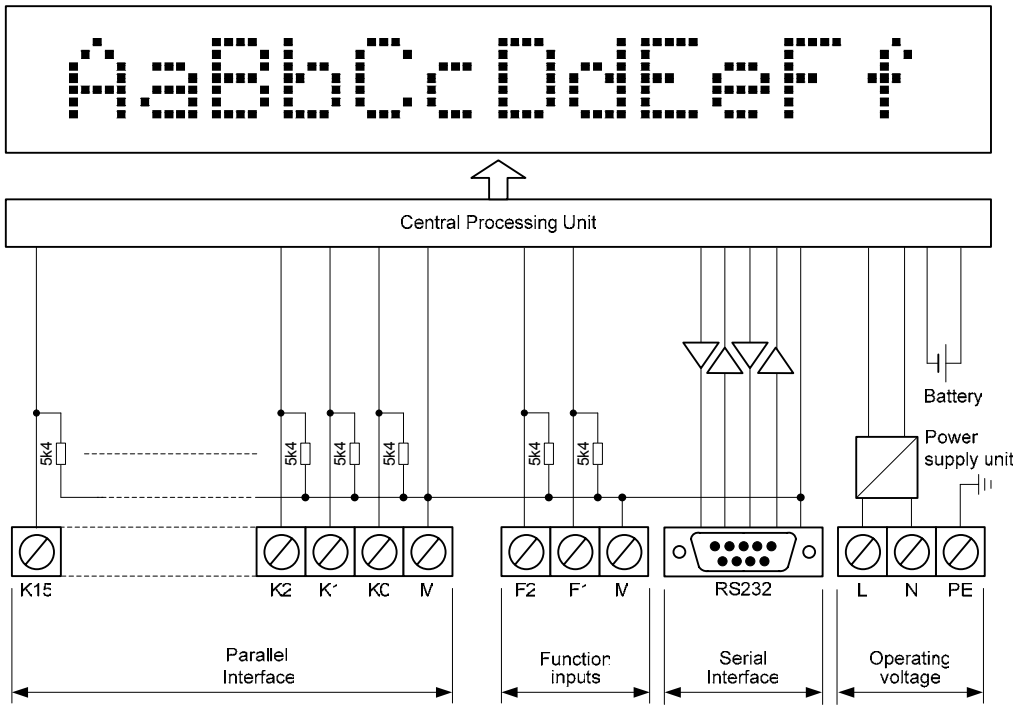
Display range

The series SX602 includes devices with the following display range:

Character height 160 mm: 4, 6, 8, 10 and 12 characters
Character height 250 mm: 4, 6 and 8 characters

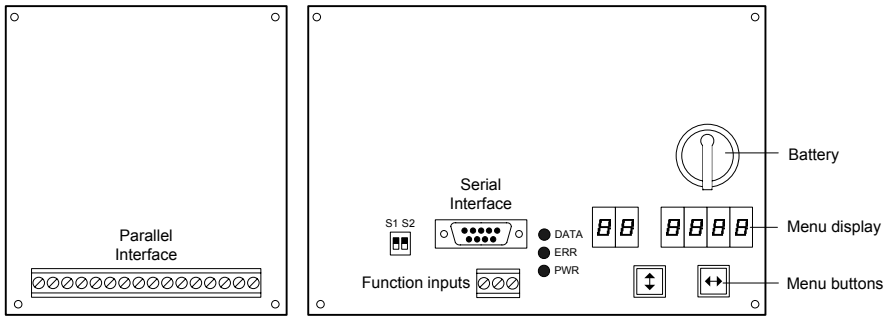
The devices with double-sided display (SX602-xxx/xx/xx-2xx/xx-xx) show the same information on the front and rear side.

Principle circuit diagram



Central Processing Unit

The following figure shows the Central Processing Unit:



Parallel interface

The parallel interface serves for activation of the devices (see chapter 4.) It includes the data inputs K15...K0 and is located on the screw type terminal of the control computer.

Function inputs

The function inputs allow, independently of commands via the parallel interface, a reduction the brightness and the flashing of the display (see chapter 4). It is located on the screw type terminal of the control computer.

Signal voltage

The data inputs and the functional inputs are PLC-compatible and dimensioned for the following signal voltage:

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

Serial interface

The serial interface is determined for programming the device using a computer, for example for loading static texts in the text memory and for installing character sets by means of the PC tools 'Text Manager' and 'Font Manager' provided on data carrier.

