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	Dealt with by-Utfärdare	Telephone-Telefon-nr		
	Sven-Erik Karlsson	187050		
<b>MFB-Modulbus converter PE1354C</b> <b>Connect AC80/AC800/AC4XX with MP280 MasterFieldbus</b>				

## 1. GENERAL

The **PE1354C** is a converter connected to ABB MasterFieldbus short distance bus (RS485) on one side and on **ABB DDCS** bus with optofibre communication on the other side. The converter is operating at High or Low communication speed on the MFB and 4 MBaud to DDCS units. DDCS units can be e.g. AC80, AC800, AC4XX. PE1354C operate as 1 to 16 Slaves on MFB and as 1 to 16 slaves on DDCS bus.

The PE1354C contains a 2-character display for status indication.

## 2. TECHNICAL DESCRIPTION

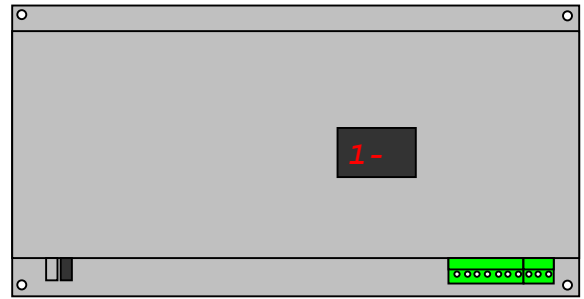
### 2.1 Dimension and mounting

To obtain the best immunity to electric noise the PE1354C must be electrically connected to cubicle through 4 M5 screws in each corner (M5 Screw pos 220mm x135mm).

Dimensions

Size: 240mm x 145mm (w x h)

Required mounting deep: 35mm



### 2.2 Technical data

Auxiliary Power

+24V DC (12-30V DC), typical 120mA(3W), at startup 1A 10ms, Max fuse: 4A

#### Communication MasterFieldbus

RS-485

Transmission speeds 375kbit/s or 2mbit/S selected with DIP switch

Max cable length :short dist. <=25m

Cable type FLFR 3x2x0.34

Occupies 1-16 nodes on MasterFieldBus, PE1354C can operate together with other MasterFieldbus units.

Connected systems can be AC450, AC410 or MP280 with MasterFieldbus.

#### Communication on ABB DDCS bus

PE1354C can be connected with 1.0mm plastic fiber POF or 200µm Hard Clad Silica HCS fiber.

Connected units can be e.g. ACS600, DCS600.

Enclosure class

IP00

Environmental data

Operation +5..+40 degrees C., Storage -40..+70 degrees C.

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Connect AC80/AC800/AC4XX with MP280 MasterFieldbus**

**2.3 Strapping**

DIPSW	POSITION	DEFAULT	FUNCTION
S1:1	On=1	ON	MFB bus number 0-7
S1:2	On=2	OFF	MFB bus number 0-7
S1:3	On=4	OFF	MFB bus number 0-7
S1:4	On=1	OFF	DDCS Cluster number 0-7
S1:5	On=2	OFF	DDCS Cluster number 0-7
S1:6	On=4	OFF	DDCS Cluster number 0-7
S1:7			
S1:8	OFF=High	OFF	MFB low /high speed, Low=375 kbaud, High=2,0 MBaud
S1:9	OFF=1 ON=10	OFF	First Dataset number. Set OFF if Data set number on DDCS bus start from 1, Set ON if Dataset number start from 10.
S1:10		OFF	
S1:11		OFF	DDCS Transmitter intensity 1
S1:12		OFF	DDCS Transmitter intensity 2

S1:1-3

This strapping must be set to MFB bus number 1-7. If bus number is wrong then PE1354C will not communicate on MasterFieldbus.

S1:4-6

PE1354C will answer to 16 DDCS node addresses. First node addr is CLUSTERNUMBER\*16 +1, and last node addr is CLUSTERNUMBER\*16 +16.

