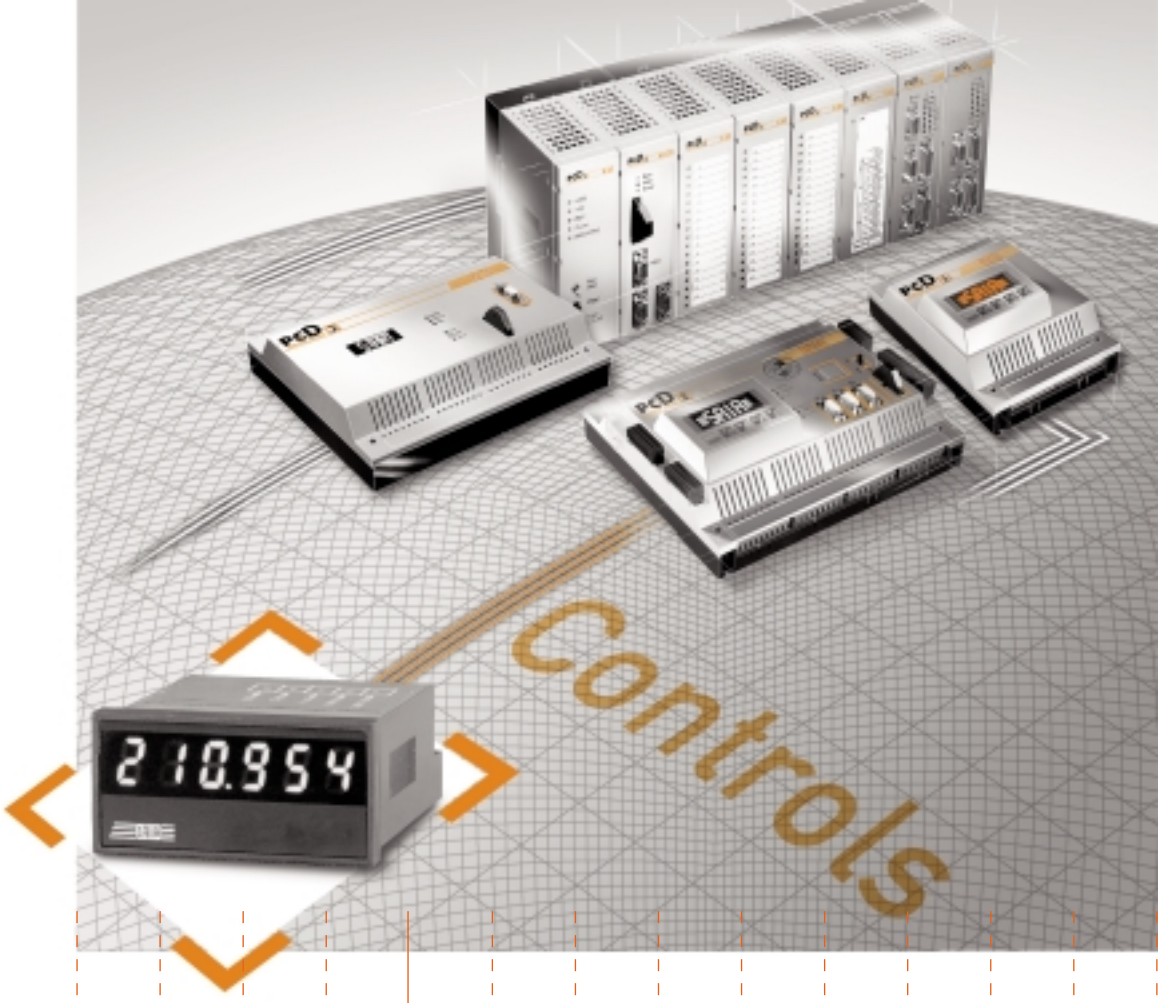


Controls

saia-burgess

Smart solutions for comfort and safety

Remote display

6-characters with high clarity LEDs

Read measurements at a glance with this very bright display – and it does not tie up a serial port

Manual

Economical solution for the remote display of process data

- **Particularly bright, 6-digit LED display with decimal point:** Very easy to read, even under poor conditions of visibility (up to 4 metres away and at a viewing angle of 150°).
- **Ties up none of the PCD's valuable serial ports:** Only requires 3 transistor outputs on the following standard modules: PCD2.A400 (inc. version Z06), PCD2.A460/..A465 or PCD2.B100 or the corresponding modules from the PCD4 and PCD6 series.
- **Standard-size housing:** 24 × 48 mm, front panel protection class IP 65.
- **Set of 77 units on self-adhesive labels:** e. g. I, P, gal, U, f, 1/min, N, kJ, K, kHz, % ...

Convenient commissioning and programming

- **Ease of adjustment to different modules:** This is done with FBox in the FUPLA editor or FBs in the IL editor. The refresh rate for the display is defined at the same time.
- **Up to 14 remote displays can be driven in parallel:** For every display different data sources (with up to 6 digits) can be chosen by an FBox.
- **Serial driving of 2 (or more) remote displays:** An advantage when more than 6 digits have to be displayed.

