PROCESSELEKTRONIK AB
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		Ref.
	DESCRIPTION	PE1364DM/V1

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	Dealt with by-Utfärdare	Telephone-Telefon-nr			
	Sven-Erik Karlsson	187050			

ModulBus(DDCS) –ProfibusDP converter PE1364DM

1. General
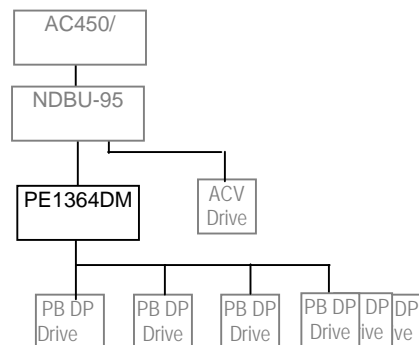
PE1364DM is a protocol converter designed act as up to 16 Slaves on the Modulbus or DriveBus (DDCS). For each drive configured on the ProfibusDB one corresponding slave on DDCS is activated.

The unit is enclosed in a metal box with connection terminal for Power supply. Connector type 9 pins Dsub for Service port RS232 (Mudbus RTU 9600Baud).

The ModuleBus (DDCS) has optical fiber for transmit and received data.

The ProfibusDP connection is made with standard DSUB 9 pole connector.

PE1364DM act as Slave on the DDCS bus and Master on the Profibus.

2. Technical description

2.1 Dimension and mounting

PE1364DM is mounted in a cubicle or in a separate enclosure together with 24V DC supply.
To obtain the best immunity to electric noise the PE1364DM must be electrically connected to cubicle through 4 M5 screws in each corner.

Size:	196 x 170 mm (w x h)
Required mounting deep:	50mm
Mounting screws:	4 x M5
Mounting holes position:	176 x 160mm(w x h)

2.2 Technical data

Power supply	24V DC (12-30V DC)
Current consumption	170mA at 24V
Enclosure class	IP00
Operation	5..+40 °C., Storage -40..+70 °C.

Communication DDCS
Communication to ABB AC80/AC800/AC4xx
PE1364DM is connected in a ring with 1.0mm plastic fiber POF or 200μm Hard Clad Silica HCS fiber.
Opto fiber: Transmission speed 4Mbit
Max length : 200m of 200μmHCS (Use TB810) or 15m 1.0mm plastic (Use TB810 or TB811)
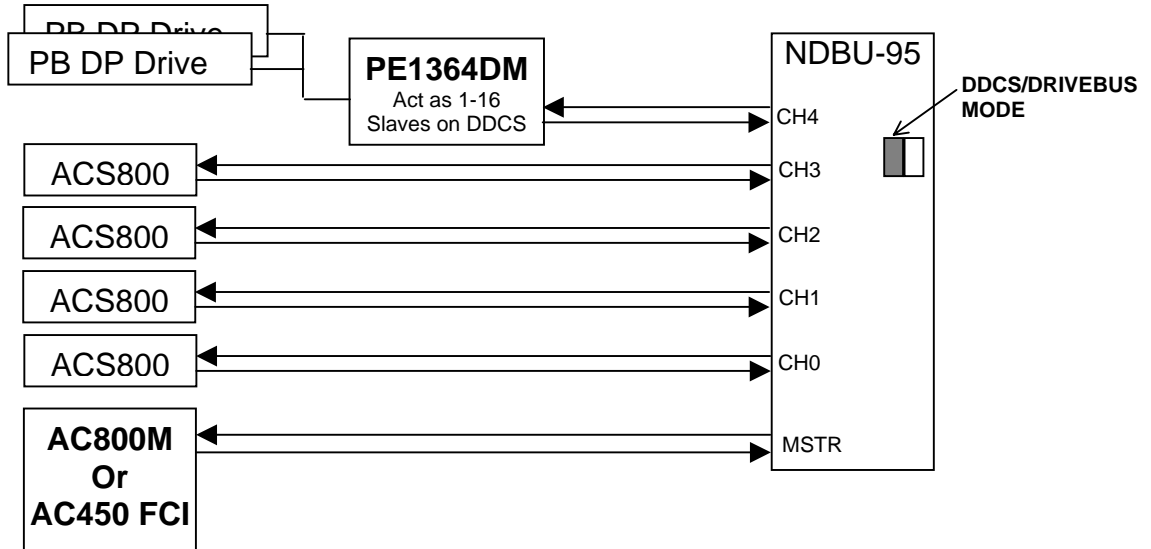
Communication ProfiBus DP
RS485
Standard 9 pin D-SUB connector
Transmission speeds 9.6kbit/s to 12mbit/S.
Act as Profibus DP Master

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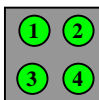
Connection examples

2.3 Status display 2 digits

First digit shows actual DDCS index 0-F.

