

PSS 5100.510 C / 5200.510 C

Welding Control

PSS 5100.510 C (50/60 cyc) / PSS 5200.510 C (ms)

Version

101

PSS 5100.510 C / 5200.510 C

Welding Control

PSS 5100.510 C (50/60 cyc) / PSS 5200.510 C (ms)

Type description

1070 078 234-101 (97.03) GB



Reg. Nr. 16149-01/2

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1.0 Introduction

The present document on the PSS 5100.510 C and PSS 5200.510 C weld timers (WT) describes the functions that deviate from the PSS 5000 basic timer model.

The basic timer model is described in the following documents:

- Technical Information PSS 5000 (German)
SAP no.1070 078 181, P.-Nr. 4494/D
- Technical Information PSS 5000 (English)
SAP no.1070 078 216, P.-No. 4494/E (GB)
- Technical Information PSS 5000 (French)
SAP no.1070 078 207, P.-No. 4517/F
- Technical Information PSS 5000 (Spanish)
SAP no.1070 078 208, P.-No. 4517/SP (E)
- Technical Information PSS 5000 (Swedish)
SAP no.1070 078 215, P.-No. 4494/SWE (S)
- Operating and Programming Manual, Vol. 1 (German)
SAP no.1070 078 182, P.-Nr. 4495/D
- Operating and Programming Manual, Vol. 1 (English)
SAP no.1070 078 217, P.-No. 4495/E (GB)
- Operating and Programming Manual, Vol. 1 (French)
SAP no.1070 078 210, P.-No. 4518/F
- Operating and Programming Manual, Vol. 1 (Spanish)
SAP no.1070 078 211, P.-No. 4518/SP (E)
- Operating and Programming Manual, Vol. 2 (German)
SAP no.1070 078 183, P.-Nr. 4496/D
- Operating and Programming Manual, Vol. 2 (English)
SAP no.1070 078 218, P.-No. 4496/E (GB)
- Operating and Programming Manual, Vol. 2 (French)
SAP no.1070 078 210, P.-No. 4518/F
- Operating and Programming Manual, Vol. 2 (Spanish)
SAP no.1070 078 214, P.-No. 4518/SP (E)

- Technical Information, Instructions for Assembly and Operation, PSU 5000/PSG (German)
SAP no.1070 078 196, P.-Nr. 4511/D
- Technical Information, Instructions for Assembly and Operation, PSU 5000/PSG (English)
SAP no.1070 078 224, P.-No. 4511/E
- Technical Information, Instructions for Assembly and Operation, PSU 5000/PSG (French)
SAP no.1070 078 225, P.-No. 4511/F

**NOTE!**

Unless described otherwise, the safety instructions, technical standards, notes and technical data mentioned in the documentation on the basic timer model are applicable.

Explanation of the timer description:

PSS 5100.510 C	■
PSS 5200.510 C	

Only valid for the PSS 5100.510 C (50/60 Hz) WT

PSS 5100.510 C	
PSS 5200.510 C	■

Only valid for the PSS 5200.510 C (ms) WT

2.0 Different performance features

The PSS 5100.510 C and PSS 5200.510 C weld timers differ from the PSS 5000 basic timer model in the following functions and functional expansions:

PSS 5100.510 C	
PSS 5200.510 C	■

- Free slot for quality module (Q-module) option retrofit.
- The X9 PSU interface for connecting a medium-frequency inverter for operation as ms timer.
- The additional digital pressure input (P3: analog pressure feedback (+24V signal) at interface X2).
- The X5 interface for voltage supply to external devices.

PSS 5100.510 C	
PSS 5200.510 C	■

- Programming of the welding parameters in milliseconds (ms) with the BOS 5000 user interface.
- The WT can be equipped with a Profibus FMS interface board.
- The housing conforms to construction type C.

2.1 Quality module (Q-module)

At the right-hand side of the WT, there is a free slot for a quality module (Q-module) option retrofit.

2.2 X9 PSU interface

PSS 5100.510 C	
PSS 5200.510 C	■

A medium-frequency inverter (MF inverter) can be connected to the X9 PSU interface. For this purpose, suitable firmware for ms control must be loaded into the WT.