Edition 26/799 E1, July 2002

Manual PCD7.D120 – Remote display

SAIA®Programmable Control Devices

Edition 26/799 E1 – 07.2002

Subject to technical changes

Updates

Chronology

Date	Chapter	Page	Description
09.01.02	3-4	6/22	New adapter frame for 24 x 48 mm cut out

Reliability and safety of electronic controllers

Anlagen- bzw. Maschinenbauer

Saia-Burgess Controls Ltd. is a company which devotes the greatest care to the design, development and manufacture of its products:

- state-of-the-art technology
- compliance with standards
- ISO 9001 certification
- international approvals: e.g. Germanischer Lloyd, United Laboratories (UL), Det Norske Veritas, CE mark ...
- choice of high-quality componentry
- quality control checks at various stages of production
- in-circuit tests
- run-in (burn-in at 85°C for 48h)

Despite every care, the excellent quality which results from this does have its limits. It is therefore necessary, for example, to reckon with the natural failure of components. For this reason Saia-Burgess Controls Ltd. provides a guarantee according to the "General terms and conditions of supply".

The plant engineer must in turn also contribute his share to the reliable operation of an installation. He is therefore responsible for ensuring that controller use conforms to the technical data and that no excessive stresses are placed on it, e.g. with regard to temperature ranges, overvoltages and noise fields or mechanical stresses.

In addition, the plant engineer is also responsible for ensuring that a faulty product in no case leads to personal injury or even death, nor to the damage or destruction of property. The relevant safety regulations should always be observed. Dangerous faults must be recognized by additional measures and any consequences prevented. For example, outputs which are important for safety should lead back to inputs and be monitored from software. Consistent use should be made of the diagnostic elements of the PCD, such as the watchdog, exception organization blocks (XOB) and test or diagnostic instructions.

If all these points are taken into consideration, the SAIA PCD will provide you with a modern, safe programmable controller to control, regulate and monitor your installation with reliability for many years.

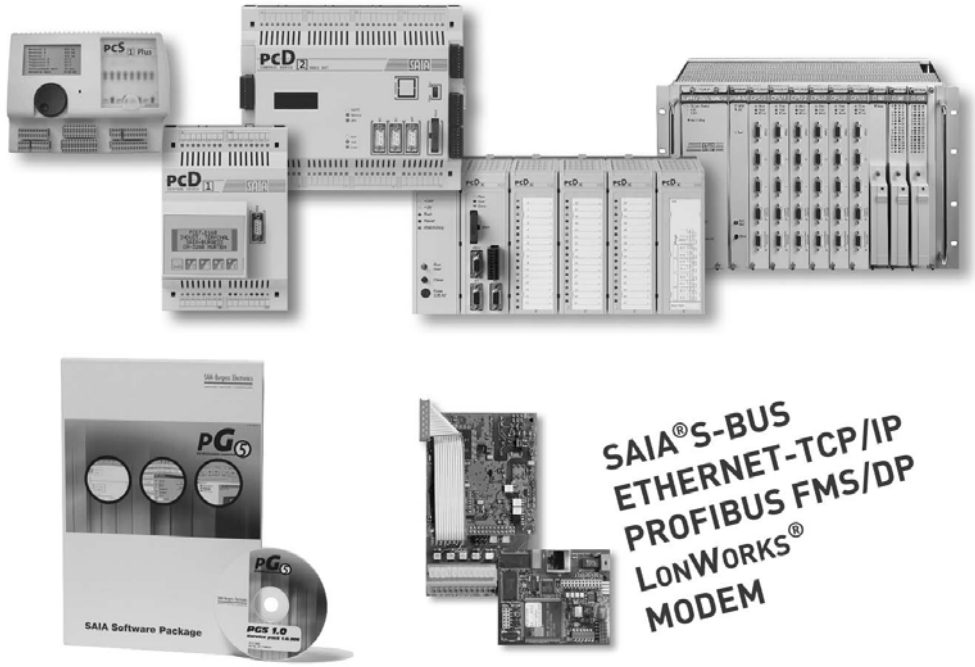
Read me

About ourselves

Saia-Burgess Controls Ltd (SBC) is a medium-sized European controls technology company. SBC is committed to the values, standards and culture of PLC engineering.

All hardware, operating systems, software tools, CPUs, interfaces, etc. have been developed by SBC itself and are marketed as embedded controls.

Picture 1



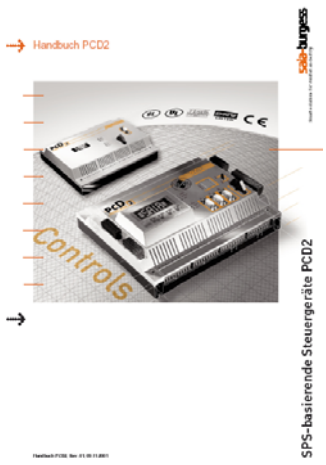
With full technical knowledge of all system elements and with quality-oriented business processes, SBC is equipped to provide unique, custom solutions regarding range of use, functionality, openness, flexibility, reliability and price.
These core competencies, combined with innovative strength, a broad product range and a readiness to implement special customer requests rapidly, have made SBC the attractive, competitive partner of choice for a large number of international customers.

Product and documentation concept

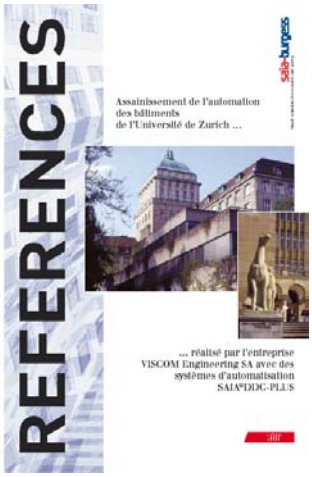
The SAIA® PCD product range is rigorously modular in structure. It demonstrates a clear hierarchy of systems, sub-systems, functions and diverse accessories. Fully developed software tools allow the efficient creation of user programs.
All SAIA® PCD systems (PCD1 to PCD6) work with the same operating system. PCD systems communicate easily with each other and PCD user programs run on all systems.
PCDn xx7 series controllers have a special operating system. This enables them to be programmed with Siemens® Step®7 and to communicate readily with the corresponding systems of other manufacturers.