SECOND DIGIT	STATUS
0	No contact on DDCS and No contact on Profibus DP
1	Contact on ProfibusDP but no contact on MFB
2	Contact on DDCS but no contact on Profibus DP
-	Communication is OK

2.4 Status leds on Profibus DP-V1 module

Led	State	Description
1	Green	Operate mode
	Green, flashing	Clear mode
	Red	Stop mode
	Off	Offline
2	Green	Database OK
	Green, flashing	Database download in progress
	Red	Database invalid
	Off	No database downloaded
3	Green	Data exchange with all existing slaves
	Green, flashing	Data exchange with at least one configured slave
	Red	Bus control error(Short circuit or config error)
	Off	No data exchange
4	Green	The module has the token
	Off	The module does not have the token

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ModulBus(DDCS) –ProfibusDP converter PE1364DM

2.5 Error handling

When DDCS communication for one Drive failure then the Profibus communication will still be running but all values to the drive are forced to 0. The PE1364DM display will indicate 1 for the actual node.

When Profibus DP communication for one node failure then MFB communication for corresponding Drive are stopped. The PE1354FM display will indicate 2 for the actual node.

2.6 Dip switch setup

S1	Normal	FUNCTION
1	Off	Start node number offset On =+16 (Cluster number +1)
2	Off	Start node number offset On =+32 (Cluster number +2)
3	Off	Start node number offset On =+64 (Cluster number +4)
4	Off	On=Swapping high and low byte data
5	Off	Off=Ring, On=Star (NDBU-85)
6		
7		
8		

S2	Normal	FUNCTION
1	On	Opto Transmitter Intensity 1 0=low,3=high
2	Off	Opto Transmitter Intensity 2 0=low,3=high
3	Off	
4	Off	
5	Off	
6	Off	Display Special Function select 1-7
7	Off	Display Special Function select 1-7
8	Off	Display Special Function select 1-7

Special Status indication depending on S2.5-8 settings

S2.6-8	Description
6 On	Counter for number of AC800 DDCS timeouts
8 On	Display First error code
6 & 8 On	Display Last Error code

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ModulBus(DDCS) –ProfibusDP converter PE1364DM

2.6.1 Start node address offset

PE1364DM can act as up to 4 active slaves on DDCS.
The first slave number can be selected

S1.1	S1.2	S1.3	DriveBus Addr	ModuleBus addr
OFF	OFF	OFF	Addr 1-16	
ON	OFF	OFF	Addr 17-32	Addr 101-116
OFF	**ON**	OFF	Addr 33-48	Addr 201-216
ON	**ON**	OFF	Addr 49-64	Addr 301-316
OFF	OFF	**ON**	Addr 65-80	Addr 401-416
ON	OFF	**ON**	Addr 81-96	Addr 501-516
OFF	**ON**	**ON**	Addr 97-112	Addr 601-616

.

2.6.2 Swapping high and low data byte

With this DIP ON the Integer data word high byte is swapped with the low byte before reading and writing to ProfibusDP side.

2.6.3 Opto transmitter intensity

Transmitter can have 4 levels of intensity. Set Both S2.1 and S2.2 to off for minimum intensity.
S2.1 & S2.2 Off   Lowest Intensity level 0
S2.1 On   Intensity level 1
S2.2 On   Intensity level 2
S2.1 & S2.2 On   Higest Intensity level 3

2.7 Connections

TERMINAL	FUNCTION
P1	+24V Chassi
P2	0V
P3	GND
P4	CABLE SCREEN
9 pole Dsub Female	ProfiBus DPV1
3	B-Line
4	RTS
5	GND Bus Used for termination
6	5V Bus Used for bus termination
8	A-Line
9 pole Dsub male	Connector for Anybus Net Tool for PROFIBUS
9 pole Dsub Female	Service aid
2	Txd RS232
3	Rxd RS232
5	0V

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ModulBus(DDCS) –ProfibusDP converter PE1364DM

2.8 Mapping of nodes between DDCS bus and Profibus

DDCS node addr	Profibus DP node addr
Bus number x100 + 1	3
Bus number x100 + 2	4
Bus number x100 + 3	5
Bus number x100 + 4	6
Bus number x100 + 5	7
Bus number x100 + 6	8
Bus number x100 + 7	9
Bus number x100 + 8	10
Bus number x100 + 9	11
Bus number x100 + 10	12
Bus number x100 + 11	13
Bus number x100 + 12	14
Bus number x100 + 13	15
Bus number x100 + 14	16
Bus number x100 + 15	17
Bus number x100 + 16	18

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ModulBus(DDCS) –ProfibusDP converter PE1364DM

2.9 Mapping of Signals ProfibusDrives Drives and DDCS

The mapping table shows the Profibus Input and Output addresses from the Profibus Master side.