2.3 X2/P3 Pressure input (pressure feedback)

A +24V signal is given by an external force measuring and comparing unit at input X2/P3 to inform the WT that a specified pressure (force) value has been reached at the electrodes. This **<pressure feedback>** signal is AND-linked by the WT with the **<pressure contact>** signal and thus acts accordingly as a condition for the start of the SQZ.

When operated without such an external force measuring and comparison unit (without proportional valve), input X2/P3 must be permanently connected to a +24V signal.

2.4 X5 interface

The X5 interface provides 24VDC for power supply to an external device.

2.5 ms function of the PSS 5200.510 C WT

PSS 5100.510 C	
PSS 5200.510 C	■

If appropriate firmware has been loaded (ms control), the PSS 5200.510 C provides an analog current value signal at interface X9/M02...M03 and a +24V current time signal at X9/M04...M05 for controlling an MF inverter.

The analog current value signal determines the amount of current and the current time signal specifies the duration of the MF inverter firing.

2.6 Programmed sequence times of PSS 5200.510 C

PSS 5100.510 C	
PSS 5200.510 C	■

In contrast to the PSS 5000 basic timer model, the following time ranges are permitted for programming the schedule of the PSS 5200.510 C:

- 1. SQZ : 0 ... 2000 ms
- SQZ : 10 ... 2000 ms
- CT : 0 ... 2000 ms
- HOLD: 1 ... 2000 ms
- 1. WLD : 0 ... 2000 ms
- 2. WLD : 1 ... 2000 ms
- 3. WLD : 0 ... 2000 ms

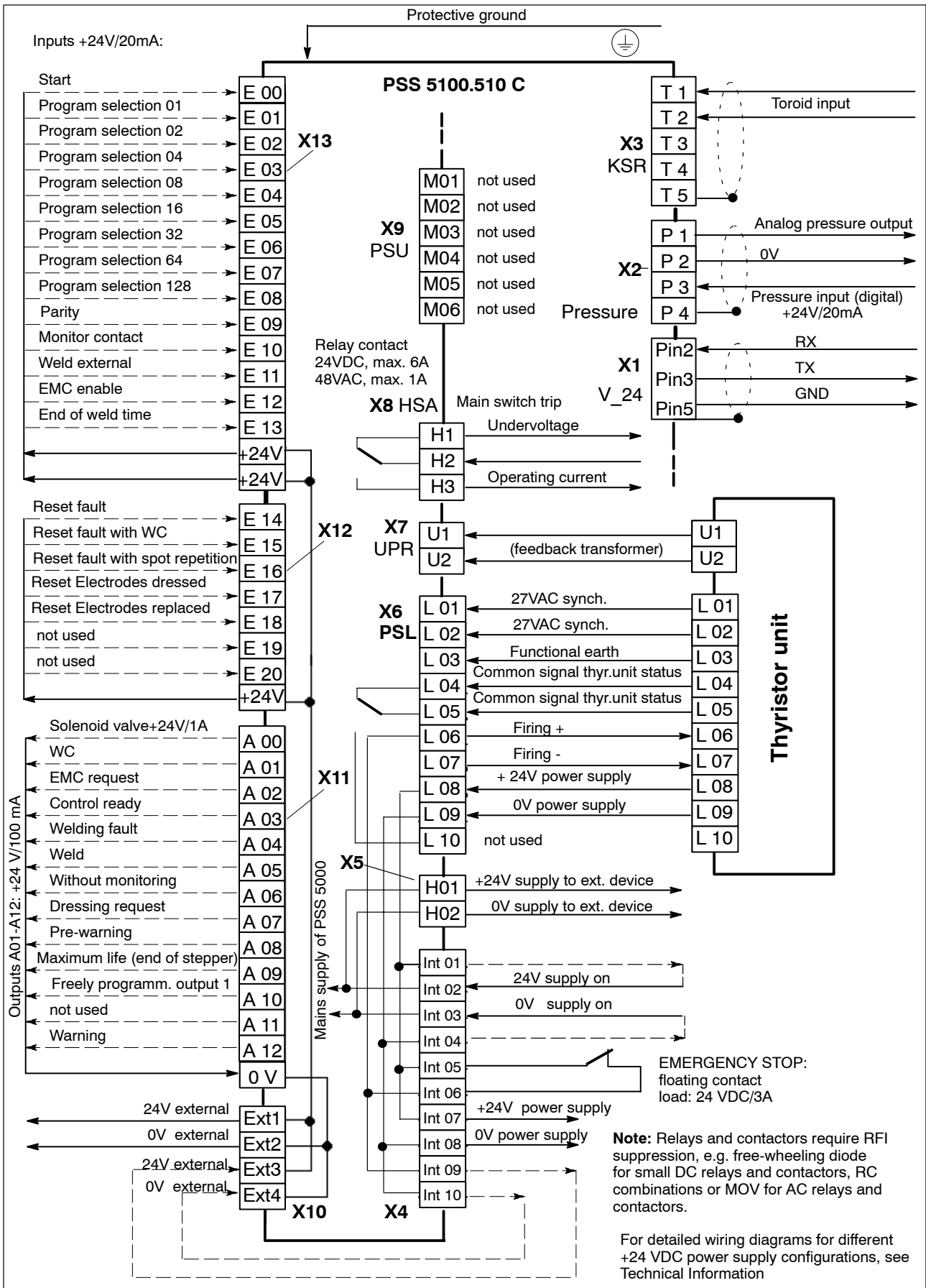
2.7 Different functions in the BOS 5000 user interface