SAIA® PCD customer documentation comprises pre-sales and after-sales documents that complement each other. As a rule, they are published in three language versions (German, English, French).

Technical information



Manuals



References

Technical Information (TI) documents offer overviews of a system (e.g. the SAIA® PCD operating system OS), sub-system (e.g. PCD2) or product family with common features (e.g. digital I/O modules, etc.).
TIs have been designed as pre-sales documents. They describe the system or product features and contain all the selection criteria necessary for a preliminary project. They offer the prospective customer more information than a normal brochure.
TIs are available free-of-charge as brochures or in electronic form (on CD or via Internet **http://www.sbc-support.ch**).

Manuals are after-sales documents. They contain all the detailed information and application examples necessary for the efficient realization of a project. Manuals are available to the SAIA® PCD customer in electronic form on CD (for a token fee) and via Internet **http://www.sbc-support.ch**.

References describe projects that have been successfully realized with SAIA® PCDs (after-sales). The solutions outlined in them will provide many ideas for the use of SAIA® PCDs in similar projects (pre-sales, closing the loop with the TI). References are available free-of-charge as brochures or in electronic form (on CD or via Internet **http://www.saia-burgess.com**). Please read also our Controls News published on internet side: **http://www.controls-news.ch.**

P documentation (P = preliminary) describes new or extensively redeveloped products. After extensive internal testing of function and integration, these products are supplied to external commercial partners for field trials under more difficult conditions. P documentation is provided for these field trials. Improvements suggested by these external partners influence the definitive documentation. P documents can be requested as PDF files and some are available free-of-charge via Internet **http://www.sbc-support.ch**.

Technical support

Any questions that you cannot answer by referring to the documentation will be dealt with promptly and reliably for you by the SAIA® PCD Support Team. The team is based in Switzerland and can be reached by telephoning **++41 26 672 71 11**.
The addresses of Saia-Burgess sales companies and agents for other sales areas can be found under **http://www.saia-burgess.com**.

Workshops, training literature

Interesting, informative SAIA® PCD workshops offer technically qualified people the opportunity to make valuable contacts and extend their technical knowledge of the PCD, taking home with them both the training literature and the solutions produced collaboratively during the workshop.
Workshops are your route to joining the large group of enthusiastic SAIA® PCD users.

Current workshop programs are among a wealth of other useful information to be found under **http://www.sbc-support.ch/**

Navigation in electronic-based PDF documents

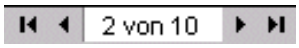
To navigate in PDF documents, press the "hand tool (H)" button. 

Structure of PCD manuals

PCD manuals comprise a "General section" and the chapter sections or sub-sections. These in turn comprise a number of document modules. The latter are uniquely identified with their own number, version details and issue date. This is necessary because many document modules are used in more than one manual.
The manual files are linked together electronically. This makes it easier to navigate around extensive manuals.
Blue web links, e.g. **http://www.sbc-support.ch/** serve to establish an Internet connection.

Navigation

Navigation is via bookmarks. Clicking the mouse on “+” will display ancillary bookmarks.
The pictograms offer further navigation possibilities (after clicking the mouse on the appropriate index card), as do the "Contents lists” of individual chapters.

(Scrolling with the arrow keys takes a little longer. They are 

or  practical for going to the title page or to the back page, which has the ordering information and addresses with blue web links.)

A mouse click on the desired chapter heading will take you to the beginning of that chapter. From there, it is best to use the arrow keys for scrolling, or the links identified by blue key words.

Right-clicking once on the mouse will open a menu with various options (e.g. "Go to previous view"). Normally, bookmarks will be a faster way of arriving at the starting point or any new destination (e.g. another chapter).

Summary of navigational aids

- Bookmarks (on left margin of screen, outside the document)
- Any pictograms (after clicking mouse on index card)
- Contents lists with links to topics required
- Blue web links, for establishing Internet connections quickly
- Key words marked blue, for accessing more detailed information (within any one chapter section or subsection)

Icons

In manuals, this symbol refers the reader to further information in other manuals or technical information documents (e.g. “For details see TI 26/365”).
As a rule there is no direct link to such documents.

This symbol warns the reader of the risk to components from electrostatic discharges caused by touch.

The caution sign accompanies instructions that must always be followed.

Contents

1 PCD7.D120 Remote display with clear 6-character LED indicator

1.1 General

The PCD7.D120 module is a remote display that can be controlled via 3 SAIA®PCD digital transistor outputs. It has a bright red easy-to-read 6-digit display and is able to indicate a decimal point as well as 6 special characters.
The display can be mounted in anywhere at a greater distance to the PCD e.g. in the door of a control cabinet or an operating panel.
Due to FBox in Fupla, several displays can be controlled easily by one PCD.

2 Structure and function

The module D120 consists of the following main components:

- Internal power supply 10-30VDC
- 3 inputs for 24 VDC (Enable "EN", Clock "Clk" and Data "D")
- Micro-processor
- 6-digit, 7-segment LED display with decimal point

To control one D120 module, 3 digital PCD transistor outputs are required.
For every additional D120 module only 1 additional output is needed.

