topline

Manual PCS 995

for the PCS 950/PCS 950c/ PCS 950e operating consoles

Intelligent soft-key actions ■
Logging • Statistics • Reporting ■
RecipeManager ■
Operating & Monitoring in Color ■

The operating consoles PCS*topline* offer the highest degree on perfection, unparalled in design and function. PCS*topline* keeps everything under control - from the PCS*mini* to the PCS*maxi*, with a superior operating culture and an unlimited setup freedom.

PCS, the first programmable operating console with a large selection of "ready-to-use" operating functions or operating tools which are simply selected via instructions. You can realize even the most unuasal operating requests at ease and in a minimum of time.

Today this way and tomorrow that way

One standard hardware for virtually thousands of different operating situations. Without extensive wiring and dozens of I/O points.

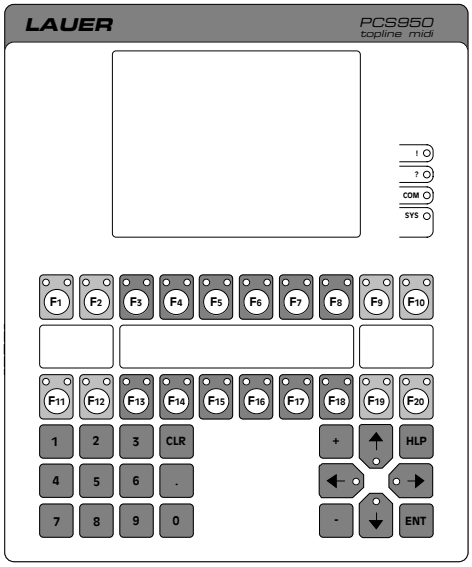
PCS for operating. What else?

reg 8035/0596 hs

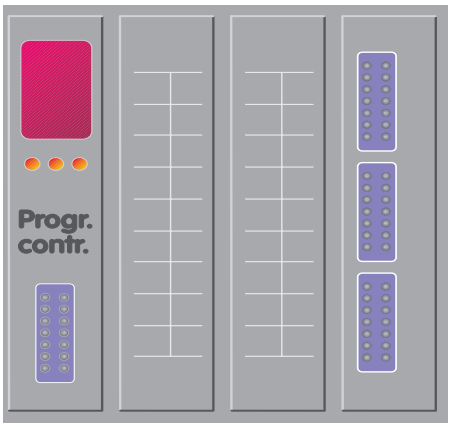
Print 06/05.96

- **Machine operation using 20 freely assignable keys;** these F01 to F20 labeled keys can be application specifically inscribed and are provided to the controller as status bits. In addition, situation-related soft-key actions can be assigned to these keys.
- **40 freely usable LEDs:** These can be assigned the indicating states »ON«, »DARK«, »FLASHING«, »INVERS FLASHING«. A green and a yellow LED is allocated to each function key.
- **Display of background bitmaps** separately for the areas status, working and soft-key.
- **Representation of any freely programmable characters** on the display.
- **Display of fixed texts with integrated variable values;** 9 variable formats are available for representation.
- **Setting up of several priority levels which can be changed related to situations;** This working-condition related management significantly offloads the programmable controller program.
- **Representation of the contents of a maximum of 214 programmable controller words as variables;** In addition, 55 internal (predefined) variables are available.
- **Modification of the contents of any word within the transfer area;** separate editors are available for every variable format.
- **Monitoring of rising or falling edges of a maximum of 1024 consecutive bits;** The assignment of texts, the management of 3 priority levels (information, warnings and faults) keeping the timely sequence as much as possible, organization of the FIRST MESSAGE, LAST MESSAGE, the individually settable clearing behavior are tasks which are managed by the PCS 950 by itself.
- **Logging of messages** with the CAME, WENT and ACKNOWLEDGED times is made by the PCS 950 itself. A logging memory is available for displayable (HISTORY) as well as for printable (MESSAGE PRINTER) texts.
- **Printing of shift-related or order-related pages** with any integrated internal or external variables.
- **Communication monitoring (wire-break, short circuit);** A very efficient data transfer is secured by the integrated priority management in connection with the intelligent package length optimization, the high thruput rate and the fault tolerance.
- **8 timers** with 8 daily repeating on-the-second ON/OFF switching points which can be freely edited as internal variables.
- **9 password levels** enable a differentiated access to operating texts and recipes. A 4-digit code number can be set-up for each password level in this way, your equipment can be protected against unauthorized operation.
- Using the **RecipeManager** 255 recipe blocks can be created with 255 forms each Recipe management is possible via PCS dialogs or under programmable controller control. Thus, the PCS relieves the programmable controller of product-related storage of equipment parameters

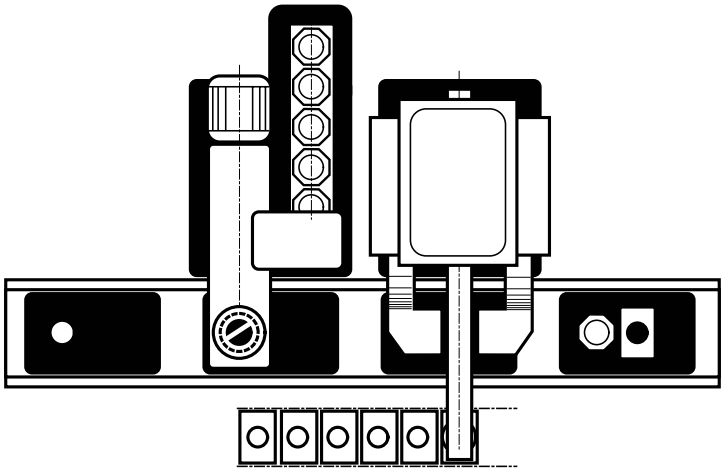
Operating & Observing

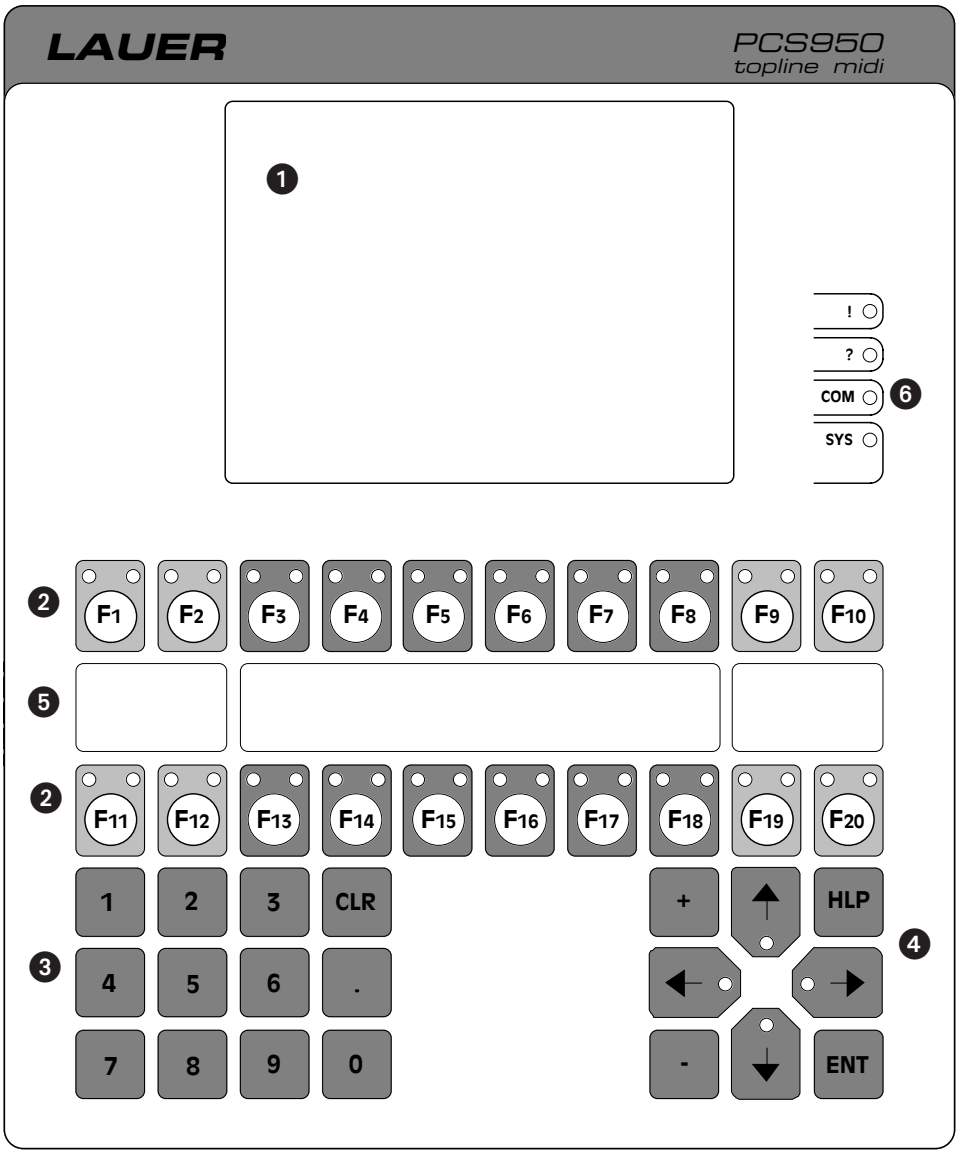


Controller



Machine





❶ Graphic LCD display, 320 x 240 pixels, 24 lines x 40 characters ❷ Function keys F1...F20, each containing two status LEDs ❸ Numeric keypad for preset values ❹ 8 control keys for menu operation and preset value input, cursor keys with LED ❺ Function key labeling 6 Important information about the PCS status

The modular operating console PCS 950 is equipped with a graphic LCD display and offers the maximum freedom of configuration.

The display enables any representation of information and variables by means of idle pages, operating pages, messages, help pages, status and softkey rows.

Via an internal bus, one module offering a wide range of functions can be plugged in at the rear. This is a prerequisite for an extremely flexible use of PCS*midi*.

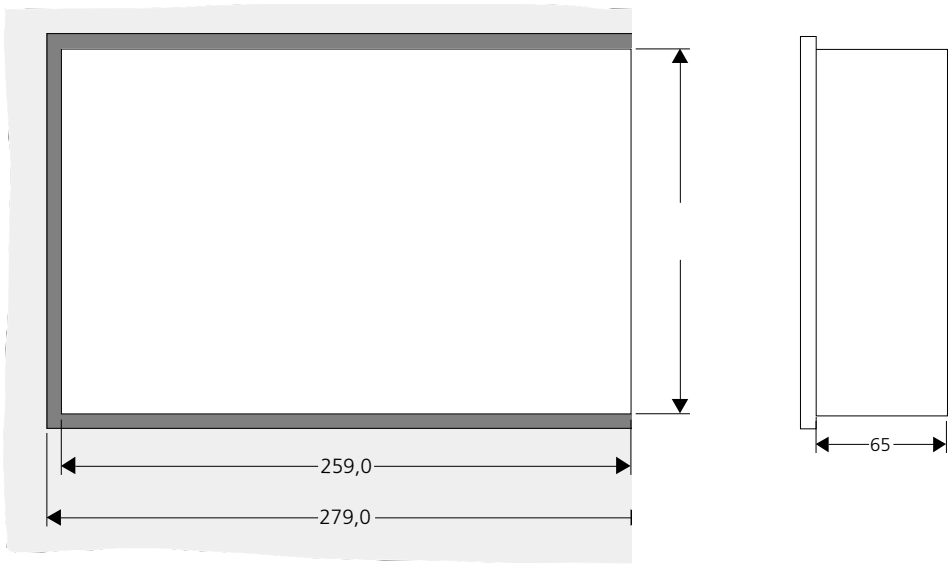
PCS status (❻)