If CLUSTERNUMBER is set to 0 then PE1354C will answer on DDCS node addr 1-16.

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## TERMINATION of MFB bus

MasterFieldBus has 9 strapping in 3 groups for termination of the signal lines RTS, CLOCK, DATA. Two alternatives are possible.

1. PE1354C is the last unit connected on MasterFieldBus. Then the middle strapping in all 3 groups is inserted.
2. If MasterFieldBus continue to moe units after PE1354C then no strapping is inserted for termination.

STRAPPING	FUNCTION
B2:1	RTS-N Not used on PE1354C (Only for active termination)
B2:2	RST Inserted if PE1354C is last unit on MasterFieldBus
B2:3	RTS Not used on PE1354C (Only for active termination)
B3:1	CLK -N Not used on PE1354C (Only for active termination)
B3:2	CLK Inserted if PE1354C is last unit on MasterFieldBus
B3:3	CLK Not used on PE1354C (Only for active termination)
B4:1	DATA-N Not used on PE1354C (Only for active termination)
B4:2	DATA Inserted if PE1354C is last unit on MasterFieldBus
B4:3	DATA Not used on PE1354C (Only for active termination)

## 2.4 Status display 2 digits

First digit shows actual MasterFieldBus node addr 0-F.

SECOND DIGIT	STATUS
0	No contact on Modulebus protocol
1	Contact on mudulebus DDCS but no contact on MFB
2	Contact on MFB but not on Modulebus
-	Communication is OK

## 2.5 Connections

TERMINAL	FUNCTION
P1	R-N MasterFieldbus RS485
P2	R MasterFieldbus RS485
P3	CLOCK-N MasterFieldbus RS485
P4	CLOCK MasterFieldbus RS485
P5	DATA-N MasterFieldbus RS485
P6	DATA MasterFieldbus RS485
P7	Cable screen
P11	Chassi
P12	+24V
P13	0V
P14	CABLE SCREEN
9 pole Dsub	Service aid
2	Txd RS232
3	Rxd RS232
5	0V
OPT1	RxD Modulebus DDCS
OPT2	TxD Modulebus DDCS

## 2.6

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## 2.7 Mapping of nodes MasterFieldbus to DDCS bus

MasterFieldbus Bus+Node addr Bus no DIP S1.1-3	AC80/AC800 Drivebus Node addr CLUSTER 0-7, DIP S1.4- 6	AC80/AC800 Modulebus Node addr CLUSTER 1-7, DIP S1.4- 6
0 + BUS*100	1 + CLU*16	1 + CLU*100
1 + BUS*100	2 + CLU*16	2 + CLU*100
2 + BUS*100	3 + CLU*16	3 + CLU*100
3 + BUS*100	4 + CLU*16	4 + CLU*100
4 + BUS*100	5 + CLU*16	5 + CLU*100
5 + BUS*100	6 + CLU*16	6 + CLU*100
6 + BUS*100	7 + CLU*16	7 + CLU*100
7 + BUS*100	8 + CLU*16	8 + CLU*100
8 + BUS*100	9 + CLU*16	9 + CLU*100
9 + BUS*100	10 + CLU*16	10 + CLU*100
10 + BUS*100	11 + CLU*16	11 + CLU*100
11 + BUS*100	12 + CLU*16	12 + CLU*100
12 + BUS*100	13 + CLU*16 OR 1 + (CLU+1)*16	13 + CLU*100 OR 1 + (CLU+1)*100
13 + BUS*100	14 + CLU*16 OR 2 + (CLU+1)*16	14 + CLU*100 OR 2 + (CLU+1)*100
14 + BUS*100	15 + CLU*16 OR 3 + (CLU+1)*16	15 + CLU*100 OR 3 + (CLU+1)*100
15 + BUS*100	16 + CLU*16 OR 4 + (CLU+1)*16	16 + CLU*100 OR 4 + (CLU+1)*100

The 4 last nodes have double mapping because limitations in AC80 addressing.  
 The 4 last addresses (CLUSTER+1) are not possible to use for other DDCS nodes.