- Possibility of driving up to 14 displays: gives you the freedom to choose different data sources (max. 6 characters) via the function box.
- Running 2 displays joined together in series: as a means of displaying numbers greater than 6 characters in length . The function box can run several displays joined together.

To control the remote display only 3 transistor outputs of the standard modules PCD2.A400 (incl. version Z06), PCD2.A460/..A465 or PCD2.B100 are needed or corresponding modules of PCD series Baureihen PCD4 and PCD6. The adjustment to the different modules is easily performed with with 2 FBox's with the FUPLA Editor (or FBs with the IL Editor)

Siehe Tabellen in Kapitel 4.1.3

3 Data configuration and character set

Data configuration			
1	Reserve		
2	Reserve		
3	Character 1	Decimal point	
4	Character 2		
5	Character 3		
6	Character 4		
7	Character 5		
8	Character 6		
9	MSB	Character 1 10^5	
10			
11			
12	LSB		
13	MSB	Character 2 10^4	
14			
15			
16	LSB		
17	MSB	Character 3 10^3	
18			
19			
20	LSB		
21	MSB	Character 4 10^2	
22			
23			
24	LSB		
25	MSB	Character 5 10^1	
26			
27			
28	LSB		
29	MSB	Character 6 10^0	
30			
31			
32	LSB		

Time

Time

character set	
Character	**Code**
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001
A	1010
I	1011
II	1100
U	1101
-	1110
"blank"	1111

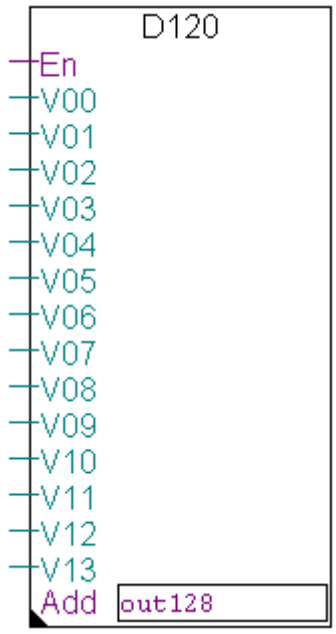
4 Programmation

4.1 Fupla FBox's

4.1.1 Name : D120 Module

Description

Outputs integer values to one or several PCD2.D120 display module. The displays are only handled when the enable signal is High. In this way, various Fbox's can alternatively handle the same display.



Inputs / Outputs / Fields

En	Enable	Enables the display of the values
V0 to V13	Value 0 to 13	Values to display
Add	Address	Base address of binary outputs controlling the PCD.D120 display. See table below (cabling)

Adjust window

Fix point position — Position of the decimal point set on the display.
The Clock option allows to set two points to display a clock value (h.m.s).
Note that the input values are always integer values.

Clock period High — Duration of the high state of the clock signal. See detail below point 4.1.3.

Clock period Low — Duration of the low state of the clock signal. See detail below point 4.1.3.

Cabling

The Address field contains the base address of binary outputs connected to the display module. This Fbox assumes the following connections :

Add+0	Clock for all Modules
Add+1	Data for all Modules
Add+2	Enable for Module 0
Add+3	Enable for Module 1
Add+4	Enable for Module 2
And so on	And so on

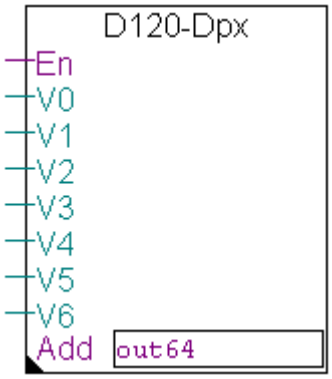
Timing

The clock signal must respect a minimum timing being slower than the maximum CPU speed. Therefore, wait states are inserted in the timing. The maximum speed is mainly depending on the output module type and cannot be automatically optimized by the Fbox. Therefore, the default values are set to higher values to work with almost all output modules. To reduce the CPU cycle time, the clock periods should be adjusted using the tables below point 4.1.3.

4.1.2 Name : D120 Module duplex (Duplex arrangement)

Description

The duplex Fbox allows to display all digits of large integer values using 2 modules for each value. An advantage when more than 6 digits have to be displayed.



Inputs / Outputs / Fields

En	Enable	Enables the display of the values
V0 to V6	Value 0 to 6	Values to display
Add	Address	Base address of binary outputs controlling the PCD.D120 display. See table below (cabling)

Adjust window

Fix point position — Position of the decimal point set on the display.
The Clock option allows to set two points to display a clock value (h.m.s).
Note that the input values are always integer values.

Clock period High — Duration of the high state of the clock signal. See detail below point 4.1.3.
Clock period Low — Duration of the low state of the clock signal. See detail below point 4.1.3.

Cabling

The Address field contains the base address of binary outputs connected to the display module. This Fbox assumes the following connections :

Add+0	Clock for all Modules
Add+1	Data for all Modules
Add+2	Enable for Module 0
Add+3	Enable for Module 1
Add+4	Enable for Module 2
Add+5	Enable for Module 3
And so on	And so on

Duplex arrangement

	Digit rating	
	high	low
Value 0	Display 1	Display 0
Value 1	Display 3	Display 2
Value 2	Display 5	Display 4
And so on	And so on	And so on

Timing

The clock signal must respect a minimum timing being slower than the maximum CPU speed. Therefore, wait states are inserted in the timing. The maximum speed is mainly depending on the output module type and cannot be automatically optimized by the Fbox. Therefore, the default values are set to higher values to work with almost all output modules. To reduce the CPU cycle time, the clock periods should be adjusted using the tables below point 4.1.3.