PSS 5100.510 C	
PSS 5200.510 C	■

Programming of the welding parameters with the BOS 5000 user interface is in milliseconds. For this purpose, the timer type PSS 5200.510 C must be selected under *Timer-Reference*.

2.8 Connection diagram of PSS 5100.510 C

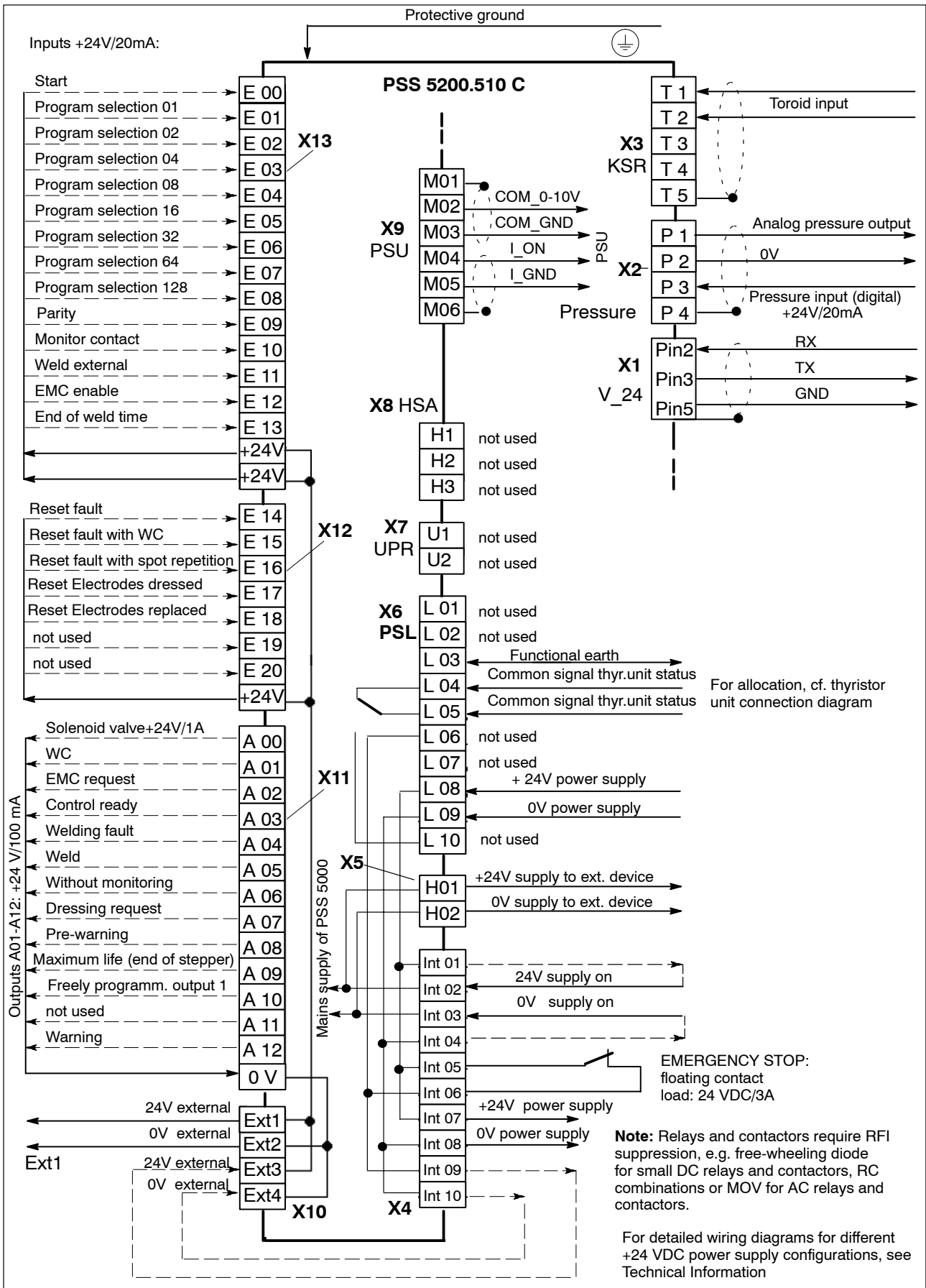
PSS 5100.510 C	■
PSS 5200.510 C	□





2.9 Connection diagram of PSS 5200.510 C

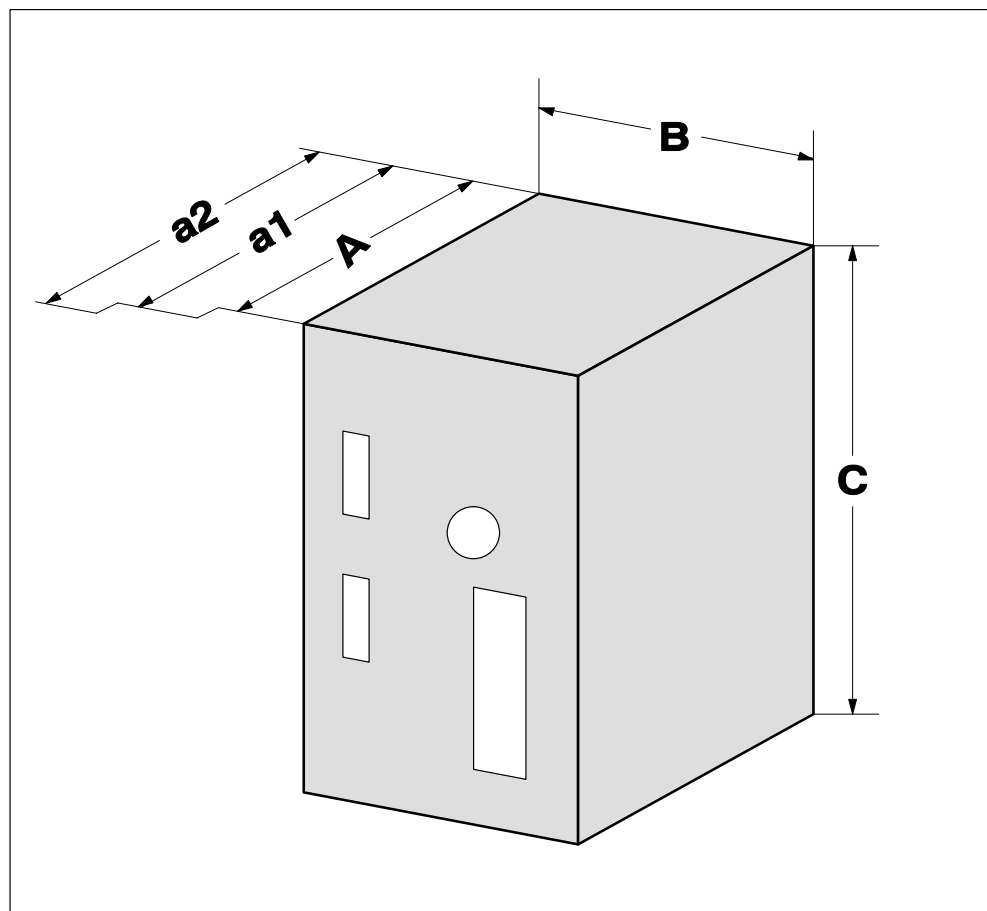
PSS 5100.510 C	
PSS 5200.510 C	■





3.0 Dimensions, Weight, Packaging

Housing construction type C	A = 175mm
Without plug	B = 144mm
Without hangers	C = 237mm
Depth with plug in front	a1 = approx. 200mm
Depth with V24 plug in front	a2 = approx. 250mm
Weight	approx. 3.5kg



NOTE:

The addition of hangers and mounting rails is not included in the depth dimension.

The timer is to be supplied only in original BOSCH shipping containers.

3.1 Installation and Removal

The timer is to be mounted in a suitable cabinet. Temperature and humidity must comply with the applicable regulations (0 °C ... +60 °C).



NOTE:

When mounting the U-shaped mounting rails in the timer cabinet, note the hole dimensions. In this way you avoid conflict with the timer hangers.

Clearance

A clearance of 40 mm for ventilation is to be provided above and below the timer in the housing (over the entire device depth).