The interface RS232 is located on a D-Sub connector with the following assignment:

Pin	1	2	3	4	5	6	7	8	9
Signal	–	RxD	TxD	–	COM	–	RTS	CTS	–

The PC connection is established using a standard null-modem cable.

The parameters of the interface are set (fixed setting) as follows:

9600 bauds, 8 data bits, no parity, 1 stop bit, RTS/CTS handshake, CR/LF protocol, no addressing

Menu display

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

In normal operation, the following status messages appear in the menu display::

`----` `--` The device is in normal mode.

`dAtA` A static text is loaded from the text memory.

In programming operation, the following status messages appear in the menu display:

`LoAd` Static texts are loaded in the text memory.

`rEAd` Static texts are read from the text memory.

Status indicator

The status indicator (LED) lights when data are received via the serial interface.

Battery

The lithium battery (type CR2032) provides a power reserve for the real-time clock. It is located in a battery holder, thus making battery replacement easy. The battery is to be replaced with a new one after three years.

Power supply

The power supply of the devices (230 V AC) is connected to the terminals L, N and PE.

In devices for a power supply of 24 V (SX502-xx/xx/xx-xxx/xB-xx), the terminals are designated with +, – and PE.

LED-matrix

The characters are displayed on an LED matrix.

Character sets

The character sets Acala 7 and Acala 7 extended are permanently installed in the units.

Charater set	Character display
Acala 7	AaBbCcDdEeFfGgHhIiJjKkLlMmNnOoPpQqRr
Acala 7 extended*	AaBbCcDdEeFfGgHhIi

Proportional font

The character sets Acala 7 and Acala 7 extended are represented in non-proportional font. The same number of pixels is available for the width of each character.

The character set Acala 7 P, which is preinstalled ex factory and contained on the data medium, represents the characters in proportional font. Each character uses the width it requires visually.

PC-Tool

The data carrier also contains the PC tool 'Font Manager' for installing the character sets. In addition to that, the tool is used for creating user-defined character sets, for saving character sets on data carriers and for restoring the installed character sets.

LED color

The device models SX602-xx/xx/xR-xxx/xx-xx and SX602-xx/xx/xG-xxx/xx-xx have a display with red and/or green LED color. The LED color cannot be changed (monochrome display).

The device models SX602-xx/xx/xM-xxx/xx-xx have a display the LED color of which can be switched between red, green and orange.

In the following description, the numbers in [ ] refer to the corresponding lines in the function table.

Parameterization

The units must be parameterized before they can be controlled. Parameterization occurs in a menu (see Chapter 5).

Text memory

The text is compiled using the PC tool 'Text Manager' delivered on data carrier and loaded in the text memory via the serial interface. After that, they can be opened via their text number.

Function table

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

Data inputs		**K15**	**K14**	**K13**	**K12**	**K11**	**K10**	**K9**	**K8**	**K7**	**K6**	**K5**	**K4**	**K3**	**K2**	**K1**	**K0**
Static activation																	
Text numbers 1-from-n coded	[1]	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Text numbers binary coded	[2]	X	X	2^{13}	2^{12}	2^{11}	2^{10}	2^{9}	2^{8}	2^{7}	2^{6}	2^{5}	2^{4}	2^{3}	2^{2}	2^{1}	2^{0}
Text numbers BCD coded	[3]	8000	4000	2000	1000	800	400	200	100	80	40	20	10	8	4	2	1
Dynamic activation																	
Text numbers 1-from-n coded	[4]	↑	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Text numbers binary coded	[5]	↑	X	2^{13}	2^{12}	2^{11}	2^{10}	2^{9}	2^{8}	2^{7}	2^{6}	2^{5}	2^{4}	2^{3}	2^{2}	2^{1}	2^{0}
Text numbers BCD coded	[6]	↑	4000	2000	1000	800	400	200	100	80	40	20	10	8	4	2	1

X = Data input without function, ↑ = rising pulse edge

Static activation

In case of a static activation a text appears in the display as long as its text number is applied to the data inputs of the parallel interface. The text number can be coded 1-from-n, binary or BCD [1...3].