4.1.3 Adjustment tables

PCD1 series

Adjustment high	Adjustment low	Output modules PCD2.	Clock time M110 / M120 / M130
0	5	A400Z06	6ms
0	10	A400 + B100	8ms
0	150	A410	25ms
50	180	A465/466	36ms
20	50	A465 /466 mit extra R_{Load} = 1kOhm (1/4W) an allen Klemmen.	17ms

PCD2 series

Adjustment high	Adjustment low	Output modules PCD2.	Clock time M120	Clock time M150/170
0	5	A400Z06	6ms	3,2ms
0	10	A400 + B100	8ms	4ms
0	150	A410	25ms	27ms
0	90	A410		17ms
50	180	A465/466	36ms	42ms
30	150	A465/466		36ms
20	50	A465 /466 mit extra R_{Load} = 1kOhm (1/4W) an allen Klemmen.	17ms	15ms

PCD4 series

Adjustment high	Adjustment low	Output modules PCD4.	Clock time M145	Clock time M170
0	5	A400Z10	6ms	3,2ms
0	10	A400 + B900	8ms	4ms

Controller PCD6.M300

Adjustment high	Adjustment low	Output module	Clock time M300
0	5	PCD6.A400	3,2ms

4.2 FB's

Example I

```
;*************************************************************************
;*
;*      MODULE          Example how to use the IL FB's for PCD7.D120
;*      VERSION         none
;*      FILENAME        Example_D120.SRC
;*      AUTHOR          H.R.Staub
;*      COPYRIGHT    (C) Saia-Burgess Controls AG, CH-3280 MURTEN
;*
;*************************************************************************
;
;REVISION HISTORY
;
;    25-May-2001        H.R.Staub     creation
;
;DESCRIPTION


; 1. define output module in use
;=====================
clk_delay               def    13        ; 0 = A400Z06    3,2ms
                                         ; 1 = A400/B100  5ms
                                         ; 10 = A410      15ms
                                         ; 11 A465 with additional RL=1kOhm
                                          ; 13 = A465/466  24ms

;with this definition the clock can be adapted to the different
;useable output modules. Note the changing execution time!

; 2. define FB mode
;==================
; default is immediate
;immediate: FB outputs the register immediatly to the display.
; Execution time up to several ms!
;continuous: FB outputs 1 bit per ms -> > 32ms to update display
; but only 100-150us Execution time per COB cycle!
FB_mode      def    0                    ; 0 = immediate,1 = continuous


$include d7d120_b.src                    ; FB to access the PCD7.D120

;=======================================================
; User program code
; if input 0 is low time is continuous displayed with 2 decimal points
; if input 0 is high -SAIA- is continuous displayed with no decimal point

          COB          0                ; Main program
                       0
```

```
        RTIME       R 200           ; time in R 200, Date in R 201

         CFB        Char2D7D120
                    14                  ; == -
                    5           ; == S
                    10                  ; == A
                    1           ; == I
                    10                  ; == A
                    14                  ; == -
                    R 100               ; RESULT TO PASS TO FB D7D120

         sth        i 0                 ; switch the two values to display

         CFB        h D7D120            ; routine for PCD7.D120
                    K 112               ; base addresse (Clk, Data+1, EN+2)
                    R 100               ; value to display
                    DP_None             ; dec. points to set (DP1 .. DP6)

         CFB        l D7D120            ; routine for PCD7.D120
                    K 112               ; base addresse (Clk, Data+1, EN+2)
                    R 200               ; value to display
                    DP3+DP5             ; dec. points to set (DP1 .. DP6)

; other code

         CFB        Wait
                    2

         ECOB
; -------------------------------------------------------

_TIMER      EQU   T
WAIT        equ   FB

            FB    WAIT
            LDL   _TIMER
                  =1
            STH   _TIMER
            JR    H -1
            EFB

;;**** END of file Example_D120.SRC ********************************************
```