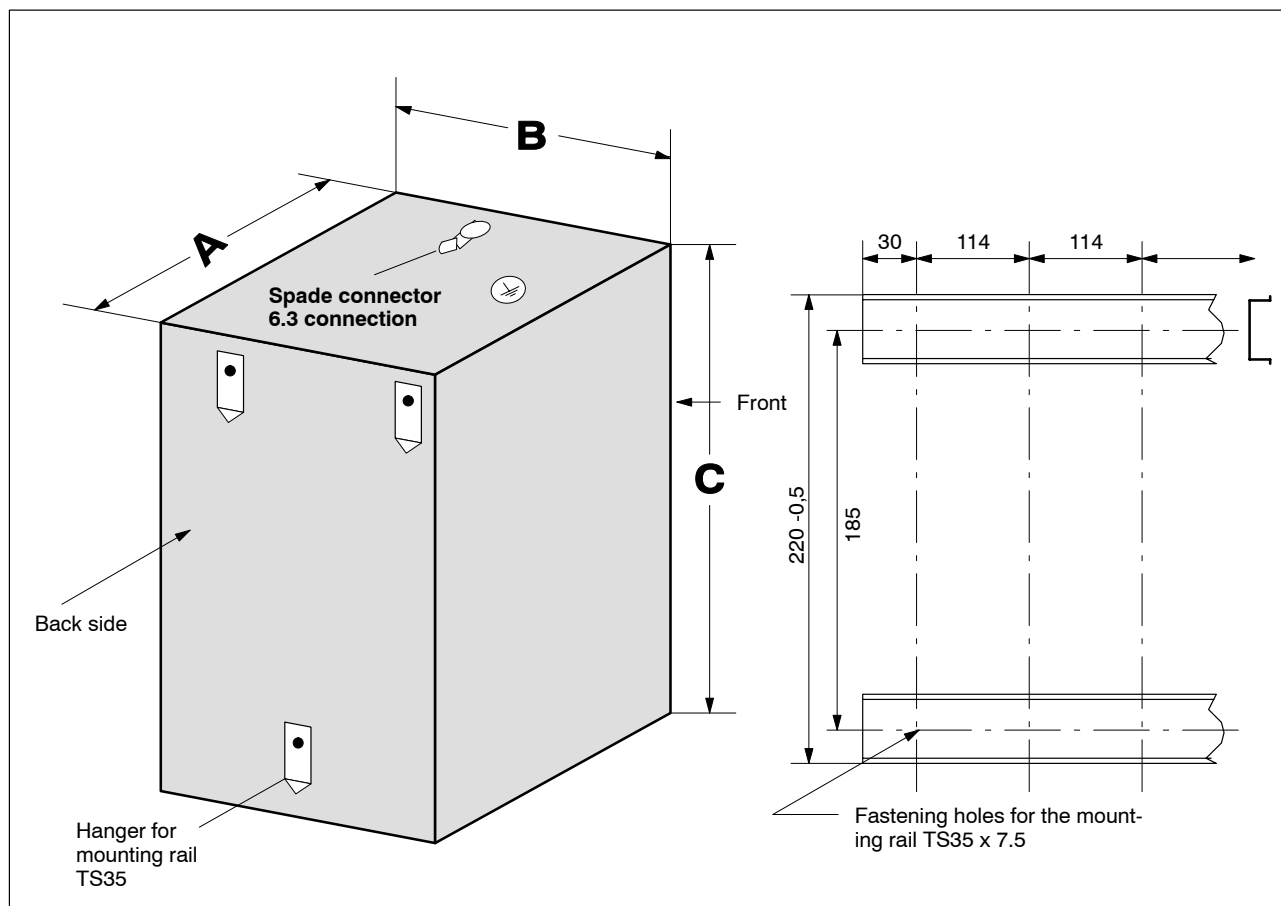
Timers side by side

A space of approx. 1 cm must be allowed, if several timers are mounted on one set of mounting rails.



NOTE:

The raised portions of the rear wall serve to position the hangers.