If no text number is applied (L signal applied to all the data inputs) the display is cleared and an LED point flashes on top left. If an initial text is to appear in the display instead (e.g. 'System operational'), this text is to be saved in the text memory with text number 0, and displaying of the initial text is to be set in menu item 20 (see Chapter 5).

1-from-n coded text numbers are applied to the data inputs K15...K0 [1]. Under menu item 50 setting 1_n and under menu item 51 setting STAt must be chosen. In this mode the text numbers 0...15 are possible (1 data input = 1 text). The lowest data input showing H-signal has priority.

Binary coded text numbers are applied to the data inputs K13...K0 [2]. Under menu item 50 setting bin and under menu item 51 setting STAt must be chosen. In this mode the text numbers 0...9999 are possible.

BCD coded text numbers are applied to the data inputs K13...K0 [3]. Under menu item 50 setting bcd and under menu item 51 setting STAt must be chosen. In this mode the text numbers 0...9999 are possible. Invalid text numbers (not BCD coded) result in an undefined display and hence are not allowed.

Dynamic activation

In case of a dynamic activation a text appears in the display when its text number is applied to the data inputs of the parallel interface and input K15 receives a pulse to apply the data. The text numbers can be 1-from-n, binary or BCD coded [4…6].

If no text number is applied (L signal applied to all the data inputs) the display is cleared and an LED point flashes on top left. If an initial text is to appear in the display instead (e.g. 'System operational'), this text is to be saved in the text memory with text number 0, and displaying of the initial text is to be set in menu item 20 (see Chapter 5).

1-from-n coded text numbers are applied to the data inputs K14...K0 [4]. Under menu item 50 setting 1-n and under menu item 51 setting dyn must be chosen. In this mode the text numbers 0...14 are possible (1 data input = 1 text). The lowest data input showing H-signal has priority.

Binary coded text numbers are applied to the data inputs K13...D0 [5]. Under menu item 50 setting bin and under menu item 51 setting dyn must be chosen. In this mode the text numbers 0...9999 are possible.

BCD coded text numbers are applied to the data inputs K14...K0 [6]. Under menu item 50 setting bcd and under menu item 51 setting dyn must be chosen. In this mode the text numbers 0...7999 are possible. Invalid text numbers (not BCD coded) result in an undefined display and hence are not allowed.

It applies for all modes of activation that the data have to be applied to the data inputs for at least 10 ms for a realiable recognition. Data and pulses can be applied simultaneously so that only one program step is necessary for PLC interfacing.

The data on the inputs K14...K0 must be stable over the pulse duration (approx. 10 ms).

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

Brightness reduction

The brightness can also be reduced with a H signal level on function input F1.

Flashing

Flashing of the display can also be activated with a high signal level at function input F2.

Initial text

Once the operating voltage has been applied, an LED dot in the upper left-hand corner of the display illuminates to indicate that the unit is ready for operation. If an initial text is to appear in the display instead (e.g. 'System operational'), this text is to be saved in the text memory with text number 0, and displaying of the initial text is to be set in menu item 20 (see Chapter 5).

Paging

If a text contains more characters than can be shown in the display, it is automatically displayed in paging mode. The page change interval can be set between 3 and 30 seconds in menu item 21.

Menu display

The parameterization of the devices is carried out in a menu of the menu display. In normal operation, the status messages appear in the menu display (see chapter 2).

Menu operation

To reach the menu, press both menu buttons simultaneously (approx. 1 sec.) until an audible signal is heard and menu item 01 appears in the menu display. Now, you can 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 [↕] 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 [↔] and keep it pressed

The menu ends in menu item 99 with the button [↕]. The settings made are either saved (set), not saved (escape) or the factory settings, except for menu item 01, are reset, depending on the setting selected in menu item 99.

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

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

An LED dot illuminates in the upper left-hand corner of the display in menu mode. 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	Menu display
20	Initial text	Not displaying initial text*	20 0
		Displaying initial text	20 1
21	Paging interval	3 seconds *	21 3
		↓	↓
		30 seconds *	21 30
22	Standard character set	Acala 7*	22 7
		Acala 7 extended	22 7E
		Not applicable	22 14C
		Not applicable	22 14E
		User-defined character set	22 U1
		Not applicable	22 U2