Example II

```
;*****************************************************************************
;*
;*      MODULE          PCD7.D120 IL FB's
;*      VERSION         V $1.0
;*      FILENAME        D7D120_B.SRC
;*      AUTHOR          H.R.Staub
;*      COPYRIGHT       (C) Saia-Burgess Controls AG, CH-3280 MURTEN
;*
;*****************************************************************************
;
;
;REVISION HISTORY
;
;    25-May-2001  $1.00 H.R.Staub     creation
;
;DESCRIPTION
;    IL FB's for PCD7.D120  6-Digit-Display
;
;
;       D7D120          CodeSize:               63 Lines
;                       Displays 6 digit with individual decimal points
;                       FB Level = 1
;
;       Char2D7D120     CodeSize:               46 Lines
;                       converts individual digits in correct format to display
;                       FB Level = 1
;
;        Resources :
;                       FB's            2
;                       Registers       5
;                       Flags           24
;                       Counters        1

$ifdef FB_mode
$if FB_mode <> 0
$error Only FB_mode = 0 'immediate' supported yet!
$endif
$endif

$ifndef FB_mode
FB_mode             def     0
$endif
```

```
;-------------------------------------------------------------------------
; Definition of general resources
;-------------------------------------------------------------------------

D7D120              EQU    FB
Char2D7D120         EQU    FB

NbrOfData           equ    24
NbrOfRsv            equ    2
NbrOfDP             equ    6
_fDATA              EQU    F[24]
_rSTORE             EQU    R
_rTEMP              EQU    R[4]

DP_NONE                    EQU    0
DP_ALL              EQU    63
DP1                 EQU    1
DP2                 EQU    2
DP3                 EQU    4
DP4                 EQU    8
DP5                 EQU    16
DP6                 EQU    32

_mcounter           equ    c

;-------------------------------------------------------------------------
; Definition of macros
;-------------------------------------------------------------------------
loop            macro  nbr
$iftype nbr <> K
$error parameter (nbr) needs to be a constant!
$endif
$if nbr <>0
        ld      _mcounter
                nbr-1
_loop:   nop                    ; makes it more independent from cpu type
         dec            _mcounter
         sth    _mcounter
         jr     h _loop
         acc            h
$elseif nbr = 0
         nop
         nop
         nop
$endif
         endm

;-------------------------------------------------------------------------
; IL code
;-------------------------------------------------------------------------
```

```
;=================================================================
; FB D7D120
; (Display 6 digit plus decimal points)
;=================================================================

                FB    D7D120
;;          DEF =1   ;[K]    ; base addresse (Clk, Data+1, EN+2)
;;          DEF =2   ;[R]          ; value to display
;;          DEF =3   ;[ ]          ; dec. points to set (use predefined symbols)

                STI   _rSTORE
                SEI   =1

                ACC   H
                RESX  O 2                ; enable display
$if clk_delay > 5                ; conditional wait
                loop (10)

$endif
; PREPARE DECIMAL POINT (AND WAIT TIMING NEEDED UNTIL 1st CLK)
                LDL   _rTEMP
                      =3
                SHIL  _rTEMP
                      26

; RESERVE LOOP (2 CLOCK, DATA NOT CONSIDERED)
                LD    _rTEMP+1           ;  initialize loop counter
                      0
                ACC   H
L1:             SETX  O 0                ; CLOCK _/
$if clk_delay > 10
                loop (clk_delay-9)
$endif

                RESX  O 0                ; CLOCK \_

                loop (clk_delay)

                      INC   _RTEMP+1
                CMP   NbrOfRsv-1
                      _RTEMP+1
                JR    P L1
```

```
; DECIMAL POINT LOOP (6 CLOCK)
                LD    _RTEMP+1          ;  initialize loop counter
                      0
L2:
                SHIL  _rTEMP
                      1
                OUTX  O 1               ;  decimal point on or off

                ACC   H
                SETX  O 0               ; CLOCK _/
$if clk_delay > 10
        loop (clk_delay-9)

$endif
                RESX  O 0               ; CLOCK \_

                loop (clk_delay)

                INC   _RTEMP+1
                      CMP   NbrOfDP-1
                      _RTEMP+1
                JR    P L2

;------- Data out (6 digit in BCD or 24 bit in BINARY)----------
                SHIL  =2
                      1
                JR    L _BCD                    ; if Bit 31 set then display binary
                                                ; see FB Char2D7d120
                                                ; else if BCD then  use DIGOR 6
_BIN:           SHIR  =2                        ; shift Bit 31 back
                      1
        BITOR   24
                      =2                        ; value for display in binary
                      _fDATA        ; to Flags
        JR                  _DOUT

_BCD: SHIR      =2                  ; shift Bit 31 back
                      1
        DIGOR   6
                      =2                        ; value for display in BCD
                      _fDATA        ; to Flags

_DOUT:    LD    _RTEMP+1    ; initialize loop counter
                      0
        BITI  24                        ; read value back from flags
              _fDATA
              _rTEMP
```

```
L3:
        SHIR   _rTEMP           ; shift bit after bit
               1
        OUTX   O 1              ; DATA

        ACC    H

        SETX   O 0              ; CLOCK _/
$if clk_delay > 10
        loop (3)                        ; delay
$endif
        RESX   O 0              ; CLOCK \_

        loop (clk_delay)

        INC    _RTEMP+1
        CMP    NbrOfData-1
               _RTEMP+1

        JR             P L3
        ACC    H

        SETX   O 2              ; Disable Display

        RESX   O 1              ; data line low
        RSI            _rSTORE          ; restore index register
        EFB
```

```
;=================================================================
; FB Char2D7D120
; (converts chars in a register to display with FB D7D120)
;=================================================================

;       Char : Dez.Code
;       0      0
;       l or I  1
;       S              5
;       A      10
;       l      11
;       ll     12
;       U              13
;       -      4
;       blank   15

_rTEMPX    EQU    R

        FB     Char2D7D120
;;         DEF =1 ;[K]       ; char 1.Digit from left
;;         DEF =2 ;[K]       ; char 2.Digit from left
;;         DEF =3 ;[K]       ; char 3.Digit from left
;;         DEF =4 ;[K]       ; char 4.Digit from left
;;         DEF =5 ;[K]       ; char 5.Digit from left
;;         DEF =6 ;[K]       ; char 6.Digit from left
;;         DEF =7 ;[R]       ; RESULT TO PASS TO FB D7D120

        LDL    _rTEMPX
               =1
        MOV    _rTEMPX
               N 0
               =7
               N 5
        LDL    _rTEMPX
               =2
        MOV    _rTEMPX
               N 0
               =7
               N 4
        LDL    _rTEMPX
               =3
        MOV    _rTEMPX
               N 0
               =7
               N 3
        LDL    _rTEMPX
               =4
        MOV    _rTEMPX
               N 0
               =7
               N 2
```

```
        LDL    _rTEMPX
               =5
         MOV    _rTEMPX
                N 0
                =7
               N 1
         LDL    _rTEMPX
               =6
         MOV    _rTEMPX
               N 0
               =7
               N 0
         LDL    _rTEMPX
               0
         ACC    H


         SHIR   _rTEMPX
               1
         MOV    _rTEMPX          ; set bit 31 to indicate binary format
               Q 31              ; to FB D7D120
                =7
               Q 31
         EFB

;;**** END of file D7D120_B.SRC ********************************************
```

5 Example of application with FBox D120 duplex

Count up and down with start set value 999999.
Decimal point on third digit.
The 2 display modules can show a value up to 6 digits.