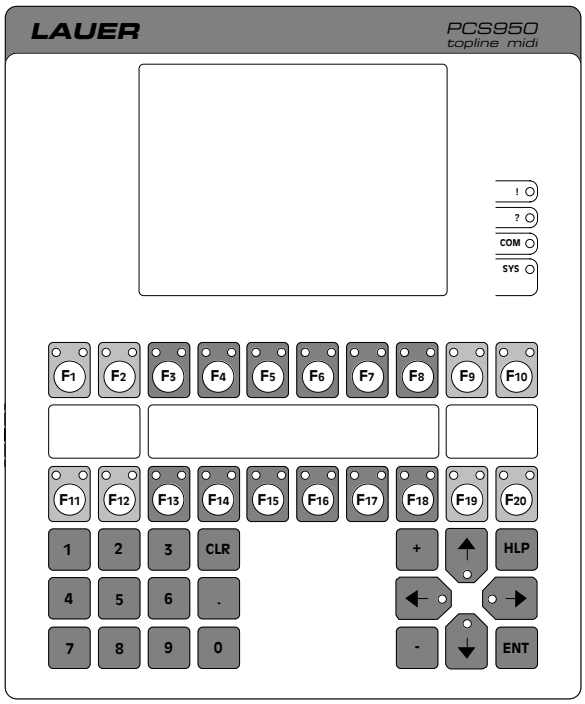
!	Message active
!	Priority > idle priority, currently inhibited
?	Operator prompt, input expected
COM	Communication not yet established
COM	Communication interrupted
SYS	Bios active

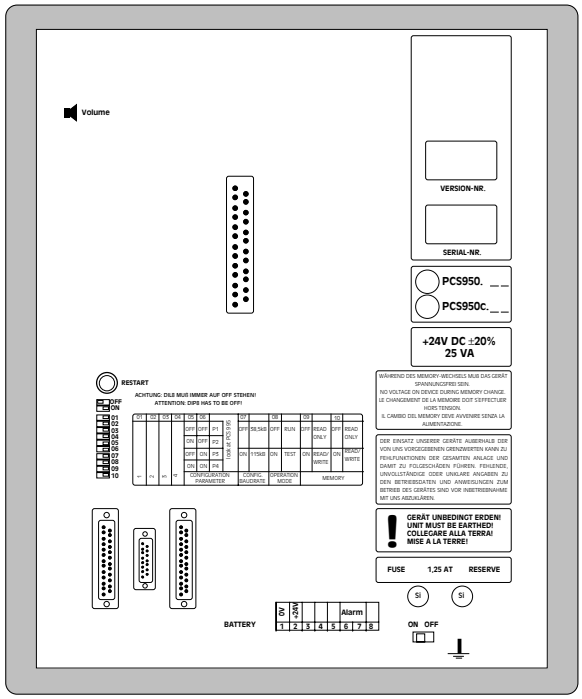
COM, **!** = LED continuously ON, **COM**, **!** = LED flashing

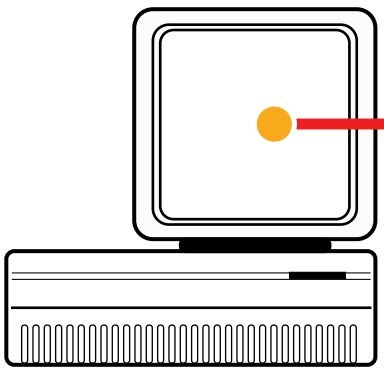
External dimensions	224 mm x 270 m, mounting depth without connector: 65 mm
Weight:	approx. 2000 g
Operating voltage:	+24 VDC ± 20%, protected against polarity reversal
Current consumption:	Iav @ 24 VDC 800 mA Imax @ 19 VDC (with cassettes max. 100 mA additionally) 1.0 A
Data storage:	flash EEPROM, min. 10000 write cycles
Noise immunity:	see manufacturer information
Protection class IEC 529:	rear: IP 20; front (after installation): IP 65
Humidity:	0...75%, exposure time of at least 48 hours
Vibration resistance:	3 g @ 50 and 100 Hz in all directions, min. 1 hour
Temperature:	storage: -25...+70 °C operation: 0...+50 °C
Front foil:	polyester
Pushbuttons:	mechanical with tactile touch
Display:	graphic LCD display with CFL background illumination, 24 lines x 40 characters, 5 x 8 matrix
Fuse:	1.25 A, small fuse, slow-blow, 1 spare fuse

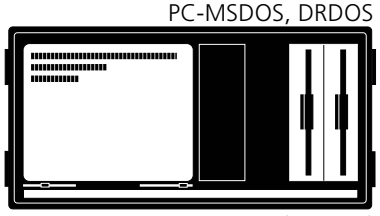
Warning!
The device is exclusively intended for being installed in another machine. Commissioning is prohibited, until conformity of the final product with the regulation 89/392/EWG has been ascertained.

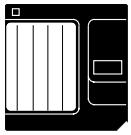










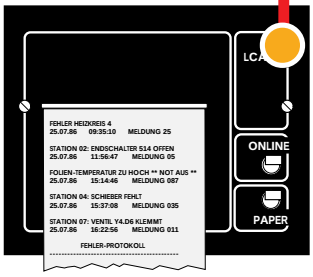


Simple configuration by means of the PCS*PRO*^{WIN} software

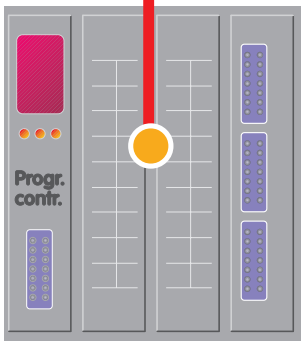
Programming with programming cable PCS 733

Communication with adapter cable PCS ...

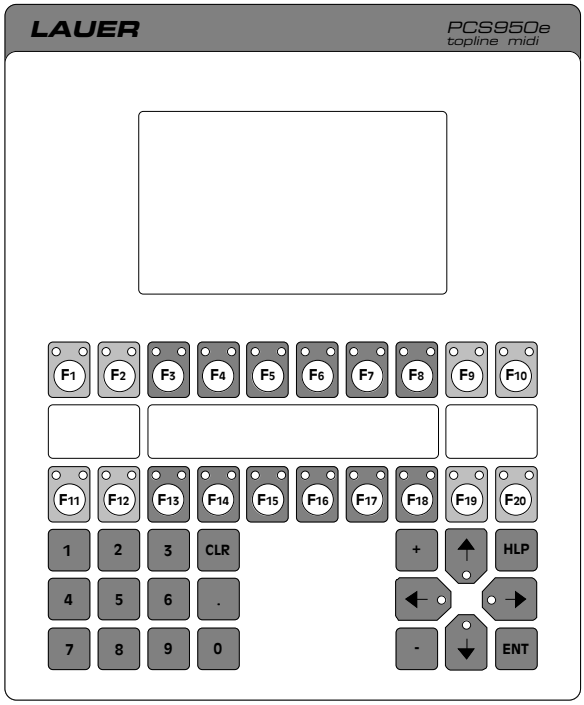
Printing with printer cable LCA 035/235



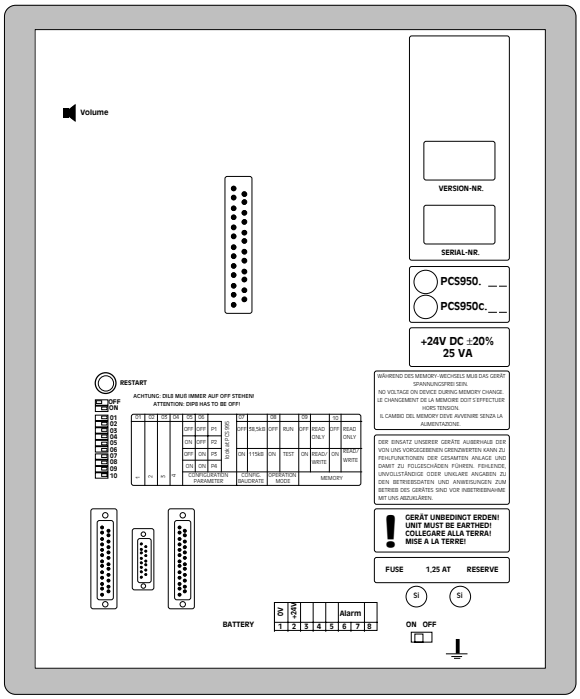
Industrial printer LCA 710



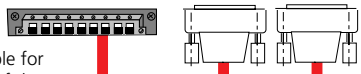
Ex area zone 1 and 2
Front end PCS 950e



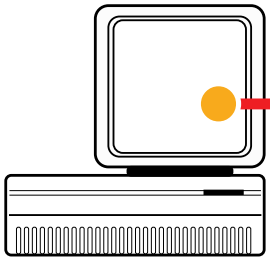
Non-hazardous area
control unit ENT-DC-1.1-950



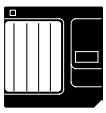
DATL-A data cable for
the connection of the
ENT-DC-1.1-950 control
unit



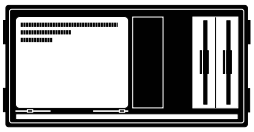
Programming
with the PCS 733
programming cable



PC running MS-Windows

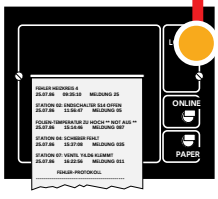


Configure simply via
PCS*PRO*^{WIN}



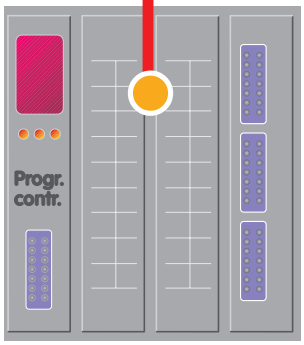
PG 7nn (MSDOS)

Printing
via the LCA 035/235
printer cable



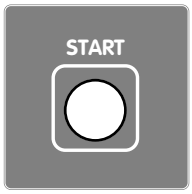
LCA 710 industrial printer

Communication
via PCS ...
adapter cable

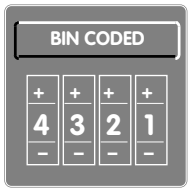


PCS*midi* represents a coherent operating concept for different programmable controller systems. The operating console PCS 950 offers a wide range of functions and tools for operating and observing.

- *20 function keys (softkey functions also definable), each with two status LEDs (green/yellow - OFF, ON, FLASHING, INVERSE FLASHING)*
- *Any number of switches which can be labeled as desired (text or semi-graphics).*
- *Any number of selector switches which can be labeled as desired (text or semi-graphics), each with 256 switch positions.*
- *Key switch or code lock allow assignment of access rights.*
- *Date and time can be set from the PCS or (for synchronization) from the programmable controller.*
- *8 timers, each with 8 cams*
- *Numeric BCD/BIN preset value input via numeric keypad or IN/DEC keys. Up to 8 preset value variables per line.*
- *Simple input of ASCII preset values*
- *The bit pattern of a word (word variable) can be represented and modified in the PCS as desired*
- *Numeric display of binary actual values, optionally up to 5 digits (0..65.535) or 10 digits (0..4.294.967.295)*
- *Automatic conversion of the preset and actual values from BCD/BIN into the decimal format and vice versa with sign, limit values and scaling*
- *1024 message pages with text variables in 3 message priorities and with 5 delete modes*
- *256 pages with 8 variables per line are available for idle pages.*
- *Logging, machine report and output on the printer or the PC.*
- *127 operating pages*
- *RecipeManager - 255 recipe blocks with 255 recipe forms*
- *Analog input of preset values and analog display of actual values*
- *Up to 2 languages with different character sets can be configured (3 languages when using the additional cassette).*