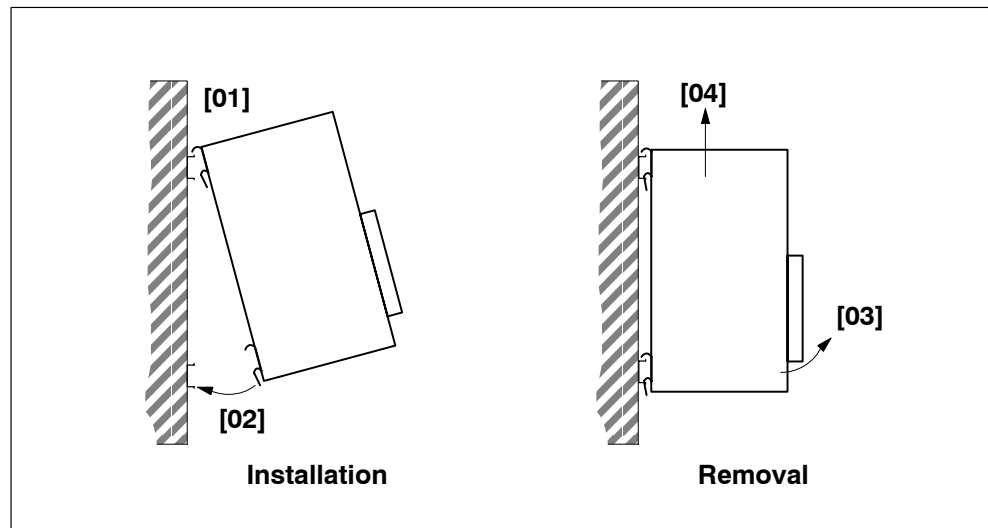


Installation

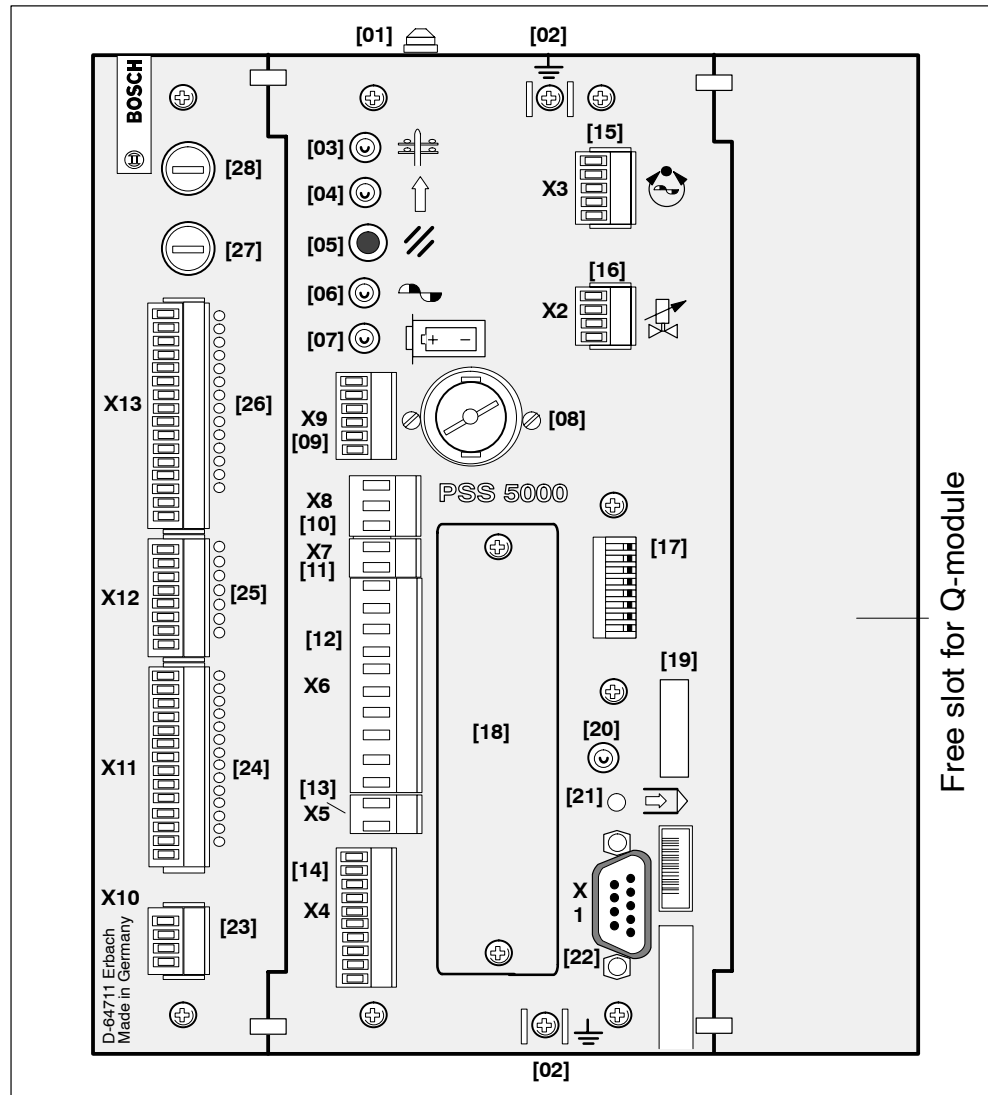
- [01] Engage the upper hanger of the timer into the upper mounting rail.
- [02] Use light pressure to slip the timer into the lower mounting rail.

Removal

- [03] Carefully pull and tilt the bottom of the timer forward.
- [04] Lift the slightly tilted timer out of the mounting rail in an upward direction.



4.0 Module front panel



- [01]** Top of housing, spade connector for grounding connector
- [02]** Spade connector for cable shielding
- [03]** Line LED, connected to +24 VDC supply voltage for weld timer electronics (without I/O supply)
- [04]** Ready LED, timer ready, turns off in case of:
 - Internal fault such as dead battery
 - Schedule fault, such as no current
- [05]** Reset push button, clears pending fault messages, returns timer to ready state.
- [06]** Firing LED, Control signal for thyristor unit active
- [07]** Battery fault LED, backup battery voltage too low