Menu item		Settings	Menu display
23	Language	German*	23 G
		French	23 F
		English	23 E
24	Display test	No display test at power-on *	24 0
		Display test at power-on	24 1
50	Coding of the text numbers	1 from n	50 1_n
		binary	50 bin
		BCD	50 bcd
51	Control	Static	51 StAt
		Dynamic	51 dyn
90	Setting date (year)	05	90 05
		↓	↓
		99	90 99
91	Setting date (month)	1	91 1
		↓	↓
		12	91 12
92	Setting date (day)	1	92 1
		↓	↓
		31	92 31
93	Setting weekday	Monday	93 1
		Tuesday	93 2
		Wednesday	93 3
		Thursday	93 4
		Friday	93 5
		Saturday	93 6
		Sunday	93 7
94	Setting time (hours)	0	94 0
		↓	↓
		23	94 23
95	Setting time (minutes)	0	95 0
		↓	↓
		59	96 59
99	Saving	Saving parameters* (Set)	99 SEt
		Not saving parameters (Escape)	99 ESC
		Resetting to the default settings (Default)	99 dEF

Initial text

Once the operating voltage has been applied, an LED dot in the upper left-hand corner of the display illuminates to indicate that the unit is ready for operation. If an initial text is to appear in the display instead (e.g. 'System operational'), this text is to be stored in the text memory with text number 0, and displaying of the initial text is to be set in menu item 20.

If a display test is preselected in menu item 24, it appears in the display before the initial text.

Paging interval

If a text contains more characters than can be shown in the display, it is automatically displayed in paging mode. The page change interval can be set between 3 and 30 seconds in menu item 21.

Character set

In menu item 22, you can set the default character set used to display the texts.

The character sets Acala 7 and Acala 7 extended are permanently installed in the units.

A user-defined character set can be loaded with the setting U1. The Acala 7 P character set is preinstalled here. It can be replaced by a character set created by the user, for example.

The settings 14C, 14E and U2 must not be used.

The optional character sets and a tool for generating user-defined character sets are included on a data medium. The tool is also used to install character sets, to save character sets to data media and to read back installed character sets.

Language

In menu item 23, you can set the language in which the weekday is displayed (abbreviated to two letters).

Display test

In menu item 24, you can set whether a display test is to be performed after the operating voltage is applied.

Time/date

The year, month, day and weekday of the real-time clock are set in menu items 90 – 93. The time at which the clock is to be started is set in menu items 94 – 95. Then select menu item 99 and select the setting SEt there. When the set time is reached, briefly press the left menu button [↕] the clock is now set to the current time.

If the settings in menu items 90 – 93 (date) and 94 – 95 (time) are not changed when the menu is run through, the current settings for the time, date and weekday are retained when the menu is exited. Therefore, the clock only needs to be set when running through the menu if this is intended.

Setting the clock can also occur with control commands via the serial interface (see Chapter 5).

Attention: Setting unrealistic date values, e.g. 31/02/06 can lead to unpredictable date displays and is therefore impermissible.

Chapter 6 Status messages

Fault messages

Serious faults due to improper operation or faulty operating conditions are indicated in the display. The following messages are possible:

Fault message	Cause	Elimination
No Text	The text called up is not saved in the fixed text memory.	The text is to be loaded into the fixed text memory.
Syntax Error	A faulty command was sent to the display .	The command must be corrected (see command table in chapter 6).