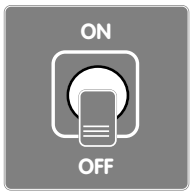


Keys

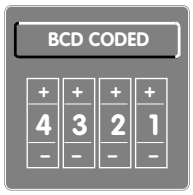


BINARY preset value input

Message texts



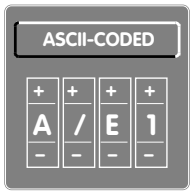
Switch



BCD preset value input

Operating and idle texts

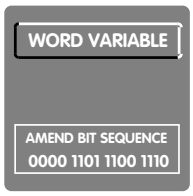
Selector switch



ASCII preset value input

Help texts

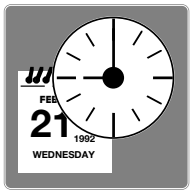
Code lock, key switch



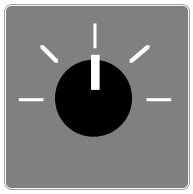
Change data word/flag

Logging, statistics, report


Graphics display



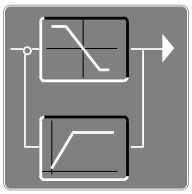
Date and time

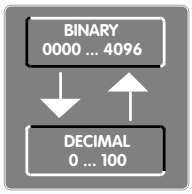

Analog preset value input

Preset value input via a menu

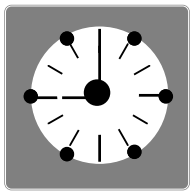
2 character sizes

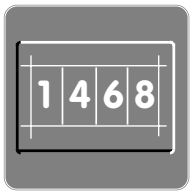
Several languages


Limit values, scaling



BIN/DEZ-conversion


Timer

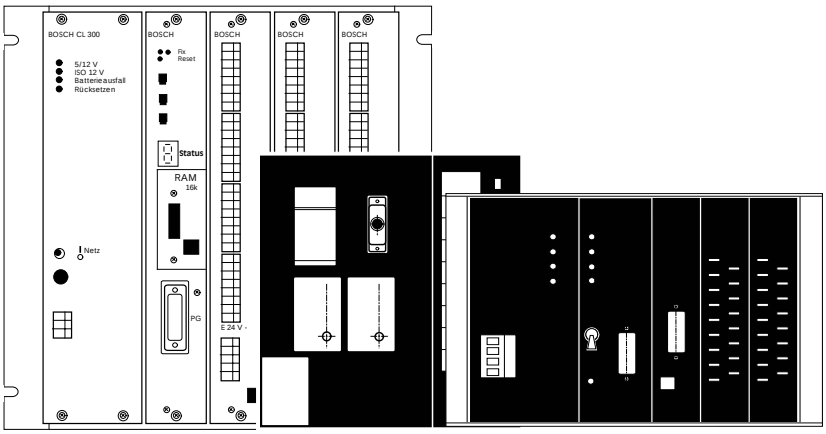


Numeric actual value

The electrical connection between a programmable controller of any type and the PCS is effected by a special adapter cable.

Data communication is based on a principle which can easily be understood:

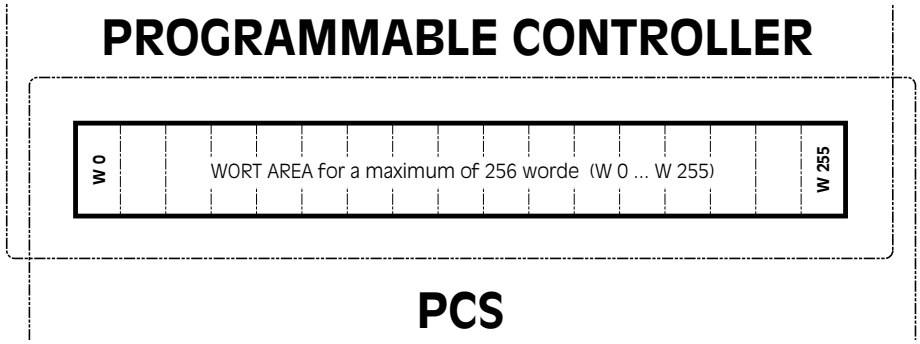
The PCS writes functions or preset values into previously defined programmable controller word areas. These functions or values are then read and interpreted by the programmable controller.

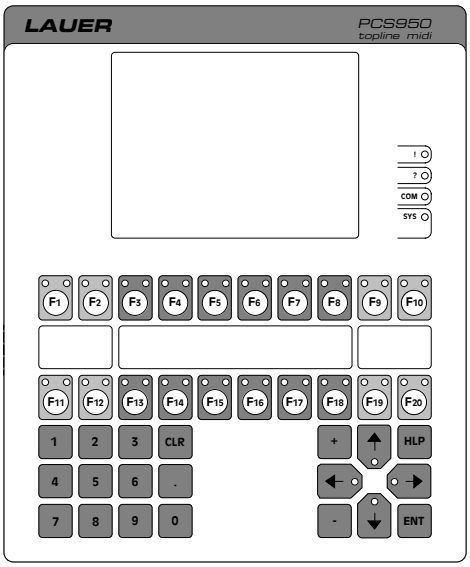


The programmable controller writes functions or actual values into previously defined word areas. These functions or values are then automatically read and interpreted by the PCS.

Depending on the programmable controller, a maximum of 256 words (with 16 bits each) or a total of 4096 I/O, are available for PCS/programmable controller communication.

The words from W 00 up to W 40 are permanently assigned in the PCS*midi* (see pages 8 to 15). Words 41 to 255 are available for any operating projects. The words can be assigned individually.





Communication between PCS*midi* and a programmable controller of any type is effected by words (flags and others). A clearly defined task or function is assigned to each word W.

Data word	Function	PCS	programmable controller transmission direction
1. System area: W0..3:			
W0..2	Reserved for internal functions, not available to the user		
W3	Error word for communication (see driver manual PCS 91.xxx)		
2. Status area: PCS status (written into the programmable controller)			
KEYS:			
W4	Key bits F1...F8, F9...F10, Arrow Down, Arrow Up, Arrow Right, Arrow Left, -, +		▶▶▶▶▶
W5	F11...F20, CLR, ENTER, DIL 4-1, HELP, ·, 9..0, Reserve		▶▶▶▶▶
W6-W7	Reserved for additional keyboard (e.g. PCS 891)		▶▶▶▶▶
TIME AND DATE			
W9-12	Year, month, day, day of week, hour, minute, second		▶▶▶▶▶ ◀◀◀◀◀

W4

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	▲	▼	▶	◀	–	+

W5

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
F11	F12	F13	F14	F15	F16	F17	F18	F19	F20	CLR	ENT	DIL4	DIL3	DIL2	DIL1

W6

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
X	X	X	X	HLP	•	9	8	7	6	5	4	3	2	1	0

W7

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
		KEYS - RESERVE								KEYS - RESERVE					

W8

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
		KEYS - RESERVE								KEYS - RESERVE					

W9

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Mi enium				Century				Decade				Year			

W10

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Month (tens)				Month (digits)				Day (tens)				Day (digits)			

W11

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
		Day of week (01...07)								Hour (00...23)					

W12

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
		Minute (00...59)								Seond (00...59)					

Data word	Function	PCS programmable controller transmission direction
PCS-STATUS		
W13-17	Acknowledgement bit, timer, (W14) number of old printer messages, (W15) number of new printer messages, (W16) priority status, (W17) priority number, text number on the display	▶▶▶▶▶
PRESET VALUE STATUS		
W18-19	Data word number, length, (W19) bit mask	▶▶▶▶▶

W13

15	14	13	12	11	10	9	8
Pr. Stop	Log Stop	Lifo	Hist. del.	Hist. arriv	Pr. bu. full	Hist. bu. full	Re-ser-ved

7	6	5	4	3	2	1	0
S7	S6	S5	S4	S3	S2	S1	S0

W14

15	14	13	12	11	10	9	8
Number of old printer messages (high byte)							

7	6	5	4	3	2	1	0
Number of old printer messages (low byte)							

W15

15	14	13	12	11	10	9	8
Number of new printer messages (high byte)							

7	6	5	4	3	2	1	0
Number of new printer messages (low byte)							

W16

15	14	13	12	11	10	9	8
		RESERVED					

7	6	5	4	3	2	1	0
Offl activ	Re-serve	Re-cipe-activ*)	Hist-ory	Fail-ures	War-nings	Infor-ma-tion	Menu

W17

15	14	13	12	11	10	9	8
8	4	2	1	X	X	512	256
Displayed priority				Text no. on displ. (high)			

7	6	5	4	3	2	1	0
128	64	32	16	8	4	2	1
Text number on display (low byte)							

W18

15	14	13	12	11	10	9	8
128	64	32	16	8	4	2	1
Data word preset value							

7	6	5	4	3	2	1	0
X	X	X	16	8	4	2	1
Preset value length byte							

W19

15	14	13	12	11	10	9	8
15	14	13	12	11	10	9	8
Bit mask high byte							

7	6	5	4	3	2	1	0
7	6	5	4	3	2	1	0
Bit mask low byte							

*) in preparation

Data word	Function	PCS	programmable controller transmission direction
3. Command area (read from the programmable controller)			
LED STATUS, DISPLAY And MEMORY MODE			
W20	LED driving, F1..F10, green		◀◀◀◀◀
W21	LED driving, F1..F10, flashing green		◀◀◀◀◀
W22, 23	LED driving, F1..F10, yellow, flashing yellow		◀◀◀◀◀
W24, 25	LED driving, F11..F10, green, flashing green		◀◀◀◀◀
W26, 27	LED driving, F11..F10, yellow, flashing yellow		◀◀◀◀◀
W28..33	Reserved for additional keyboard (e.g. PCS 891)		◀◀◀◀◀
W34	Bit map number for working area		◀◀◀◀◀
W35	Status page and softkey row number		◀◀◀◀◀

W20

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	2	3	4	5	6	7	8	9	10	Reserved					
LED driving, green															

W21

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	2	3	4	5	6	7	8	9	10	Reserved					
LED driving, flashing green															

W22

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	2	3	4	5	6	7	8	9	10	Reserved					
LED driving, yellow															

W23

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	2	3	4	5	6	7	8	9	10	Reserved					
LED driving, flashing yellow															

W24

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
11	12	13	LED driving, green			17	18	19	20	Reserved					

W25

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
11	12	13	14	15	16	17	18	19	20	Reserved					
LED driving, flashing green															

W26

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
11	12	13	14	15	16	17	18	19	20	Reserved					
LED driving, yellow															

W27

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
11	12	13	14	15	16	17	18	19	20	Reserved					
LED driving, flashing yellow															

W28

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
LED - RESERVED								RESERVED							

W29

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
LED - RESERVED								RESERVED							

W30

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
LED - RESERVED								RESERVED							

W31

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
LED - RESERVED								RESERVED							

W32

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
LED - RESERVED								RESERVED							

W33

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
LED-RESERVED								RESERVED							

W34

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
LED - RESERVED								Activate bitmap	Bit map number for working area						

W35

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Status page number								Softkey row number							

Data word	Function	PCS	programmable controller transmission direction
COMMAND WORDS			
W36	Enable priorities + disable transmission + RecipeManager *) + activation bits		◀◀◀◀◀
W37	Printer driving, disable specific LEDs + message block transmission		◀◀◀◀◀
W38	Idle text number + operating text number		◀◀◀◀◀
W39	Print job		◀◀◀◀◀ ▶▶▶▶▶
W40	Operating printer text number		◀◀◀◀◀ ▶▶▶▶▶

*) in preparation

W36

15	14	13	12	11	10	9	8
OFF LINE	Re-ser-ved	En-able Re-cipe *)	Hist-ory	S	W	H	M
				Enable priorities			

7	6	5	4	3	2	1	0
Dis-able Comm C/D/E	Dis-able date	Dis-able time	Dis-able LED F-keys	Enable alarm output	Oper. hours coun-ter	Hist-ory Start	Sync Time

W37

15	14	13	12	11	10	9	8
Pr. stop Mess.	Log. stop	Lifo	Hist-ory delet.	Disab. beep	Disab. mess. LED	Disab. HLP LED	Disab. Menu LED

7	6	5	4	3	2	1	0
MB7	MB6	MB5	MB4	MB3	MB2	MB1	MB0
Enable message block transfer							

W38

15	14	13	12	11	10	9	8
Stat/ Flash	64	32	16	8	4	2	1
	Idle text number (0...127)						

7	6	5	4	3	2	1	0
Pre-set -P	64	32	16	8	4	2	1
	Operating text number (1...127)						

W39

15	14	13	12	11	10	9	8
Print job / Pointer adjustment (high byte)							

7	6	5	4	3	2	1	0
Print job / Pointer adjustment (low byte)							