		[08] Battery compartment; use only batteries with Bosch P/N 1070 914 446.
PSS 5100.510 C		[09] 6 pin plug-in terminal PSU interface (ms control)
PSS 5200.510 C	■	
PSS 5100.510 C	■	[10] 3 pin plug-in terminal - main switch trip (HSA), floating toggle
PSS 5200.510 C		
PSS 5100.510 C	■	[11] 2 pin plug-in terminal - welding transformer primary voltage feedback (UPR) for functions Weld without command, KUR.
PSS 5200.510 C		
PSS 5100.510 C	■	[12] 10 pin plug-in terminal for thyristor unit: - synchronizing voltage. - common thyristor unit status signal. - firing
PSS 5200.510 C		
PSS 5100.510 C		[12] 10 pin plug-in terminal for thyristor unit: - common thyristor unit status signal.
PSS 5200.510 C	■	
		[13] 2 pin plug-in terminal for power supply to external device
		[14] 10 pin plug-in terminal for power supply: - +24V supply to internal power supply - Emergency-Stop - +24V I/O.
		[15] 5 pin plug-in terminal for measuring system, e.g. for constant-current regulation (KSR) sensor connection
		[16] 4 pin plug-in terminal for analog output (e.g. proportional valve control) and +24V input signal (pressure feedback)
		[17] DIL switch for setting the address of the Profibus interface.
		[18] Dummy front plate on slot for Profibus module
		[19] Software version label
		[20] LED red, timer processor not in operating mode: The timer stopped processing commands. The control is in boot mode. New operating software (firmware) may be loaded. This LED may turn on briefly during power up. Should the LED come on during normal operation (welding operation will not be possible), cycle power to the control. If the LED is lighted again afterwards, then the operating software is lost. Using a utility program from a PC, reload software over the V24 interface.

- [21] Recessed key from operating mode to boot mode.
Pressing this key turns the system to boot mode. You should only turn to boot mode, for loading a new operating program (firmware).



ATTENTION!

This key may only be operated by authorized personnel.
Never operate this key during a welding operation.
Program execution will be stopped and all outputs set to zero.

- [22] 9 pin D shell plug, V24 interface (programming unit).
[23] 4 pin plug-in terminal for external voltage supply.
[24] 14 pin plug-in terminal for discrete outputs.
[25] 8 pin plug-in terminal for discrete inputs.
[26] 16 pin plug-in terminal for discrete inputs.
[27] M1.6A miniature fuse, outputs A01-A12.
[28] M1.6A miniature fuse, output A0.

5.0 Part numbers and scope of delivery

Weld timer PSS 5100.510 C	P/N 1070 078 571
Weld timer PSS 5200.510 C	P/N 1070 078 459

5.1 Mating Plugs for type specific I/O system

Included in shipment (STKK plug-in terminal)

[09]	PSU, X9	STKK 6 pin (3.5mm)	P/N 1070 916 554
[10]	HSA, X8	STKK 3 pin (5mm)	P/N 1070 913 967
[11]	UPR, X7	STKK 2 pin (5mm)	P/N 1070 914 564
[12]	Thyristor unit, X6	STKK 10 pin (5mm)	P/N 1070 913 813
[13]	Ext. device, X5	STKK 2 pin (5mm)	P/N 1070 914 564
[14]	INT, X4	STKK 10 pin (3.5mm)	P/N 1070 916 714
[15]	Measur. system, X3	STKK 5 pin (3.5mm)	P/N 1070 916 910
[16]	Analog output, X2	STKK 4 pin (3.5mm)	P/N 1070 916 908
[23]	EXT, X10	STKK 4 pin (3.5mm)	P/N 1070 916 908
[24]	Outputs, X11	STKK 14 pin (3.5mm)	P/N 1070 916 914
[25]	Inputs, X12	STKK 8 pin (3.5mm)	P/N 1070 916 553
[26]	Inputs, X13	STKK 16 pin (3.5mm)	P/N 1070 916 795

Not included in shipment are:

[22]	V24, X1	9 pin female D shell connector	P/N 1070 912 981
		9 pin female D shell connector housing	P/N 1070 313 723
	V24 cables, X1	for connecting PC to PSS5000, length 1.5 meter	P/N 1070 066 749
	Battery		P/N 1070 914 446