Chapter 7 Character table

0	<NUL>	64	@	128	€	192	А
1	☺	65	A	129	ü	193	Б
2	<STX>	66	B	130	é	194	В
3	<ETX>	67	C	131	â	195	Г
4	<EOT>	68	D	132	ä	196	Д
5	♣	69	E	133	à	197	Е
6	<ACK>	70	F	134	å	198	Ж
7	<BEL>	71	G	135	ç	199	З
8	<BS>	72	H	136	ê	200	И
9	<HT>	73	I	137	ë	201	Й
10	<LF>	74	J	138	è	202	К
11	♂	75	K	139	ï	203	Л
12	♀	76	L	140	î	204	М
13	<CR>	77	M	141	ì	205	Н
14	♫	78	N	142	ä	206	О
15	✷	79	O	143	å	207	П
16	<DLE>	80	P	144	é	208	Р
17	<XON>	81	Q	145	æ	209	С
18	↕	82	R	146	æ	210	Т
19	<XOFF>	83	S	147	ô	211	У
20	¶	84	T	148	ö	212	Ф
21	<NAK>	85	U	149	ò	213	Х
22		86	V	150	û	214	Ц
23	↨	87	W	151	ù	215	Ч
24	↑	88	X	152	ÿ	216	Ш
25	↓	89	Y	153	ö	217	Щ
26	<EOF>	90	Z	154	ü	218	Ъ
27	<ESC>	91	[	155	ø	219	Ы
28		92	\	156	£	220	Ь
29	↔	93	]	157	ø	221	Э
30	▲	94	^	158	×	222	Ю
31	▼	95	_	159	ƒ	223	Я
32	<SPACE>	96	`	160	á	224	
33	!	97	A	161	í	225	ss
34	"	98	B	162	ó	226	
35	#	99	C	163	ú	227	
36	$	100	D	164	ñ	228	
37	%	101	E	165	Ñ	229	
38	&	102	F	166	ª	230	
39	'	103	G	167	º	231	
40	(	104	H	168	reserved	232	
41	)	105	I	169		233	
42	*	106	J	170		234	
43	+	107	K	171		235	
44	,	108	L	172		236	
45	-	109	M	173		237	
46	.	110	N	174		238	
47	/	111	O	175		239	
48	0	112	P	176		240	
49	1	113	Q	177		241	
50	2	114	R	178		242	
51	3	115	S	179	reserved	243	
52	4	116	T	180	reserved	244	reserved
53	5	117	U	181	reserved	245	reserved
54	6	118	V	182	reserved	246	
55	7	119	W	183	reserved	247	
56	8	120	X	184	reserved	248	
57	9	121	Y	185	reserved	249	
58	:	122	Z	186	reserved	250	
59	;	123	{	187	Pt	251	
60	<	124	|	188		252	
61	=	125	}	189	¢	253	
62	>	126	~	190	¥	254	
63	?	127	⌂	191	ë	255	ρ

Unit properties

The model designation is structured as follows:

SX602 – [ ][ ] / [ ][ ] / [ ][ ] – [ ][ ][ ] / [ ][ ] – P 0

4 characters	0	4
6 characters	0	6
8 characters	0	8
10 characters	1	0
12 characters	1	2
20 characters	2	0
40 characters	4	0

Character height of 50 mm	0	5
Character height of 100 mm	1	0
Character height of 160 mm	1	6
Character height of 250 mm	2	5

Standard LED	0
LED for outdoor use	2

Red character color	R
Green character color	G
Switchable red/green/orange character color	M

Display readable on one side	1
Display readable on both sides	2

Steel sheet housing, coated	0
Steel sheet housing, bilayer painting	1
Steel sheet housing V2A, coated	2
Steel sheet housing V2A, brushed	3
Steel sheet housing V4A, brushed	4

Protection type IP54	0
Protection type IP65	1
Protection type IP54 climate adjustment	2
Protection type IP54 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 and hanging installation, cable entry point from the bottom	4
Wall and hanging installation, cable entry point from the top	5

Power supply 230 V AC ±15 %, 50 Hz	A
Power supply 115 V AC ±15 %, 60 Hz	C

Housing colors

Front pane: RAL 7035 light grey
RAL 5002 ultramarine

Front frame

SX602-xxx/xx/xR-xxx/xx-xx: plastic, tinted red, non-reflective
SX602-xxx/xx/xM-xxx/xx-xx: plastic, clear, non-reflective

Ambient conditions

Operating temperature: 0…40 °C
Storage temperature: -30…85 °C
Relative humidity: max. 95 % (non-condensing)

Max. power consumption

Units with character height of 50 mm

One-sided display		Double-sided display	
SX602-20/05/0R-1xx/xx-xx	approx. 45 VA	SX602-20/05/0R-2xx/xx-xx	approx. 85 VA
SX602-20/05/0M-1xx/xx-xx	approx. 85 VA	SX602-20/05/0M-2xx/xx-xx	approx. 165 VA
SX602-40/05/0R-1xx/xx-xx	approx. 75 VA	SX602-40/05/0R-2xx/xx-xx	approx. 170 VA
SX602-40/05/0M-1xx/xx-xx	approx. 130 VA	SX602-40/05/0M-2xx/xx-xx	approx. 320 VA