W40

15	14	13	12	11	10	9	8
OPER. PRINTER TEXT NUMBER (Print form) HIGH BYTE							

7	6	5	4	3	2	1	0
OPER. PRINTER TEXT NUMBER (Print form) LOW BYTE							

*) in preparation

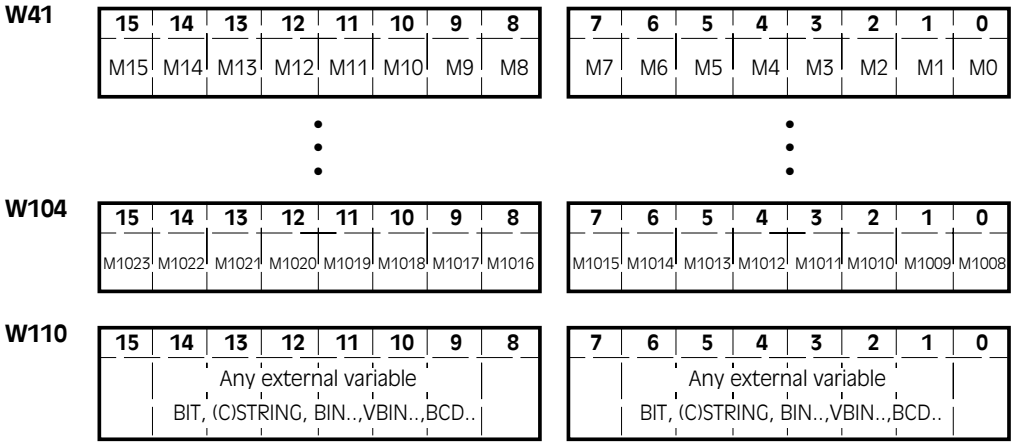
Data word	Function	PCS	programmable controller transmission direction
4. Message area: W41..110			
MESSAGE BLOCKS			
W41-48	Block 1		◀◀◀ ▶▶▶
W49-56	Block 2		◀◀◀ ▶▶▶
W57-64	Block 3		◀◀◀ ▶▶▶
W65-72	Block 4		◀◀◀ ▶▶▶
W73-80	Block 5		◀◀◀ ▶▶▶
W81-88	Block 6		◀◀◀ ▶▶▶
W89-96	Block 7		◀◀◀ ▶▶▶
W97-104	Block 8		◀◀◀ ▶▶▶

5. Expansion area: W105..W109

This area is reserved for possible extensions.

6. Variable area: W110..255

W110..255	Can be used for variables.		◀◀◀ ▶▶▶



Internal variables

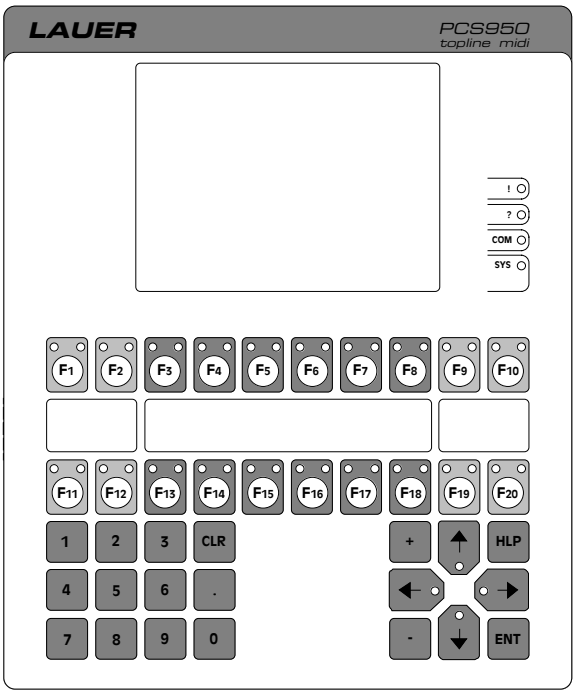
Firmware	*Prev. designat.*	*PCSPRO designat.*	*Type*	*Class*	*Length*			*Def. value*
[Z001]	ZP	[HINWEISE]	INT_BIN-2	ACTUAL	4			0
[Z002]	ZQ	[WARNUNGEN]	INT_BIN-2	ACTUAL	4			0
[Z003]	ZR	[STOERUNGEN]	INT_BIN-2	ACTUAL	4			0
[Z007]	ZX	[ERR_SCHITTST]	INT_BIN-2	ACTUAL	2			0
[Z008]	ZA	[TEXTNUMMER]	INT_BIN-2	ACTUAL	4			0
[Z009]	ZC	[ZEIT_MLD_KOMMT]	INT_ZEIT_MLD_KOMMT	ACTUAL	17			0
[Z010]	ZD	[ZEIT_MLD_GEHT]	INT_ZEIT_MLD_GEHT	ACTUAL	17			0
[Z011]	ZE	[ZEIT_MLD_QUITT]	INT_ZEIT_MLD_QUITT	ACTUAL	17			0
[Z012]	ZG	[UHR_STUNDEN]	INT_BIN0-2	PRESET	2			0
[Z013]	ZH	[UHR_MINUTEN]	INT_BIN0-2	PRESET	2			0
[Z014]	ZI	[UHR_SEKUNDEN]	INT_BIN0-2	PRESET	2			0
[Z015]	ZL	[DATUM_JAHR]	INT_BIN0-2	PRESET	2			0
[Z016]	ZK	[DATUM_MONAT]	INT_BIN0-2	PRESET	2			0
[Z017]	ZJ	[DATUM_TAG]	INT_BIN0-2	PRESET	2			0
[Z018]	ZN	[WOCHENTAG_IST]	INT_STRING	ACTUAL	x			0
[Z019]	ZO	[WOCHENTAG_SOLL]	INT_STRING	PRESET	x			0
[Z020]	ZY	[UHRZEIT]	INT_UHRZEIT	ACTUAL	8			0
[Z021]	ZZ	[DATUM]	INT_DATUM	ACTUAL	8			0
[Z022]		[ZEITSCHALTUHR]	INT_STRING	PRESET	16			0
[Z023]		[NOCKEN_NUMMER]	INT_BIN-2	PRESET	1			0
[Z027]		[BAUDRATE]	INT_STRING	PRESET	5			1
[Z028]		[PARITAET]	INT_STRING	PRESET	5			1
[Z029]		[DATENBIT]	INT_STRING	PRESET	1			0
[Z030]		[STOPBIT]	INT_STRING	PRESET	1			1
[Z031]		[RS232/TTY]	INT_STRING	PRESET	5			0
[Z032]		[HISTORYTEXTE]	INT_BIN-2	ACTUAL	4			0
[Z033]	x80	[MLDTXT_ZEILE1]	INT_MLDTXT_ZEILE	ACTUAL	40			0
[Z034]	x81	[MLDTXT_ZEILE2]	INT_MLDTXT_ZEILE	ACTUAL	40			0
[Z065]		[BETR_STD_IST]	INT_BIN-2	ACTUAL	10			0
[Z066]		[BETR_STD_SOLL]	INT_BIN-2	PRESET	10			0
[Z067]		[HISTORY_EINTR]	INT_BIN-2	ACTUAL	5			0
[Z068]		[DRUCKER_EINTR]	INT_BIN-2	ACTUAL	5			0
[Z069]		[ZSU_EIN_STUNDE]	INT_BIN0-2	PRESET	2			0
[Z070]		[ZSU_EIN_MINUTE]	INT_BIN0-2	PRESET	2			0
[Z071]		[ZSU_EIN_SEK]	INT_BIN0-2	PRESET	2			0
[Z072]		[ZSU_AUS_STUNDE]	INT_BIN0-2	PRESET	2			0
[Z073]		[ZSU_AUS_MINUTE]	INT_BIN0-2	PRESET	2			0
[Z074]		[ZSU_AUS_SEK]	INT_BIN0-2	PRESET	2			0
[Z075]		[DRUCKERTEXTE]	INT_BIN-2	ACTUAL	4			0
[Z076]		<TAB>	INT_DRUCKERSEQUENZ	ACTUAL	0	H09		
[Z077]		<ESC>	INT_DRUCKERSEQUENZ	ACTUAL	0	H1B		
[Z078]		<LF>	INT_DRUCKERSEQUENZ	ACTUAL	0	H0D	H0A	
[Z079]		<FF>	INT_DRUCKERSEQUENZ	ACTUAL	0	H0C		
[Z080]		<Fe+>	INT_DRUCKERSEQUENZ	ACTUAL	0	H1B	H45	
[Z081]		<Fe->	INT_DRUCKERSEQUENZ	ACTUAL	0	H1B	H46	
[Z082]		<Un+>	INT_DRUCKERSEQUENZ	ACTUAL	0	H1B	H2D	H31
[Z083]		<Un->	INT_DRUCKERSEQUENZ	ACTUAL	0	H1B	H2D	H30

External variables

The contents of the external or internal variables are stored in the PCS*midi* in words 41...255. The external variables are divided into the following variable formats:

1. **BIT and STRING variable**
2. **BCD and BIN variable**
3. **Word variable**
4. **ASCII variable**
5. **Timer variable**

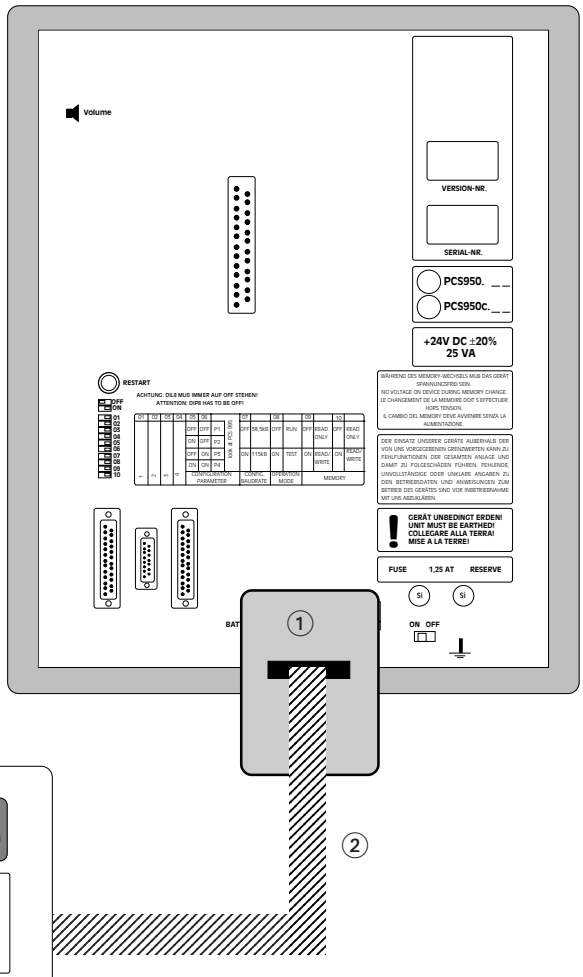
	Format	***Size***
1	*BIT variable*	*Max. length 80 characters*
1	*STRING variable*	*Max. length 80 characters*
1	*CSTRING variable*	*Max. length 80 characters*
2	*BCD-1 variable*	*Max. length 4 digits*
2	*BCD0-1 variable*	*Max. length 4 digits*
2	*BCD-2 variable*	*Max. length 8 digits*
2	*BCD0-2 variable*	*Max. length 8 digits*
2	*BIN-1, BIN-A variable*	*Max. length 16 bits/11 digits*
2	*BIN0-1, BIN0-A variable*	*Max. length 16 bits/11 digits*
2	*BIN-2, BIN-B variable*	*Max. length 32 bits/11 digits*
2	*BIN0-2, BIN0-B variable*	*Max. length 32 bits/11 digits*
2	*VBIN-1, VBIN-A variable*	*Max. length 16 bits/12 digits*
2	*VBIN0-1, VBIN0-A variable*	*Max. length 16 bits/12 digits*
2	*VBIN-2, VBIN-B variable*	*Max. length 32 bits/12 digits*
2	*VBIN0-2, VBIN0-B variable*	*Max. length 32 bits/12 digits*
3	*WORD variable (different respresentations* KM, KH, KY)	*KM: 17 digits* *KH: 4 digits* *KY: 7 digits*
4	*ASCII variable*	*Max. length 32 characters*
5	*Timer variable KT*	*Max. 40 characters*



The additional keyboard PCS 891 expands the function key area of the PCS operating console by adding 28 keys and 28 LEDs. Thus a total of 48 function keys and 38 LEDs are available. The 28 keys and 28 LEDs require 56 data bits which are assigned to words W7, 8 and 28 to 31 in the PCS 950. The function keys and LEDs of the PCS 891 correspond entirely to those of the operating console (except for softkey functionality).