Input signal addr 0-996 from Profibus Drive to DDCS Datasets																
Node number 1..16 on DDCS bus are connected to Node number 3-18 on Profibus side																
DDCS	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
DS11.1	0	64	128	192	256	320	384	448	512	576	640	704	768	832	896	960
DS11.2	2	66	130	194	258	322	386	450	514	578	642	706	770	834	898	962
DS11.3	4	68	132	196	260	324	388	452	516	580	644	708	772	836	900	964
DS13.1	6	70	134	198	262	326	390	454	518	582	646	710	774	838	902	966
DS13.2	8	72	136	200	264	328	392	456	520	584	648	712	776	840	904	968
DS13.3	10	74	138	202	266	330	394	458	522	586	650	714	778	842	906	970
DS15.1	12	76	140	204	268	332	396	460	524	588	652	716	780	844	908	972
DS15.2	14	78	142	206	270	334	398	462	526	590	654	718	782	846	910	974
DS15.3	16	80	144	208	272	336	400	464	528	592	656	720	784	848	912	976
DS17.1	18	82	146	210	274	338	402	466	530	594	658	722	786	850	914	978
DS17.2	20	84	148	212	276	340	404	468	532	596	660	724	788	852	916	980
DS17.3	22	86	150	214	278	342	406	470	534	598	662	726	790	854	918	982
DS19.1	24	88	152	216	280	344	408	472	536	600	664	728	792	856	920	984
DS19.2	26	90	154	218	282	346	410	474	538	602	666	730	794	858	922	986
DS19.3	28	92	156	220	284	348	412	476	540	604	668	732	796	860	924	988
DS21.1	30	94	158	222	286	350	414	478	542	606	670	734	798	862	926	990
DS21.2	32	96	160	224	288	352	416	480	544	608	672	736	800	864	928	992
DS21.3	34	98	162	226	290	354	418	482	546	610	674	738	802	866	930	994
DS23.1	36	100	164	228	292	356	420	484	548	612	676	740	804	868	932	996
DS23.2	38	102	166	230	294	358	422	486	550	614	678	742	806	870	934	998
DS23.3	40	104	168	232	296	360	424	488	552	616	680	744	808	872	936	-
DS25.1	42	106	170	234	298	362	426	490	554	618	682	746	810	874	938	-
DS25.2	44	108	172	236	300	364	428	492	556	620	684	748	812	876	940	-
DS25.3	46	110	174	238	302	366	430	494	558	622	686	750	814	878	942	-

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ModulBus(DDCS) –ProfibusDP converter PE1364DM

	Output signal addr 0-996 from DDCS Datasets to Profibus Drive															
	Node number 1..16 on DDCS bus are connected to Node number 3-18 on Profibus side															
DDCS	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
DS10.1	0	64	128	192	256	320	384	448	512	576	640	704	768	832	896	960
DS10.2	2	66	130	194	258	322	386	450	514	578	642	706	770	834	898	962
DS10.3	4	68	132	196	260	324	388	452	516	580	644	708	772	836	900	964
DS12.1	6	70	134	198	262	326	390	454	518	582	646	710	774	838	902	966
DS12.2	8	72	136	200	264	328	392	456	520	584	648	712	776	840	904	968
DS12.3	10	74	138	202	266	330	394	458	522	586	650	714	778	842	906	970
DS14.1	12	76	140	204	268	332	396	460	524	588	652	716	780	844	908	972
DS14.2	14	78	142	206	270	334	398	462	526	590	654	718	782	846	910	974
DS14.3	16	80	144	208	272	336	400	464	528	592	656	720	784	848	912	976
DS16.1	18	82	146	210	274	338	402	466	530	594	658	722	786	850	914	978
DS16.2	20	84	148	212	276	340	404	468	532	596	660	724	788	852	916	980
DS16.3	22	86	150	214	278	342	406	470	534	598	662	726	790	854	918	982
DS18.1	24	88	152	216	280	344	408	472	536	600	664	728	792	856	920	984
DS18.2	26	90	154	218	282	346	410	474	538	602	666	730	794	858	922	986
DS18.3	28	92	156	220	284	348	412	476	540	604	668	732	796	860	924	988
DS20.1	30	94	158	222	286	350	414	478	542	606	670	734	798	862	926	990
DS20.2	32	96	160	224	288	352	416	480	544	608	672	736	800	864	928	992
DS20.3	34	98	162	226	290	354	418	482	546	610	674	738	802	866	930	994
DS22.1	36	100	164	228	292	356	420	484	548	612	676	740	804	868	932	996
DS22.2	38	102	166	230	294	358	422	486	550	614	678	742	806	870	934	998
DS22.3	40	104	168	232	296	360	424	488	552	616	680	744	808	872	936	-
DS24.1	42	106	170	234	298	362	426	490	554	618	682	746	810	874	938	-
DS24.2	44	108	172	236	300	364	428	492	556	620	684	748	812	876	940	-
DS24.3	46	110	174	238	302	366	430	494	558	622	686	750	814	878	942	-