Units with character height of 100 mm

One-sided display		Double-sided display	
SX602-10/10/0R-1xx/xx-xx	approx. 40 VA	SX602-10/10/0R-2xx/xx-xx	approx. 75 VA
SX602-10/10/0G-1xx/xx-xx	approx. 40 VA	SX602-10/10/0G-2xx/xx-xx	approx. 75 VA
SX602-20/10/0R-1xx/xx-xx	approx. 75 VA	SX602-20/10/0R-2xx/xx-xx	approx. 150 VA
SX602-20/10/0G-1xx/xx-xx	approx. 75 VA	SX602-20/10/0G-2xx/xx-xx	approx. 150 VA

Units with character height of 160 mm

One-sided display		Double-sided display	
SX602-04/16/0R-1xx/xx-xx	approx. 45 VA	SX602-04/16/0R-2xx/xx-xx	approx. 80 VA
SX602-04/16/0G-1xx/xx-xx	approx. 45 VA	SX602-04/16/0G-2xx/xx-xx	approx. 80 VA
SX602-06/16/0R-1xx/xx-xx	approx. 60 VA	SX602-06/16/0R-2xx/xx-xx	approx. 115 VA
SX602-06/16/0G-1xx/xx-xx	approx. 60 VA	SX602-06/16/0G-2xx/xx-xx	approx. 115 VA
SX602-08/16/0R-1xx/xx-xx	approx. 80 VA	SX602-08/16/0R-2xx/xx-xx	approx. 150 VA
SX602-08/16/0G-1xx/xx-xx	approx. 80 VA	SX602-08/16/0G-2xx/xx-xx	approx. 150 VA
SX602-10/16/0R-1xx/xx-xx	approx. 95 VA	SX602-10/16/0R-2xx/xx-xx	approx. 180 VA
SX602-10/16/0G-1xx/xx-xx	approx. 95 VA	SX602-10/16/0G-2xx/xx-xx	approx. 180 VA
SX602-12/16/0R-1xx/xx-xx	approx. 110 VA	SX602-12/16/0R-2xx/xx-xx	approx. 215 VA
SX602-12/16/0G-1xx/xx-xx	approx. 110 VA	SX602-12/16/0G-2xx/xx-xx	approx. 215 VA

Units with character height of 250 mm

One-sided display		Double-sided display	
SX602-04/25/0R-1xx/xx-xx	approx. 90 VA	SX602-04/25/0R-2xx/xx-xx	approx. 170 VA
SX602-04/25/0M-1xx/xx-xx	approx. 140 VA	SX602-04/25/0M-2xx/xx-xx	approx. 270 VA
SX602-06/25/0R-1xx/xx-xx	approx. 135 VA	SX602-06/25/0R-2xx/xx-xx	approx. 260 VA
SX602-06/25/0M-1xx/xx-xx	approx. 205 VA	SX602-06/25/0M-2xx/xx-xx	approx. 400 VA
SX602-08/25/0R-1xx/xx-xx	approx. 180 VA	SX602-08/25/0R-2xx/xx-xx	approx. 350 VA
SX602-08/25/0M-1xx/xx-xx	approx. 270 VA	SX602-08/25/0M-2xx/xx-xx	approx. 530 VA

The power consumption of the device versions SX602-xx/xx/0R-xxx/xx-xx also applies for the following device versions:

SX602-xx/xx/0G-xxx/xx-xx LED green
SX602-xx/xx/2x-xxx/xx-xx LEDs for outdoor application

For units with built-in heating, the values for power consumption specified in the table increase by approx. 10 – 200 VA (exact values on request), depending on the unit size).