To connect the additional keyboard PCS 891 to the PCS operating console, a cable and an adapter cassette are used. For PCS 891 installation, simply plug this cassette into the Memory Pack female connector.

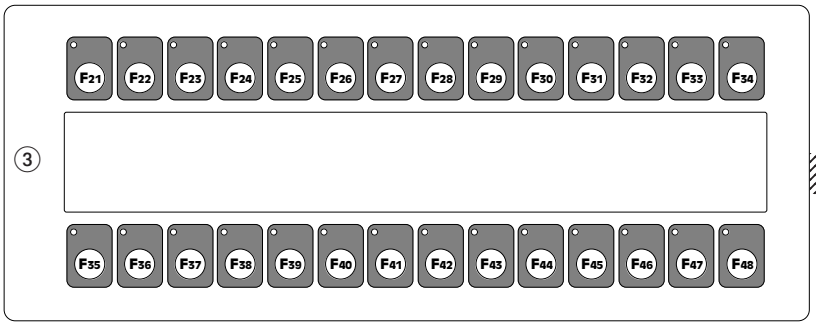
The adapter cassette of the PCS 891 also contains the EEPROM (memory capacity of 64 kBytes corresponds to the Memory Pack PCS 802).



① = Adapter and EEPROM cassette of the PCS 891

② = Cable (part of the PCS 891) for operating console connection, length: approx. 300mm

③ = Additional keyboard PCS 891



Operation of the additional keyboard requires:

- Memory Pack PCS 891
- Connection cable between Memory Pack and the additional keyboard
- Additional keyboard

Attention!
Connection of the additional keyboard is only allowed after removing power of the PCS 950. Removing the additional keyboard or switching ON or OFF the power supply voltage of the additional keyboard is not allowed during operation.

Assignment of the additional control elements (LEDs and keys)

The PCS 950 words mentioned above are valid. The additional keyboard requires the following words: W 7, 8 and 28, 29, 30, 31 (reserved for the additional keyboard).

LED { W 28 / W 29

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
L21	L22	L23	L24	L25	L26	L27	L28	L29	L30	L31	L32	L33	L34	—	—
L35	L36	L37	L38	L39	L40	L41	L42	L43	L44	L45	L46	L47	L48	—	—

LED-flashing { W 30 / W 31

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
L21	L22	L23	L24	L25	L26	L27	L28	L29	L30	L31	L32	L33	L34	—	—
L35	L36	L37	L38	L39	L40	L41	L42	L43	L44	L45	L46	L47	L48	—	—

F-keys { W 7 / W 8

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
F21	F22	F23	F24	F25	F26	F27	F28	F29	F30	F31	F32	F33	F34	—	—
F35	F36	F37	F38	F39	F40	F41	F42	F43	F44	F45	F46	F47	F48	—	Status

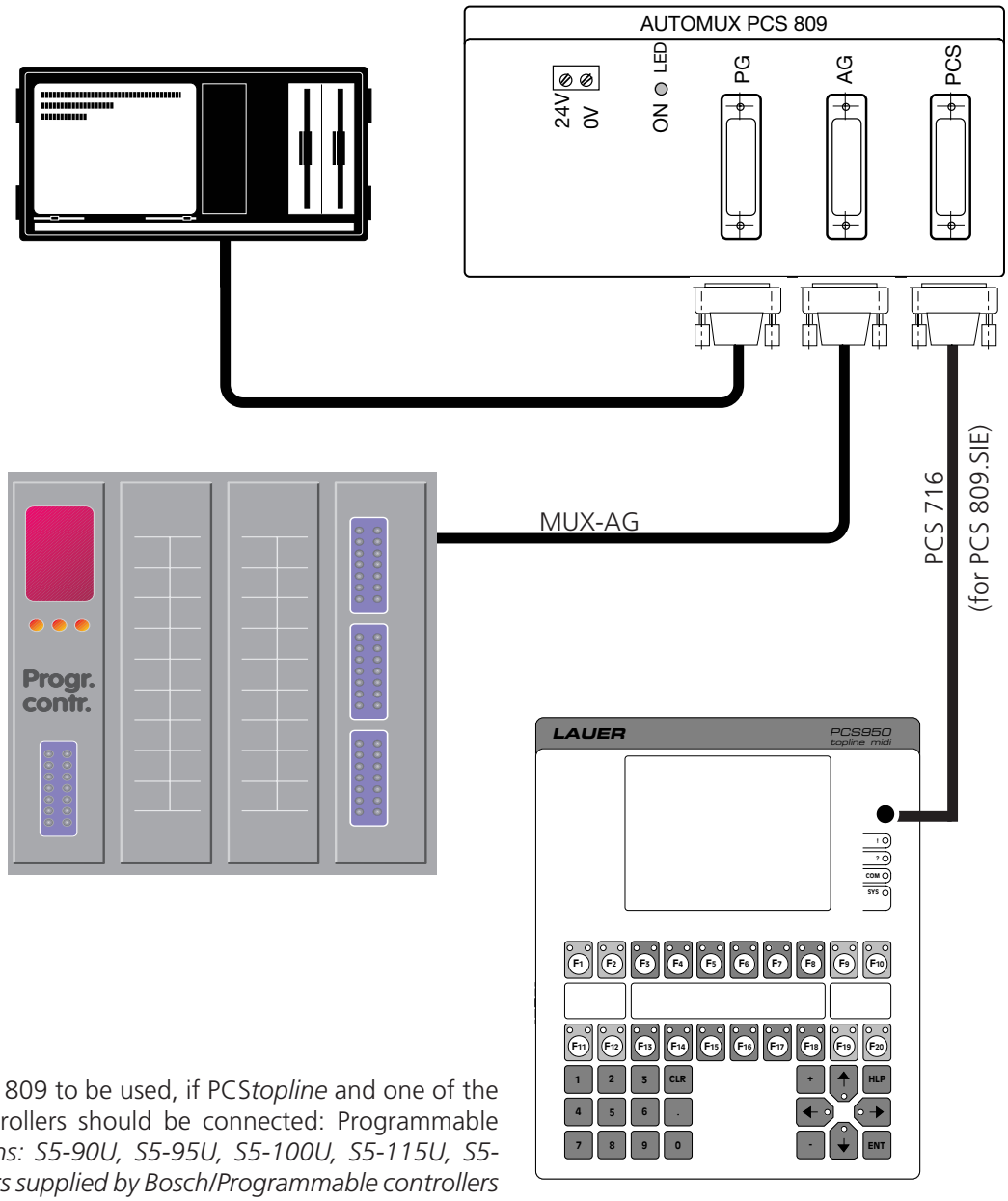
0 = keyboard not connected
1 = keyboard connected

If communication between the PCS and the Siemens S5 is established via the L1 standard protocol or the AS511 protocol, always one programmer interface is occupied.

Since small-sized programmable controller systems are equipped with only one programmer interface, limitations have to be considered during startup, i.e. the programmer and the PCS cannot be used simultaneously.

Automux PCS 809 is able to cope with these limitations. The PCS 809 expands the interface between the programmable controller and the programmer so that the controller can be operated simultaneously by the programmer and the PCS. Switching occurs automatically in the MUX.

The PCS 809 is designed as a startup tool. After commissioning, the PCS operator console is connected directly to the programmer interface of the programmable controller.



We recommend Automux PCS 809 to be used, if PCS*topline* and one of the following programmable controllers should be connected: Programmable controllers supplied by *Siemens: S5-90U, S5-95U, S5-100U, S5-115U, S5-135U/Programmable controllers supplied by Bosch/Programmable controllers supplied by Mitsubishi* and others. Automux PCS 809 is supplied with the adapter cable MUX /AG.

Quality is the most important factor in our company. From the electronic component to the manufactured device, quality is completely tested by qualified personal.

For this purpose, national and international test standards (ISO, TÜV, VDE, CE, Germanischer Lloyd) are applied. Each PCS is tested to 100% at different temperatures (5 ... 55°C) and test voltages (19 ... 33 VDC) and submitted to a permanent test under worst case conditions during 48 hours. This assures a maximum of quality!

Our products are not only characterized by a maximum economy and reliability, but also by a comprehensive and complete service.

- Qualified application support by qualified sales engineers.
- Our support is available to you every day by word and deed. Use our direct info line, if you have questions concerning the PCS*topline*

  Tel ***(+49)(0)7022 / 9660 220 + 221 + 222 + 223***
  Fax ***(+49)(0)7022 / 9660 224***
  Mailbox ***(+49)(0)7022 / 9660 225***

- Intensive and practice-orientated training for our products. Either in our training center or, after agreement, in your company.
- You do not only receive demo devices, but you are also supported during your first application by our specialists.
- Current information about our products by *„lauer aktuell"*
- Update service for our software

From advice to user support, from hotline to service, from manual to training - a comprehensive individual service is guaranteed.

PCS 950

TECHNICAL MANUAL

OPERATING CONSOLE PCS 950, PCS 950c, PCS 950e

PART 1: DESCRIPTION OF THE OPERATING CONSOLE

11.01.1995
Version 1.0

Systeme Lauer GmbH

TABLE OF CONTENTS

1 GENERAL NOTES

1.1 STRUCTURE OF THE MANUALS

The first part of this manual describes the control elements, the connections and the basic I/O system (BIOS). The functionality currently available is explained in part 2. Since this functionality is only determined by PCS*PRO*^{WIN}, this description may be incomplete in some points. If necessary, consult the PCS*PRO*^{WIN} help system.

In any case, only the PCS*PRO*^{WIN} software can be used for data record creation. This software also combines the data record with the firmware, the driver and an additional functionality (optional). When configuring the transmission, you can select whether data record 1 or 2 is loaded into the internal Flash-EEPROM.

Warning!
Creation of a data record is only possible by means of the PCS*PRO*^{WIN} software. Other software packages are inadmissible and may cause malfunctions in the PCS and in the programmable controller.

All drivers are only used for interfacing the different programmable controller systems and are independent of the functionality given by the firmware. Information about the specific drivers and representation of the driving area within the programmable controller are described in the separate PCS 91.xxx manuals (for example PCS 91.SIE explaining interfacing the PCS with the programmable controllers of the Siemens company). These manuals describe all possibilities that exist to interface the PCS with the products of the corresponding manufacturer.

Warning!
Use only the drivers specified for the programmable controller. Other drivers may cause malfunctions in the PCS and in the programmable controller.

1.2 COMMISSIONING

The description of the commissioning procedure you are just reading refers to those facts which have to be observed when using the PCS 950. Commissioning of the programmable controller being used is described in the corresponding manuals of the programmable controller manufacturer.

The commissioning procedure is described below:

- Switch off the equipment or machine
- Set the DIL switches 1 ... 10 located on the rear of the device. The necessary instructions can be found in the next chapter and in the corresponding driver manual.
- Connect the supply voltage to the PCS 950. The supply voltage connections 1 (0V) and 2 (+24V) are screw terminals accepting wires up to 2 mm^2. The current consumption and the supply voltage limits are indicated in the section „Specifications“.

Warning!
The protective conductor and 0V of the supply voltage are separated in the device. The protective conductor is connected to the enclosure, to the noise filter and to the interface enclosures. The enclosure must be grounded to avoid noise in the best way. The grounding wire (4mm²) must be as short as possible. Additionally, 0V must be neutralized near the power supply (according to VDE regulations).

- Set the PCS 950 parameters using the parameterization software PCS*PRO*^{WIN} supplied by Systeme Lauer.

Warning!
Creation of a data record is only possible by means of the PCS*PRO*^{WIN} software. Other software packages are inadmissible and may cause malfunctions in the PCS and in the programmable controller.

Warning!
Use only the drivers specified for the programmable controller. Other drivers may cause malfunctions in the PCS and in the programmable controller.

- Set the PCS 950 parameters using the parameterization software PCS*PRO*^{WIN} supplied by Systeme Lauer.