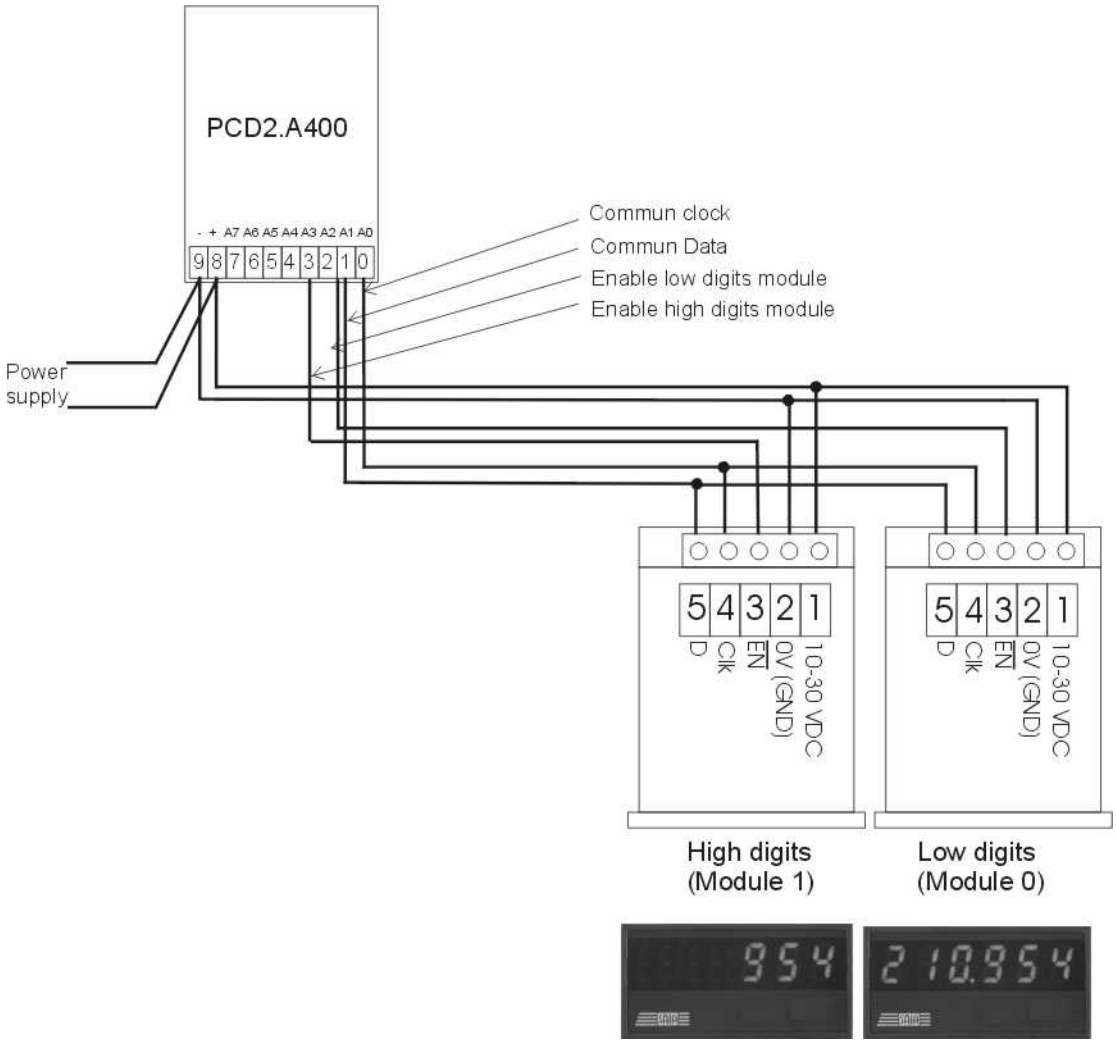
Required Hardware:

Base unit: PCD 1 or PCD 2

I/O modules: PCD2.E110 and PCD2.A400

Display modules: 2 x PCD7.D120

5.1 Cabling

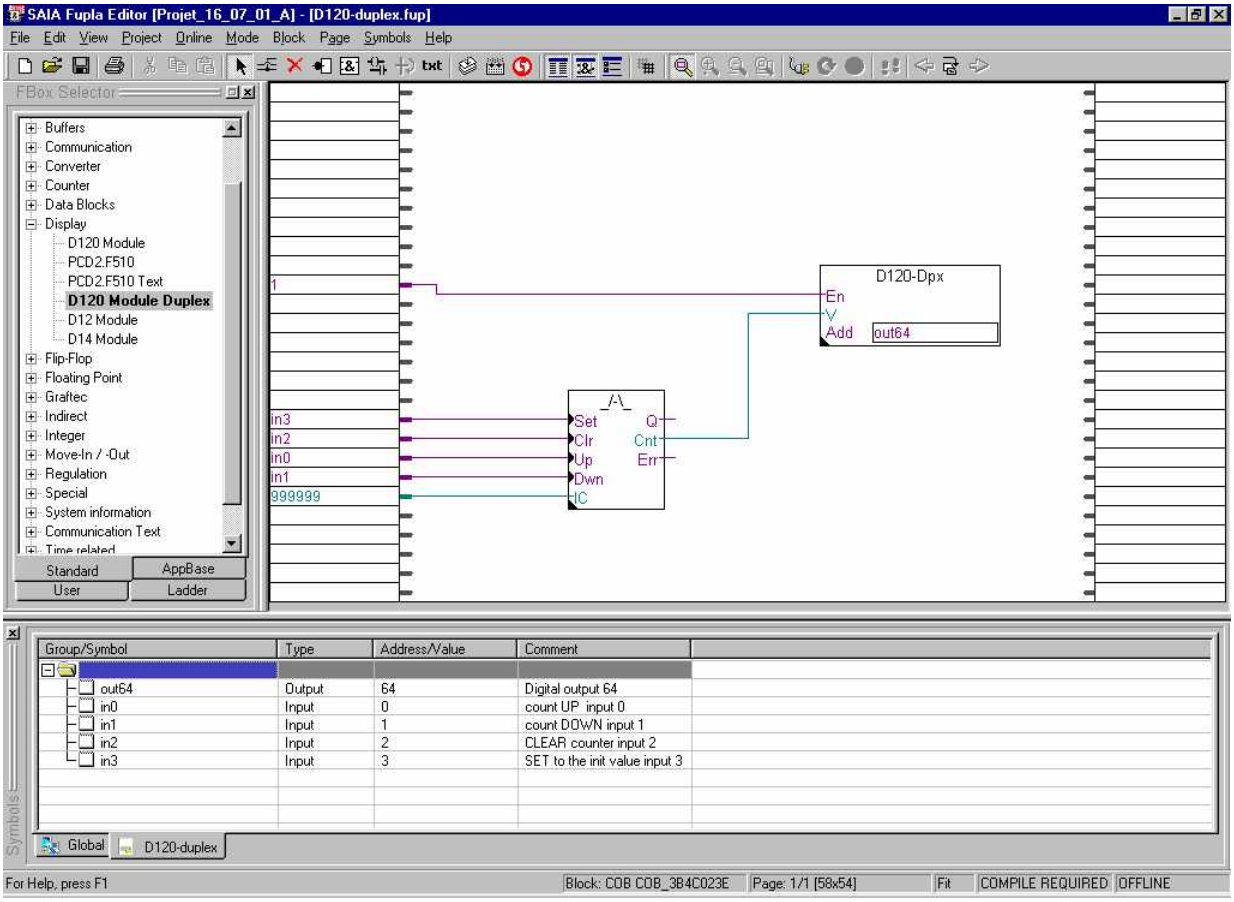


5.2 PG5 - Fupla

FBox für Display : D120-Dpx

Parameter fix point position : 3
Parameter clock period high : 0
Parameter clock period low : 10

FBox for counting: Up down with preset and clear



Technical data and ordering information

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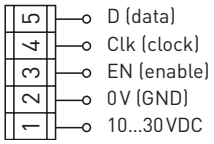
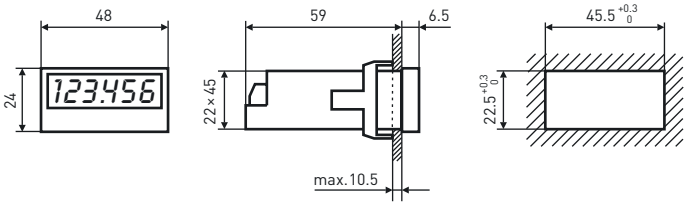
Technical data

Display	7-segment LED, 8 mm high with decimal point
Supply voltage	10…30 VDC (U_b), residual ripple max. 5 %
Power consumption	max. 50 mA
Input voltage (data, clock, enable)	low 0…0.2 × U_b high 0.6 × U_b…30 VDC
Input resistance	approx. 10 kΩ
EMC/noise immunity	class B according to EN 55011 or EN 50082-2
EMC/emission	according to EN 55081-2
Protection class	front panel IP65
Ambient temperature	operation: –10 °C to +50 °C, storage: –25 °C to +70 °C
Mounting	flush mounting, fastened with collar or 2 × M4 screws, any mounting position
Terminals	screw terminals for 0.3…1.6 mm²

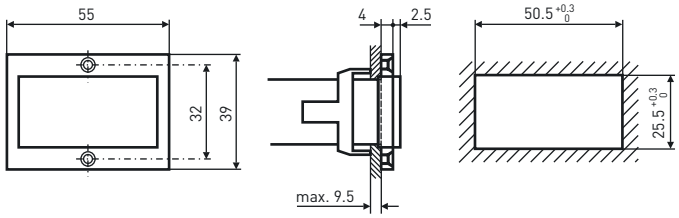
Connection diagram



Dimension drawing



Mounting with front frame for screw fastening (supplied)



Ordering information

Type	Description	Weight
PCD7.D120	**Remote display with 6-digit LED indicator** Delivery includes collar, front frame for screw fastening, seal and a set of units on self-adhesive labels.	70 g
	Accessory	
4'108'4836'0	Adaptation frame for cut out 24.5 × 48.5 mm	2 g

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