Fixed text memory

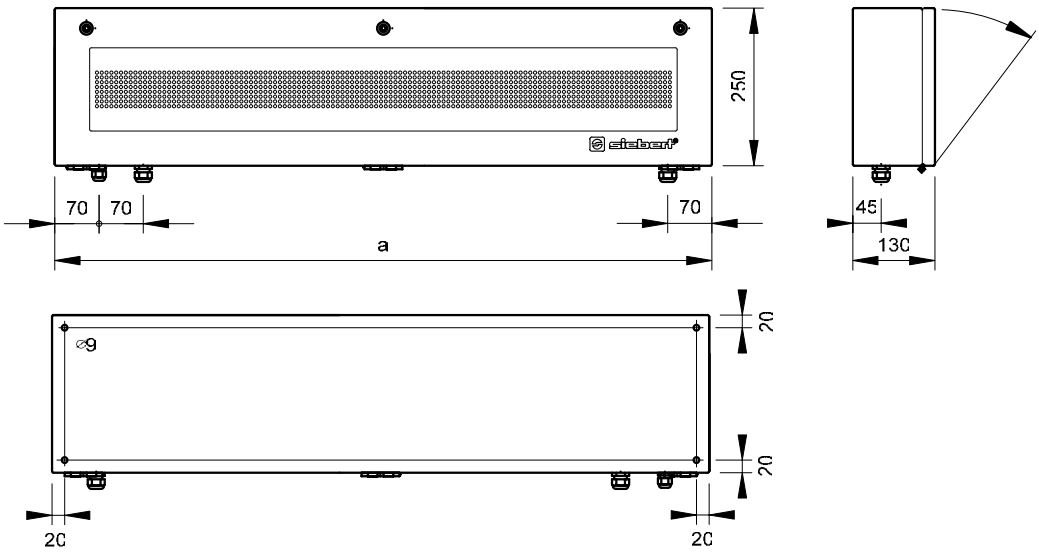
Capacity: 128 KBytes
Number of texts: max. 10.000
Length of texts: max. 2048 characters

Real-time clock

Precision: 20 ppm

Units with one-side display and character height of 50 and 100 mm

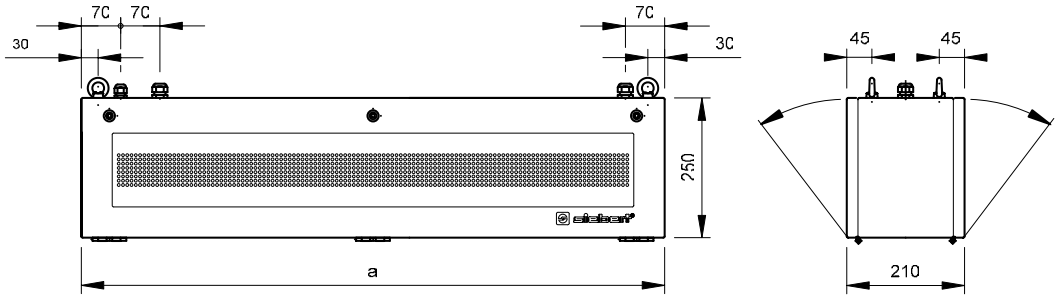
The following figure shows unit version SX602-20/05/0x-1xx/xx-xx, representing the other unit versions listed in the following table. All dimensions are in mm.



Unit version	a	Weight
SX602-20/05/0x-1xx/xx-xx	1040	approx. 16 kg
SX602-40/05/0x-1xx/xx-xx	1960	approx. 27 kg
SX602-10/10/0x-1xx/xx-xx	1040	approx. 16 kg
SX602-20/10/0x-1xx/xx-xx	1960	approx. 27 kg

Units with double-sided display and character height of 50 and 100 mm

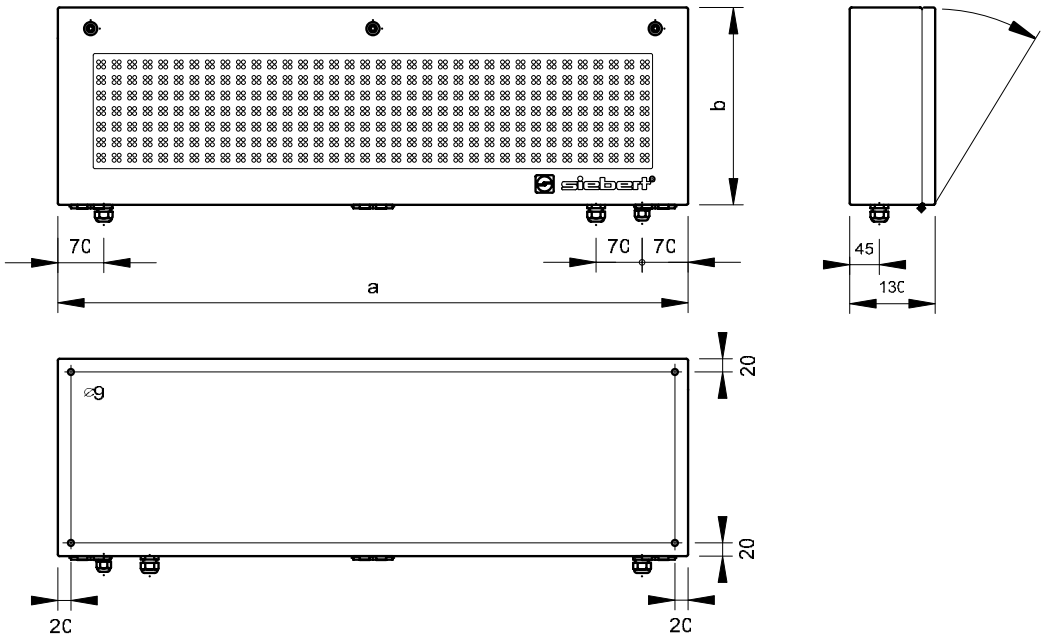
The following figure shows unit version SX602-20/05/0x-2xx/xx-xx, representing the other unit versions listed in the following table. All dimensions are in mm.