Warning!
Malfunctions may occur in the PCS and in the programmable controller, if they are not correctly configured. Check the correct functioning of the PCS and the programmable controller.

- The functions of the LEDs of the PCS 950 are explained in section 3.2 and in the corresponding driver manual.

1.3 MEMORY MAPPING

The PCS 950 memory contains among others the following memory areas:

- **EPROM**

  The PCS 950 features a fixed EPROM area (BIOS) which only contains a boot strap program and the required display and keyboard handling programs. Corresponding messages are displayed, if invalid data is present in other parts of the memory.

- **EEPROM**

  A memory of 2 * 8 kByte for individual recipes is available here. The content of this memory is managed by the RecipeManager *) of the firmware.

- **FLASH-EEPROM**

  This memory area contains 256 kByte used for the firmware, 2 x 128 kByte for data records and 2 x 8 kByte for the driver. This memory area is completely electrically erasable. The content of this memory determines the entire functionality of the PCS 950.

- **ADDITIONAL CASSETTE**

  The additional cassette always contains a Flash-EEPROM. The capacity of this memory depends on the cassette type being used. Normally, this cassette contains another, alternative data record which can be activated by a menu contained in the BIOS. Additionally, this cassette enables firmware, data and drivers to be transferred. For this purpose, any internal memory area can be copied onto the cassette. Depending on the cassette capacity, several cassettes may be required for this purpose.

- **BATTERY-BACKED RAM**

  This internal memory (2 x 128 kByte) contains all non-volatile data. This area is only managed by the firmware.

*) in preparation

2 CONTROL ELEMENTS

2.1 DIL SWITCHES

10 DIL switches numbered from 1 to 10 are located at the rear:

DIL 1 to 4 =	Programmable controller bits. These switches are freely abailable to the firmware
DIL 5, DIL 6 =	Configuration parameter (driver) e.g. baud rate, interface selection OFF OFF Configuration 1 ON OFF Configuration 2 OFF ON Configuration 3 ON ON Configuration 4 For details see driver manual PCS 091.x
DIL 7 =	Transmission baud rate with PCS*PRO*^{WIN} ON = 115,0 kBaud OFF = 38,5 kBaud
DIL 8 =	Operation Mode ON = Stop, service program expected OFF = Run, normal operation ⚠ Warning! !! This switch must be set to OFF during operation, otherwise malfunctions may occur in the PCS and in the programmable controller !!
DIL 9, 10 =	Write protection of the internal Flash-EEPROM ON = EEPROM may be overwritten OFF = EEPROM write-protected ⚠ Warning! !! These switches must be set to OFF during operation, otherwise malfunctions may occur in the PCS and in the programmable controller !!

*) Switch no. 7 determines the baud rate of the transmission initiated by the PCS 950. PCS*PRO*^{WIN} detects this baud rate automatically.

DIL switches 9 and 10 must be set to OFF after programming, otherwise data storage may not be guaranteed in all cases. Under normal conditions (including switching on and off at any time), - will not occur.

2.2 LED DISPLAYS

All LED displays are assigned 4 states: OFF, ON, FLASHING and INVERSE FLASHING. FLASHING consists of 75% light phase and 25% dark phase and INVERSE FLASHING consists of 75% dark phase und 25% light phase. The upper 4 LEDs indicate the operating states of the PCS. All LEDs, except SYS, are managed by the firmware.

ATTENTION	OPERATOR PROMPT	COMMUNICATION ERROR	OPERATING SYSTEM
!	?	COM	SYS

■ **SYS LED**

This LED lights as soon as the PCS 950 is working based with BIOS routines. This occurs, if there is no firmware, after starting the OFFLINE menu for data record switching, or when copying cassettes with <HELP+CLR>, or after starting the transmission with PCS*PRO*^{WIN}.

■ **OPERATOR PROMPT (?)**

See the functional description.

■ **ATTENTION (!)**

See the functional description.

■ **COMMUNICATION ERRORS (COM)**

ON: Communication has not been started after applying power.

FLASHING: Communication with the programmable controller has been interrupted!

For details, see the driver description.

2.3 RESET PUSHBUTTON AND ON/OFF SWITCH

The reset pushbutton is located above the 10 DIL switches. It initiates a software reset which is not required under normal conditions. The ON/OFF switch is required for cassette replacement.

Attention!
Before replacing the cassette, the PCS must be switched off!

2.4 KEYS

The PCS 950 is equipped with 20 function keys, 10 control keys and 10 numeric keys. The key functions are determined by the firmware.

3 CONNECTIONS

3.1 SUPPLY VOLTAGE

The supply voltage connections 1 (0V) and 2 (24V) are screw terminals accepting wires up to 2 mm². The current consumption and the supply voltage limits are indicated in the section »SPECIFICATIONS«.

Warning!
The protective conductor and 0V of the supply voltage are separated in teh device. The protective conductor is connected to the enclosure, to the noise filter and to pin 1 of the serial interfaces. The enclosure must be grounded to avoid noise in the best way. The grounding wire (4 mm²) must be as short as possible. Additionally, 0V must be neutralized near the power supply (according to VDE regulations).

The alarm output is designed as relay contact (NO) between pins 6 and 7. Only low voltage (24V) and a maximum current of 0.5A may be applied to this contact. Internal protection is realized by a PTC resistor which protects the contact in a limited manner.

Contact driving is determined by the firmware.

Warning!
The supply voltage as well as the input and output voltages and the voltages at the other interfaces must be functional extra-low voltages with protective isolation (transformer according to VDE 0551).

3.2 SERIAL INTERFACES

The PCS 950 is equipped with a „combined" COM interface and an RS232/TTY interface PRN. Either an RS 232 (V24) or, alternatively, a TTY (current-loop interface), active or passive, is available via the 25-pole JD female connector. An RS 422 or, alternatively, an RS 485 interface is available via the 15-pole JD connector. Please refer also to the descriptions in the PCS 91.x driver manuals.

- PRO/COM (RS232/TTY) and COM (RS485/RS422)

  The software is used to configure this interface as RS232, TTY, RS485, or RS422 interface. For a RS232/ TTY connection, the 25-pole SUB-D female connector and for a RS485 and RS422 the 15-pole SUB-D female connector is used. These two female connectors should NOT be used simultaneously. This interface is activated by the loaded driver and must be configured appropriately within PCSPROWIN. Normally, 4 configurations can be programmed. In this case, the DIL switches 5 and 6 are used for interface selection (see the driver manual PCS 91.x).

- PRO/PRN (RS232/TTY)

  This interface can be configured as RS232 or TTY interface. It is activated and parameterized by the firmware. For parameter settings, an internal variable is required. These values are stored in the non-volatile RAM.

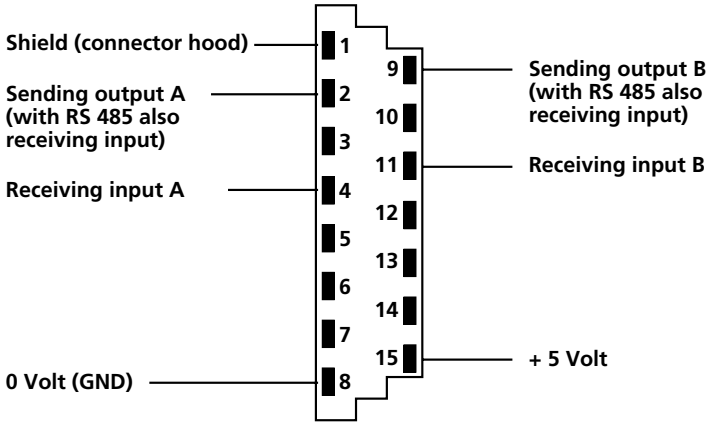
3.2.1 CONFIGURATION/PROGRAMMING

The RS 232 interfaces enable configuring the PCS 950 with a PC/programmer using the connection cable PCS 733 (configuration cable) and PCS*PRO*^{WIN}. Configuration start and programming are detected via the DSR input. The PCS is thus ready for program transmission. Please notice that for programing the DIL switches 9 and 10 must be set to ON so that the EEPROM is able to store data. Detection takes place on both interface sides, independently of the configuration previously set. A programmable controller simulation with PCS*PRO*^{WIN} is only possible on the PRO/COM interface.

Attention!
The level at DSR (Pin 6) is determined by the PC output DTR (25 -pole: Pin 20; 9-pole: Pin 4). Since the level of this pin is not defined after booting the PC/ programmer or after exiting a program, it is possible that the PCS is in configuration mode (only if the configuration cable PCS 733 is plugged in). In this case, the PCS program is stopped and the SYS LED is ON. If any communication with the programmable controller was established, it is now aborted. In this case, you must disconnect the PCS 733 cable. The PCS*PRO* software normally sets the correct level at this PIN.

3.2.2 COMMUNICATION ASSIGNMENT RS 485/RS 422

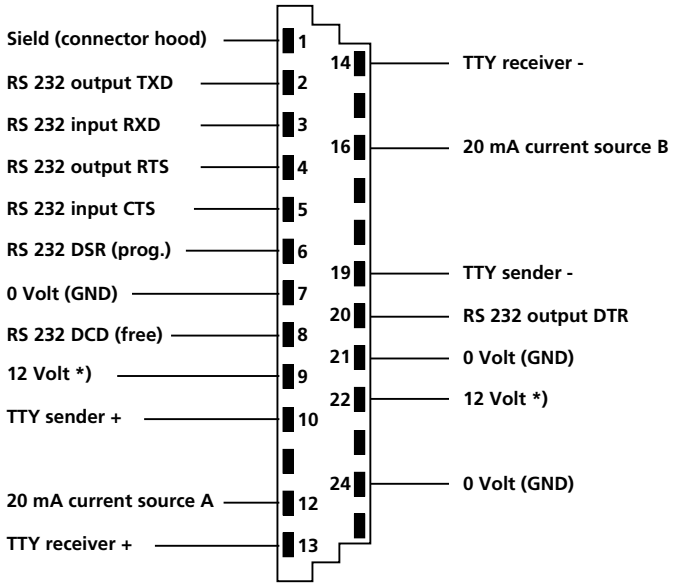
(rear view on the connector)



Warning!
Depending on your driver and the programmable controller you must use a special communication cable. Moreover, DIL switches 5 and 6 must be set according to the specified driver parameters. Otherwise malfunctions may occur in the PCS and the programmable controller. See the corresponding PCS91.x driver manual.

3.2.3 CONNECTOR ASSIGNMENT RS 232/TTY

(rear view on the female connector)



*) 12V max. 150mA

A total of 4 separated current loop sources are available for TTY (2 (A+B) per interface).

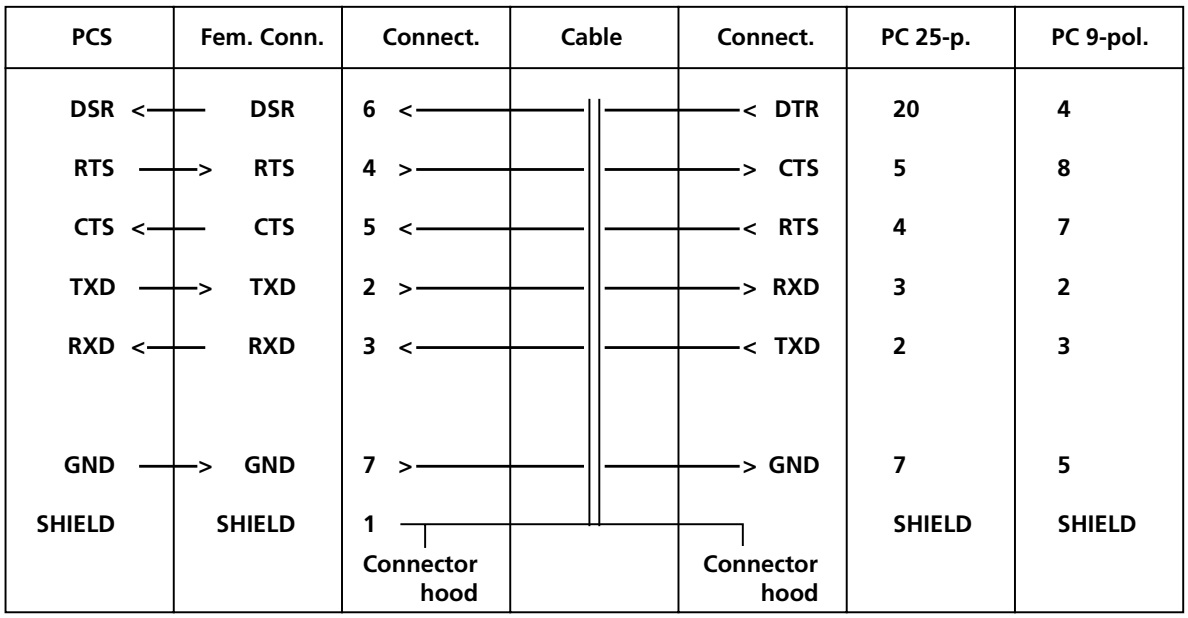
Warning!
If external current loop sources are used, the maximum e.m.f. may not exceed 15 V. Furthermore, real current sources with a maximum of 22 mA are required. Otherwise malfunctions may occur in the PCS and in the programmable controller!