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ModulBus(DDCS) –ProfibusDP converter PE1364DM

3. Configuration of Profibus with Anybus Net Tool for Profibus

Start the program AnybusNet Tool for PROFIBUS
Click on NEW to create a new project
Drag in the Profibus Master Anybus-M DPV1 into the Bus configuration area.
Double click on the Anybus in config area and set the wanted speed (e.g. 1500 kbit/sec)

Now you have to Install the GSD file or files for the connected Drives.
Click on Tools -> Install New GS* file
Navigate to your GSD file and click on Open.
Drag in the Drive to the Bus config area.
Double click on the drive symbol in config area and set Node number (e.g. 3 for the first drive) and click OK.
If the Drive has more than one Module you have to insert selected modules in the Slot 0….
It is very important that you do not insert more Integer values than 32 (Only 20 Integers are used)
If more values are inserted then there will be overwriting of data between the nodes.
In my example I have 4 slots for Input data with total 20 Words of data and one slot Output data with 32 words.
For the first slave the data address is started from 0 both for Input and Output address so you do not need to change that.

Drag one more Drive into the Bus config area and give it address 4. Give it the Profibus address 4 and drag in the Modules for the Inputs and outputs.
By default the address just continue from the last used address.
This we need to change according the PBIND1 and PBORD1 address in Mapping table in section 2.
The Input and Output address for node 4 must start from 64.
Double click slot for the Input address and change start address to 64.
If there is more than one Slot for Input address you have to start with the last slot and calculate the start address for that slot (Start for the first slot Profibus addr 4 must be 64).
Do the same for the output address.
This shows the first Drive with prefabs address 3

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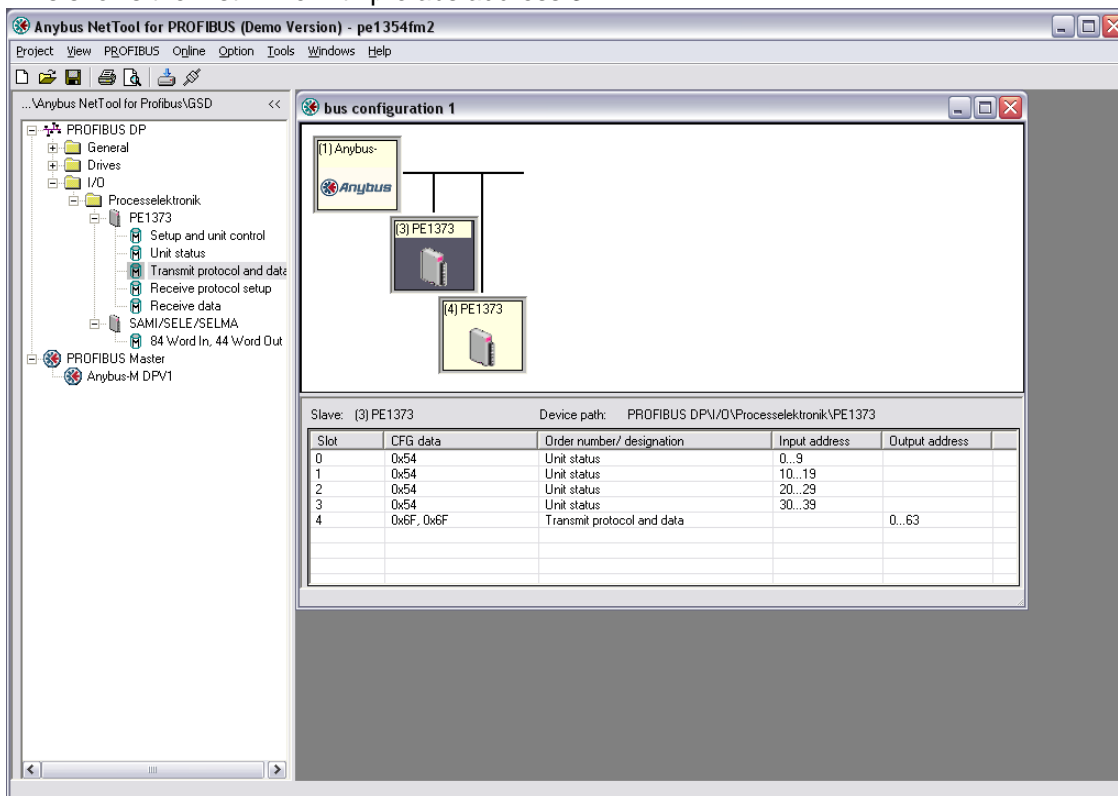
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ModulBus(DDCS) –ProfibusDP converter PE1364DM