Unit version	a	Weight
SX602-20/05/0x-2xx/xx-xx	1040	approx. 16 kg
SX602-40/05/0x-2xx/xx-xx	1960	approx. 27 kg
SX602-10/10/0x-2xx/xx-xx	1040	approx. 16 kg
SX602-20/10/0x-2xx/xx-xx	1960	approx. 27 kg

Units with one-side display and character height of 100 and 250 mm

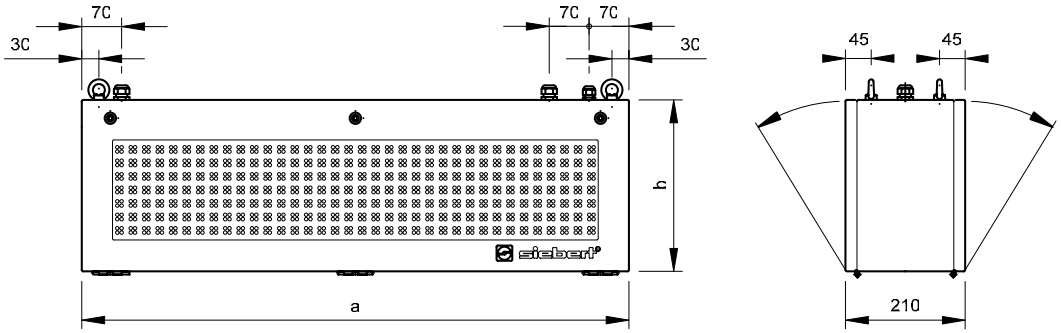
The following figure shows unit version SX602-06/16/0x-1xx/xx-xx, representing the other unit versions listed in the following table. All dimensions are in mm.



Unit version	a	b	Weight
SX602-04/16/0x-1xx/xx-xx	670	300	approx. 15 kg
SX602-06/16/0x-1xx/xx-xx	960	300	approx. 17 kg
SX602-08/16/0x-1xx/xx-xx	1240	300	approx. 21 kg
SX602-10/16/0x-1xx/xx-xx	1520	300	approx. 25 kg
SX602-12/16/0x-1xx/xx-xx	1810	300	approx. 29 kg
SX602-04/25/0x-1xx/xx-xx	1030	400	approx. 22 kg
SX602-06/25/0x-1xx/xx-xx	1500	400	approx. 30 kg
SX602-08/25/0x-1xx/xx-xx	1960	400	approx. 38 kg

Units with double-sided display and character height of 100 and 250 mm

The following figure shows unit version SX602-06/16/0x-2xx/xx-xx, representing the other unit versions listed in the following table. All dimensions are in mm.



Unit version	a	b	Weight
SX602-04/16/0x-2xx/xx-xx	670	300	approx. 22 kg
SX602-06/16/0x-2xx/xx-xx	960	300	approx. 28 kg
SX602-08/16/0x-2xx/xx-xx	1240	300	approx. 34 kg
SX602-10/16/0x-2xx/xx-xx	1520	300	approx. 40 kg
SX602-12/16/0x-2xx/xx-xx	1810	300	approx. 46 kg
SX602-04/25/0x-2xx/xx-xx	1030	400	approx. 36 kg
SX602-06/25/0x-2xx/xx-xx	1500	400	approx. 48 kg
SX602-08/25/0x-2xx/xx-xx	1960	400	approx. 60 kg