3.3 CONFIGURATION CABLE PCS 733

The cable described below is required for configuration or data record transmission (driver, functions, variables, texts and menus).

You can also use this cable for programmable controller simulation on the PC.

Connection PC/Programmer - PCS 950, PCS 900, PCS 090, PCS 095 or PCS 9000:



3.4 CASSETTE CONNECTION

The 32-pole female connector allows the following cassettes to be used:

- PCS 802 Memory cassette with 64 kByte of Flash-EEPROM
- PCS 803 Memory cassette with 32 kByte of Flash-EEPROM (additionally 6 analog outputs and 6 digital inputs)
- PCS 804 Interbus-S connection with 64 kByte of Flash-EEPROM
- PCS 805 AEG bit bus cassette with 64 kByte of Flash-EEPROM
- PCS 806 Memory cassette with 128 kByte of Flash-EEPROM
- PCS 807 Profibus-DP connection with 128 kByte of Flash-EEPROM *)
- PCS 808 Arcnet connection with 128 kByte of Flash-EEPROM *)
- PCS 891 Memory cassette with 64 kByte of Flash-EEPROM and additional keyboard

*) in preparation

4 BIOS

4.1 DATA RECORD SELECTION

The non-volatile memory stores data used to specify, if the PCS 950 is operated with the internal data record 1 or 2 or with the external data record (on cassette). If this value is not specified in a clearly manner, a warning message is output before the firmware is started (this message has to be confirmed with <ENTER>) or you are prompted to select <1>, <2>, <3> or <4>. The system is then restarted and data are checked again.

4.2 SELECTION OF THE COPY FUNCTION

To select the copy function, press the <CLR> key while pressing and holding the <HELP> key. If the copy function is enabled, the keys are used in the following way:

<ENTER>
This is the confirmation key used to activate the selected function.

<+>, <-> and <.>
These keys are required to select the source or destination memory area.

When using the copy function, please observe the following points:

- When copying data onto cassette(s), ALL assigned blocks have to be copied. Since only deleted blocks can be overwritten by programmed data when reading data into the internal Flash-EEPROM , several cassettes may be required. If the data record exceeds 64 kByte, 4 PCS 802 cassettes are necessary for example.
- Currently, the individual blocks are stored on the following addresses:

CPU 1

Block 4, 6 and 7	firmware CPU 1
Block 5	driver 1 and 2
Block 8 and 9	external cassette slot
Block C and D	data record 1
Block E and F	data record 2

CPU 2

Block 4-7	firmware CPU 2
Block C and D	bitmap data record 1
Block E and F	bitmap data record 2

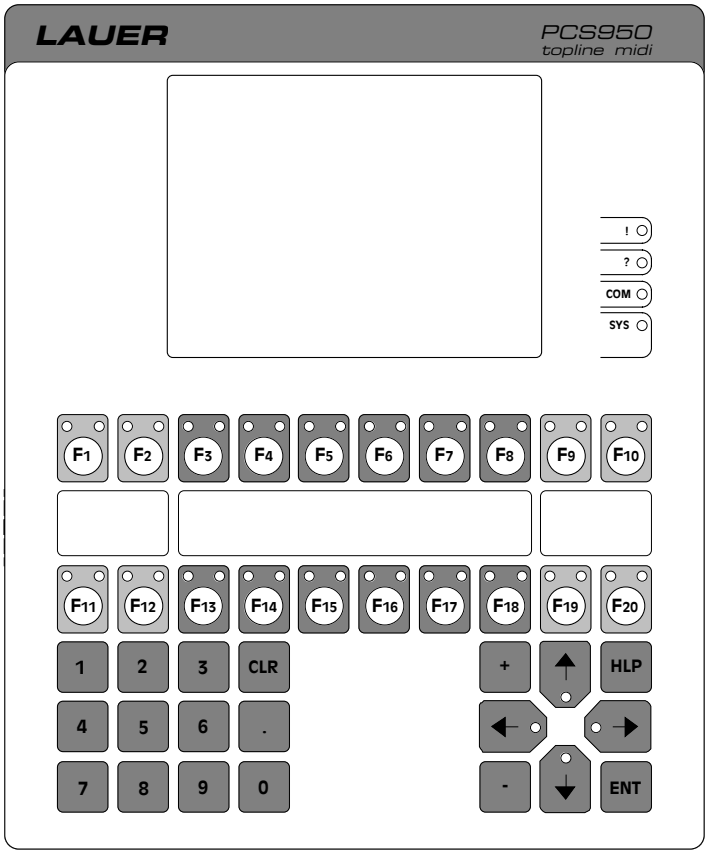
5 SPECIFICATIONS

5.1 SPECIFICATIONS OF THE PCS 950

Dimensions:	front panel cutout: (wxh) 204 +1 mm * 259 +1 mm Clearance in the control cabinet for mounting hardware: (wxh) 224 mm x 279 mm Mounting depth without connector: 65 mm, with SUB-D female connector and cable 110 mm External dimensions (wxh) 224 mm x 270 mm
Weight:	2000 g
Supply voltage:	+24VDC ± 20%, protected against polarity reversal
Current consumption:	Iav = 800 mA at 24V Imax = 1.0 mA at 19V (with cassettes max. 100 mA additionally)
Noise immunity:	see manufacturer information
Enclosure type:	according to IEC 529: rear: IP 20 front: IP 65
Humidity:	0..75%, continuous test of 48 hours
Vibration resistance:	3g @ 50Hz in all directions, min. 5 hours 3g @ 100Hz in all directions, min. 1 hour
Temperature:	storage: -25..+70°C operation: 0..+50°C
Data storage:	Flash-EEPROM, min. 10000 write cycles
Front foil:	polyester
Dimensions of the insert foil:	210 +0 -0.4 mm * 26,0 +0 -0.4 mm * 0.1 mm
Pushbuttons:	mechanical with tactile touch
Display:	LCD CFL display 320 x 240 pixels, 24 x 40 characters, 5 x 8 matrix, small character set 12 x 20 characters, 10 x 16 matrix, large character set
Fuse:	1.25 A, small fuse, slow-blow, 1 spare fuse

Warning!
The device is exclusively intended for being installed in another machine. Commissioning is prohibited, until conformity of the final product with the regulation 89/392/EWG has been ascertained.

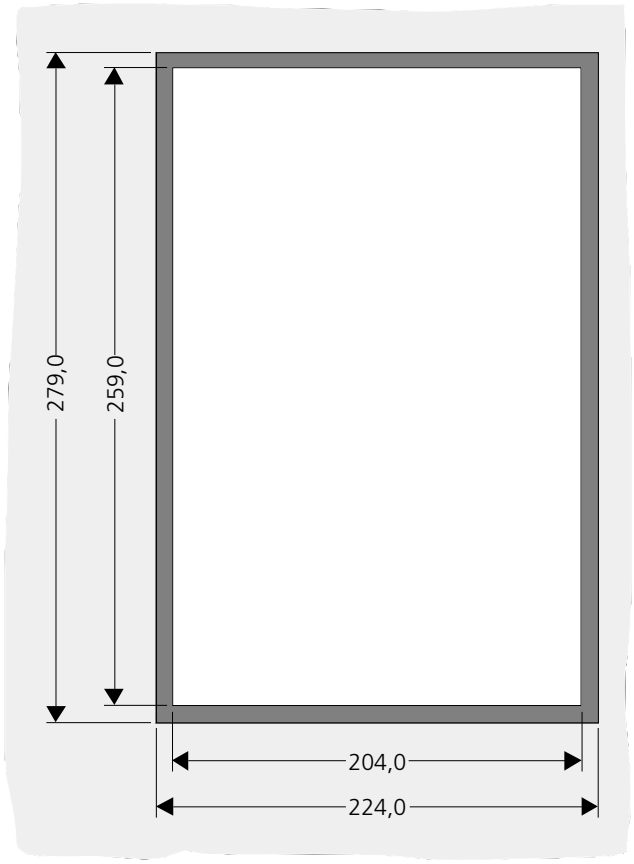
5.2 DIMENSIONS OF THE PCS 950



Front view

Mounting dimensions

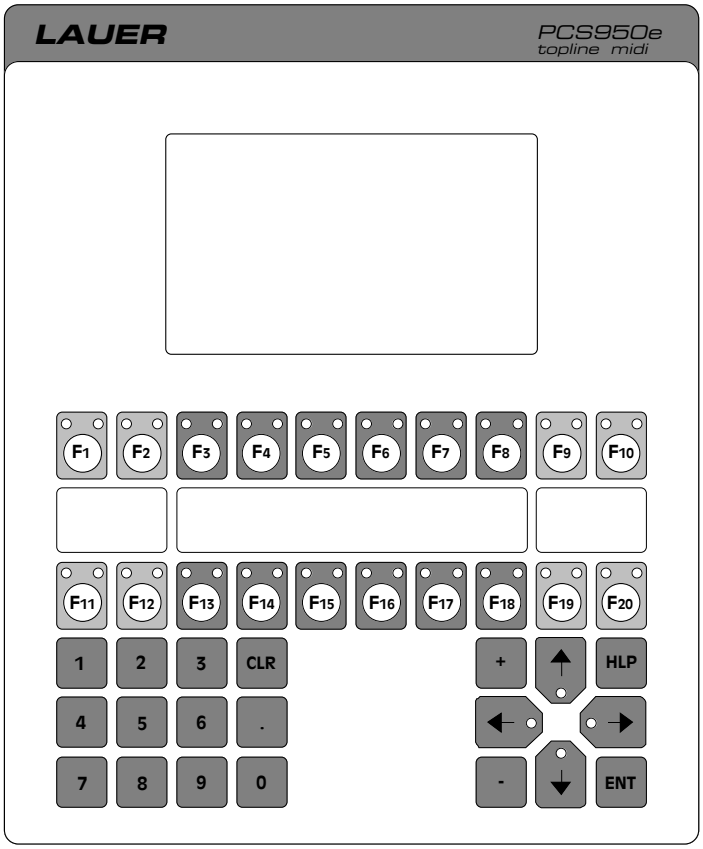
Front panel cutout:	204^{+1} mm x 259^{+1} mm
Clearance in the control cabinet for mounting hardware:	224 mm x 279 mm
External dimensions	224 x 270 mm
Mounting depth	65 mm



5.3 PCS 950e FRONT END SPECIFICATIONS

Dimensions:	Front panel cutout (w x h):	204 +1 mm x 259 +1 mm
	Clearance in the steel cabinet for mounting parts (w x h):	224 mm x 279 mm
	Installation depth w/o connector:	65 mm, with 8-pin round connector and 130 mm cable
	Outside dimensions (w x h):	224 mm x 270 mm
	Dimensions of the insertion foil:	210 + 0 -0.4 mm x 26.0 + 0 -0.4 mm x 0.1 mm
Weight:	2000 g	
Noise immunity:	refer to the manufacturer declaration	
Protection class:	according to IEC 529:	rear side: IP 20 front sidee: IP 65
Humidity:	0..75%, 48 hours continous test	
Vibrations resistance:	3g @ 50Hz in all directions, min. 5 hours 3g @i 100Hz in all directions, min. 1 hours	
Temperature:	storage: -20..+70 °C operation: 0..+50 °C	
Front foil:	polyester	
Keys:	mechanical with tactile touch	
Display:	LC display 240 x 128 pixels	
Character set:	16 x 40 characters, 6 x 8 matrix, small character set 8 x 20 characters, 12 x 16 matrix, large character set	