This shows the second drive with profibus address 4
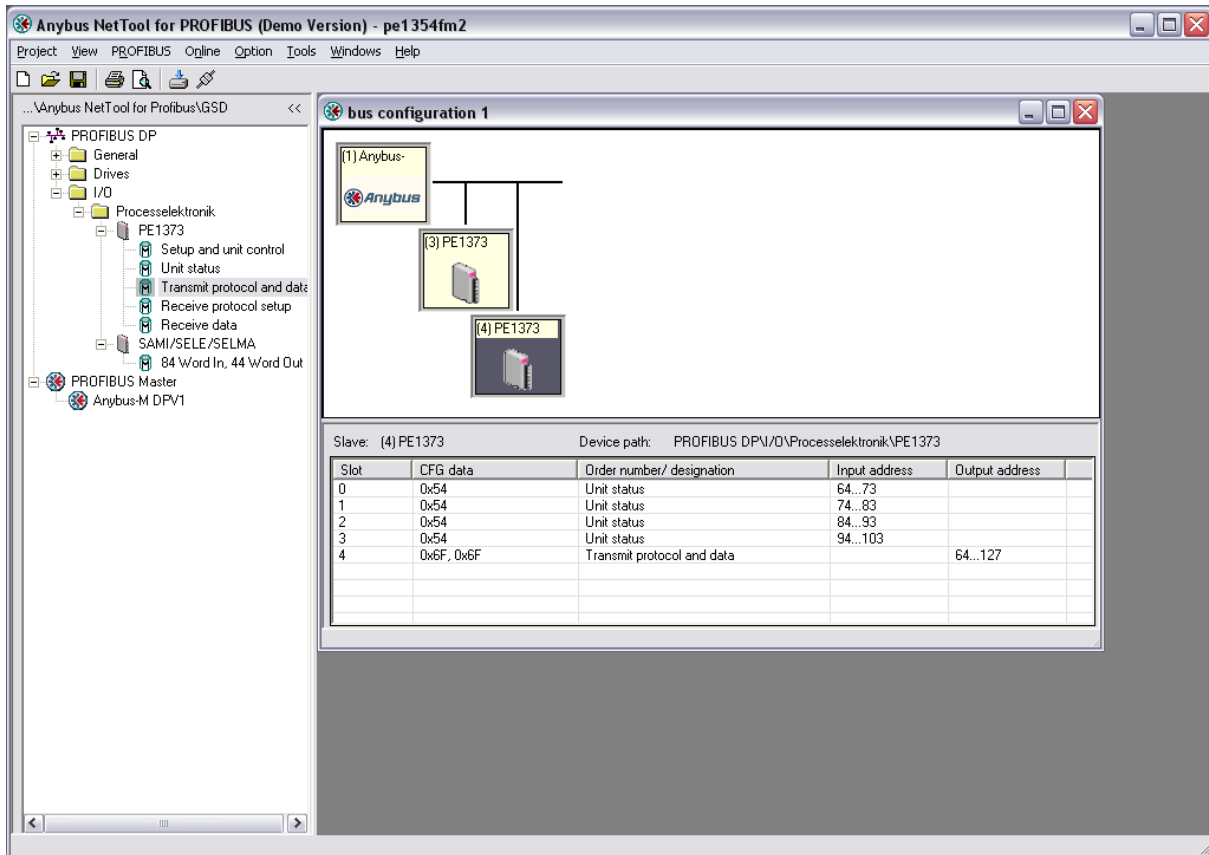
Now continue with the rest of the Drives and carefully follow the Mapping address in section 2.

When all Drives are configured it "Save project as PE1354FM.xml

Connect the cable between the PC com port and the Service port for Net Tool on the PE1354FM
 (9 pole male Dsub Located just to the right of the Profibus connector).

Then click on Online->Download configuration

When this is done you need to recycle the power on the PE1354FM unit.

3.1