## Mapping of Signals from MP280 to DDCS bus

Name COM-CVO1	Mapping	
	First dataset=1 S1.9=OFF	First dataset=10 S1.9=ON
PBORD1	DS1.1	DS10.1
PBORD2	DS11.1	DS20.1
I4ORD1	DS11.2-3	DS20.2-3
RORD1	DS1.2	DS10.2
RORD2	DS1.3	DS10.3
RORD3	DS3.1	DS12.1
RORD4	DS3.2	DS12.2
RORD5	DS3.3	DS12.3
RORD6	DS5.1	DS14.1
RORD7	DS5.2	DS14.2
RORD8	DS5.3	DS14.3
RORD9	DS7.1	DS16.1
RORD10	DS7.2	DS16.2
RORD11	DS7.3	DS16.3
RORD12	DS9.1	DS18.1
RORD13	DS9.2	DS18.2
RORD14	DS9.3	DS18.3

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I4ORD2	DS13.1 -2	DS22.1 -2
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**Mapping of Signals from DDCS bus to MP280**

Name COM-CVI1	Mapping	
	First dataset=1 S1.9=OFF	First dataset=10 S1.9=ON
RIND1	DS2.2	DS11.2
RIND2	DS2.3	DS11.3
RIND3	DS4.1	DS13.1
RIND4	DS4.2	DS13.2
RIND5	DS4.3	DS13.3
RIND6	DS6.1	DS15.1
RIND7	DS6.2	DS15.2
RIND8	DS6.3	DS15.3
RIND9	DS8.1	DS17.1
I4IND1	DS12.1-2	DS21.1-2
PBIND2	DS2.1	DS11.1
PBIND3	DS8.3	DS17.3
PBIND4	DS10.1	DS19.1
PBIND5	DS10.2	DS19.2
PBIND1	DS8.2	DS17.2

**2.8 Function**

PE1354 must detect communication on both MasterFieldBus and ModuleBus before PE1354 start to answer the communication.

PE1354 will start to listen on MasterFieldBus and on ModuleBus (DDCS) and when PE1354 detect communication on both sides for a node then PE1354 start to reply on the communication.

DDCS Addr 1-16 will be connected to MasterFieldBus node 0-15 (see Mapping of nodes MasterFieldbus to DDCS bus ).

**Data sets**

DDCS communication will Write and Read total of 8 datasets for each node.

**Error handling**

When DDCS communication for one node failure then the MFB communication for corresponding node are stopped. The PE1354C display will indicate 2 for the actual node.

When MFB communication for one node failure then DDCS communication for corresponding node are stopped. The PE1354C display will indicate 1 for the actual node.

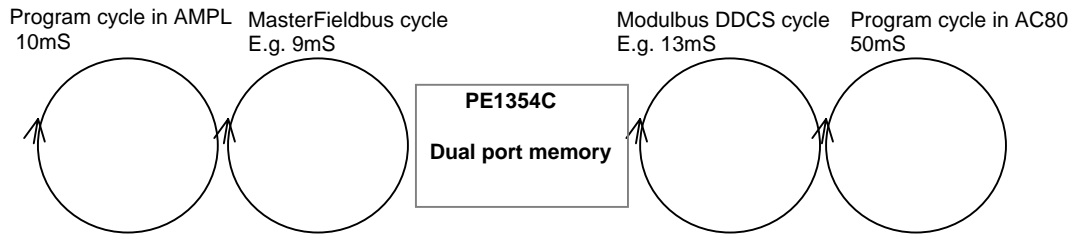
If no communication is detected for one node then display will indicate 0 for the actual node.

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**Signal delay example**

Measuring of signal delay time MP200 / AC80. Configuration with 8 nodes.



One signal sent from AC80 to MP200 and back to AC80 takes 100ms.  
The time delay is mesurde in AC80.