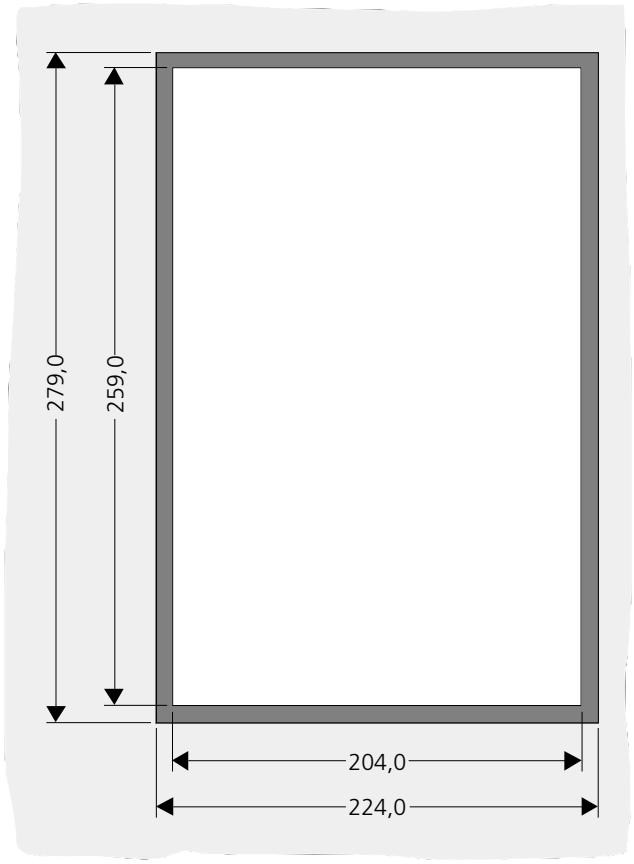
5.4 PCS 950e FRONT END DIMENSIONS



Front view

Mounting dimensions

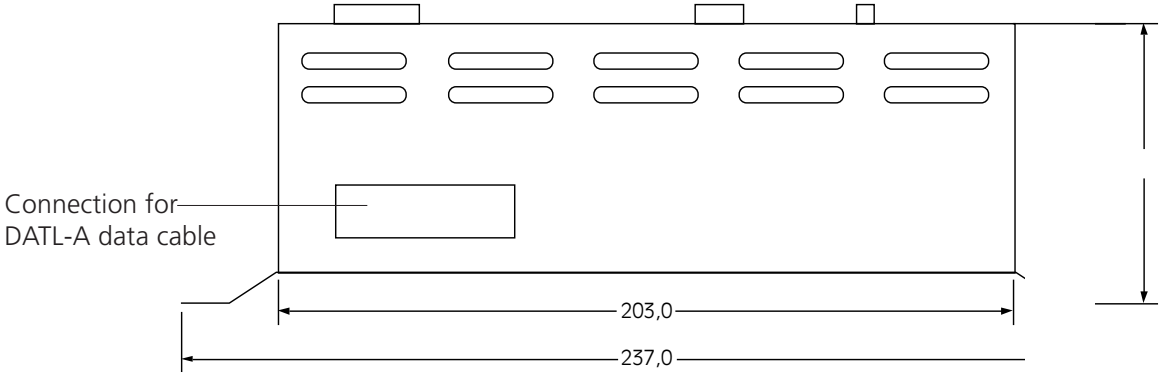
Front panel cutout:	204^{+1} mm x 259^{+1} mm
Clearance in the switching cabinet for mounting parts:	224 mm x 279 mm
Outside dimensions:	224 x 270 mm
Installations depth w/o connectors:	65 mm

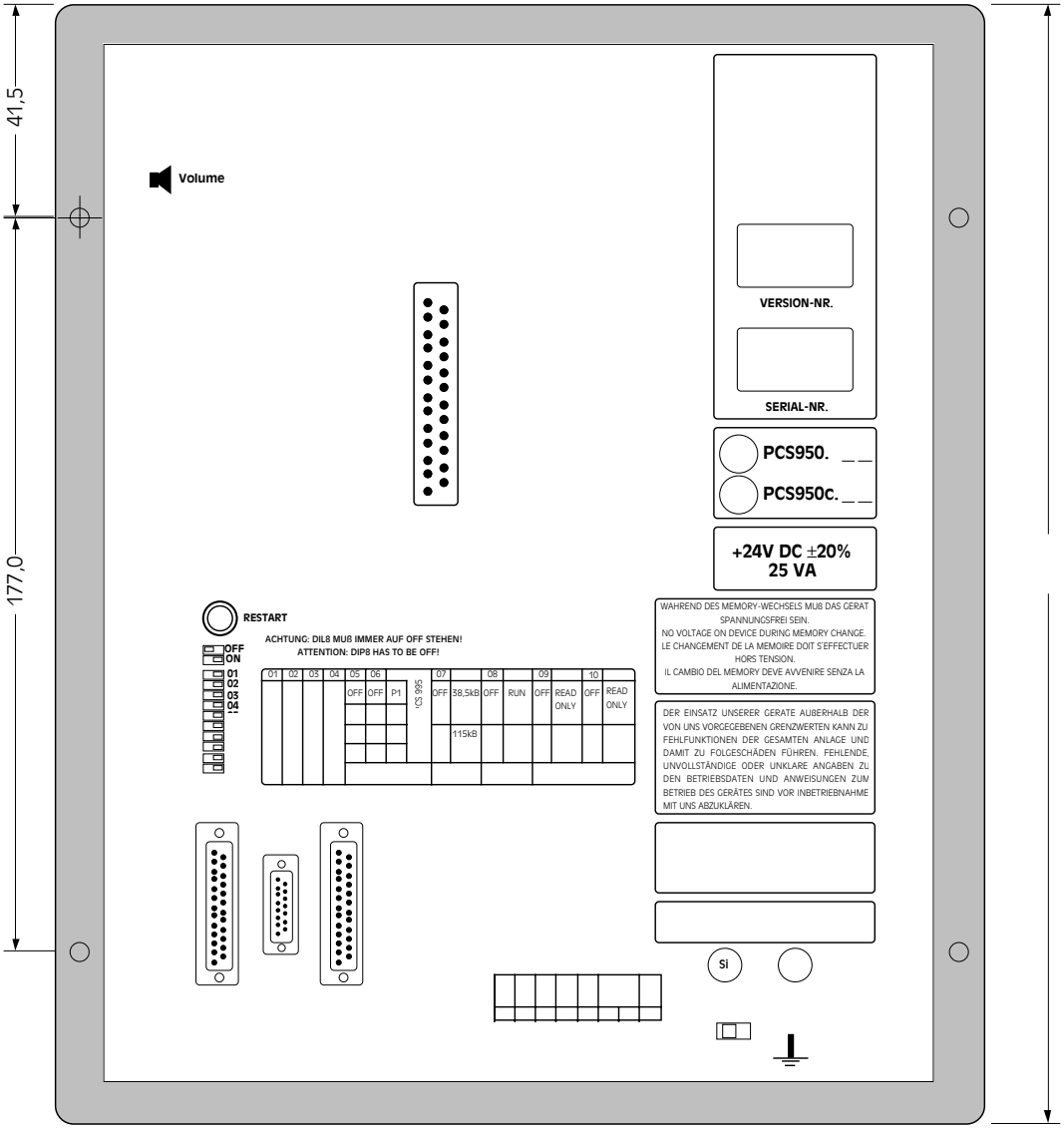


5.5 PCS 950e ENT-DC-1.1-950 CONTROL UNIT SPECIFICATIONS

Hazardous-duty type:	EEx ib IIC PTB no. EX-92.C.2046. x
Dimensions:	outside dimensions (w x h x d): 237 mm x 260 mm x 81 mm
Weight:	2500 g
Operating voltage:	+24VDC ± 20%, reverse voltage protected
Current consumption:	I = 1400 mA @ 24 Volt Imax = 1700 mA @19 Volt (max. 100 mA additionally with cassette)
Noise immunity:	refer to the manufacturer declaration
Protection class:	according to IEC 529: IP 20
Humidity:	0..75%, 48 hours continous test
Temperature:	storage: -20..+70 °C operation: 0..+50 °C
Data storage:	flash EEPROM, min. 10000 write cycles
Fusing:	controller: replacable from the outside, 1.25 A, miniature fuse, slow-blow type, 1 spare fuse Control unit: internal, on request

5.6 PCS 950e CONTROL UNIT DIMENSIONS





5.7 MAINTENANCE

Warning!
Static charge of the front panel is possible. Clean only with a moist cloth.

The front foil is made of polyester. So there is a risk of static charge. For this reason, the front panel may only be cleaned with a moist cloth.

This is especially important, when using the PCS 950 in an Ex area.

Note!
The back-up battery for the internal RAM should be replaced every 5 years. During replacement the device should be switched on to avoid loss of log memory and message printer data.

The PCS 950 does not require any regular maintenance, but the back-up battery for the internal RAM should be replaced every 5 years. This battery can be ordered at Systeme Lauer as spare part.

Order designation for the replacement battery: PCS 010

Warning!
The LCD display contains poisonous substances. Do not touch the display, if it is damaged.

5.8 USING THE PCS 950 IN AN EX AREA

Warning!
The devices can only be pre-setup by Systeme Lauer for use in Ex area 1 or 2. Depending on the application, the device must be installed according to VDE 0165 or VDE 170/171.

The PCS 950 can be pre-setup for use in an Ex area.

This must be specified when ordering the device. A subsequent release or certified declaration by the manufacturer is not possible. The devices can be pre-setup for use in Ex area 1 or 2.

An overpressure encapsulation with a low-pressure system is available. This means that a difference in atmospheric pressure of 2 - 4 mbar exists between the interior space and the outside of the front. Higher pressures may cause damages to the display.

The devices are only pre-setup for use in Ex area 1 or 2. This means that the devices must be installed according to VDE 0165 or VDE 170/171, depending on the application. For installation of the devices in encapsulated enclosures with pressure protection - including test certifications which may be required - Systeme Lauer informs the user about the cooperating companies on request.

For use of the devices in Ex area 2, please refer to the specifications of the manufacturer and an explanatory memorandum published by Systeme Lauer. The specifications of the manufacturer may be used as basic documentation for the certification of the device in Ex area 2.

5.9 APPLICATION OF THE PCS 950e IN THE EX AREA

System concept

Functionality, the PCS 950e is identically to the PCS 950/PCS 950c. The display is different with it´s LC display having 240 x 128 pixels (PCS 950: graphical LC display with 320 x 240 pixels, PCS 950c: color graphic LC display with 320 x 240 pixels). The system is made up by two individual components which are connected by an intrinsically safe data cable.

The intrinsically safe PCS 950e front end with protection class EEx ib IIC T4 for zone 1 and 2 is used in the hazardous area for display and operator guidance. The device size and device dimensions are identically to the PCS 950/PCS 950c. All software functions (variables, messages, etc.) are supported as for the standard device.

Using the intrinsically safe DATL-A7-4 data cable, the PCS 950e front end is connected to the ENT-DC-1.1-950 (power supply with controller) that is installed in the non-hazardous area. This data cable is used for the voltage supply and data transfer to the PCS 950e front end. No other cabling is required in the hazardous area.

A programmable controller is connected to the ENT-DC-1.1-950 that is also used for the programming of the system. Here, all interfacing options (interfaces, module slots) of the PCS 950/PCS 950c are available. All cables for connecting programmable controller systems (PCS 7xx) and cassettes (PCS 80x) can be used.
The commissioning instructions described in section 1.2 also apply to the ENT-DC-1.1-950.

The PCS*PRO*^{WIN} software is also used for the configuration of the system. All performance features of the PCS 950/PCS 950c are integrated into the PCS 950e and are fully supported by PCS*PRO*^{WIN}.

5.10 SYSTEM SETUP OF THE PCS 950e