


PNO Test Report

№ 632-1

Slave on PROFIBUS DP

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Model_Name:	GPU / PPU
Vendor_Name:	DEIF A/S
Revision:	Version 1
Software/Firmware Release:	3.10.0
Hardware Release:	1

Application:	Engine and generator control and protection unit for single and parallel operation.
Ident Number:	0x0632
GSD-File:	deif0632.GSD File Version: 14.04.16
EDD-File:	-----.DDL File Version: <version number or date>
Minimum Slave Interval	1,0 ms

Solution applied:	<input type="checkbox"/> Processor	<input checked="" type="checkbox"/> ASIC with processor	<input type="checkbox"/> Single Chip
Designation:	SPC3		

Summary:	
<input checked="" type="checkbox"/> suggested to be certified	<input type="checkbox"/> suggested <u>not</u> to be certified

Scope of test performed:

<input checked="" type="checkbox"/> DP-V0	MS0, Sync, Freeze, Auto_Baud
<input type="checkbox"/> DP-V1	MS1, Prm_Block_Structure, Alarms, Ext_Prm_SAP, MS2, I&M
<input type="checkbox"/> DP-V2	IsoM, Lifesign, DXB Publisher, DXB Subscriber
<input type="checkbox"/> Profiles	PROFIsafe, PROFIdrive, PROFIBUS PA

Note: The test of the device is made according to following relevant documents:
- Test Specification for PROFIBUS DP Slaves, Version 3.09, September 2008

Hints and restrictions see chapter 9!

Test report

According to the specified test areas:

1. Physical Layer Test

- Device has a RS485 interface
- Device has no RS485 interface
- Device has a MBP (synchronous, 31,25kbit/s) interface
- Device has no MBP (synchronous, 31,25kbit/s) interface

1.1- Physical Layer according to RS485

Bus Termination

- electrical data comply with the demands
- bus termination external
- electrical data do **not** comply with the demands
- further remarks:

PROFIBUS Connection

- standard 9 pin D-SUB
- standard M12 connector
- non-standard, but includes all mandatory signals and sufficient description of the implementation: *.connecting terminal plate*
- non-standard and

RS 485

- requirements fulfilled
- requirements **not** fulfilled sufficiently

Component Use

- electrical data comply with the demands
- electrical data do **not** comply with the demands

Signal Reflection for beyond 1,5 MBit/s

- not applicable
- requirements fulfilled
- requirements **not** fulfilled sufficiently

1.2- Physical Layer according to MBP**Polarity**

- device supports automatic polarity detection
- polarity is marked clearly at the device / in the manual
- further remarks:

Operating Voltage

- device can be operated at bus voltage of 13V
- device can be operated at bus voltage of 24V
- further remarks:

Static Current Consumption

- static current consumption is according to manufacturer's declaration
- further remarks:

Inrush Current for Bus Powered Devices

- manufacturer's declaration regarding inrush current has been submitted
- inrush current is within allowed range
- further remarks:

Input Impedance

- manufacturer's declaration regarding input impedance has been submitted
- input impedance at frequencies of 7,8 kHz to 39 kHz is within allowed range
- further remarks:

Asymmetry Attenuation

- manufacturer's declaration regarding asymmetry attenuation has been submitted
- asymmetry attenuation at frequencies of 40 kHz to 1200 kHz is within allowed range
- further remarks:

Bit Rate

- bit rate is within allowed range
- further remarks:

Bit Time

- bit time is within allowed range
- further remarks:

Rise and Fall Time

- rise time is within allowed range
- fall time is within allowed range
- further remarks:

Transmitter Bit Cell Jitter

- transmitter bit cell jitter is within allowed range
- further remarks:

Signal Amplitude and Symmetry

- signal amplitude at 13V is within allowed range
- signal amplitude at 24V is within allowed range
- further remarks:

Overshoot

- overshoot is within allowed range
- further remarks:

Frame Structure (Transmitter)

- start delimiter is coded correctly
- end delimiter is coded correctly
- preamble is coded correctly. Length of preamble is: 16 Bit.
- further remarks:

Receiver Sensitivity and Noise Rejection

- receiver sensitivity is met at 13V
- receiver sensitivity is met at 24V
- noise rejection is met at 13V
- noise rejection is met at 24V
- further remarks:

Receiver Bit Cell Jitter

- telegram with maximum allowed bit cell jitter is detected by the receiver
- further remarks:

Frame Structure (Receiver)

- preamble length in the range of 12 to 64 Bit is accepted by the receiver
- further remarks:

2. Bus Transmission**DP Watchdog**

- expires within allowed tolerance
 expires out of tolerance in the range of:

TSDR

- requirements fulfilled
 recorded timing behaviour does **not** conform with PROFIBUS DP:

Addressing the Test Item under PROFIBUS

- test item can be addressed in the entire available range
 limited addressability:

Device Identifier (Ident Number)

- as issued
 not as issued:

Transmission Rate

- test item can be operated with the following PROFIBUS DP transmission rates:

kBit/s	9,6	19,2	31,25	45,45	93,75	187,5	500	1500	3000	6000	12000
supported	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- restricted operability:

Mixed Network

- no errors in operation detected
 errors in operation when:

Mixed Operation (test item can be operated as DP/FMS slave)

- test item is **not** designed for the mixed operation
 test item is designed for the mixed operation and no errors in operation detected
 test item could **not** be further operated on DP when FMS op. was disturbed or interrupted
 test item could **not** be further operated on FMS when DP op. was disturbed or interrupted
 other errors in operation when:

Consistency

- consistency **not** adjustable on test item
 consistency is supported correctly (*is guaranteed by the buffer system of the ASIC*)
 errors in operation when:

3. Function Testing

Bus Interruption

- correct behaviour
 special behaviour when:
 acceptable
 not acceptable in this form

Supply Voltage

- correct behaviour
 special behaviour when:
 acceptable
 not acceptable in this form

Power off/on at Master

- correct behaviour
 special behaviour when:
 acceptable
 not acceptable in this form

With and without Control Interval Monitoring

- correct behaviour
 special behaviour when:
 acceptable
 not acceptable in this form

Master Class 2

- correct behaviour
 special behaviour when:
 acceptable
 not acceptable in this form

State Transitions

- nothing unusual in operation could be detected
 special behaviour:
 acceptable
 not acceptable in this form

Optional Services

- optional services SYNC and FREEZE are **not** supported
- SYNC is supported and correctly carried out
- FREEZE is supported and correctly carried out
- Fail safe is **not** supported
- Fail safe is supported and correctly carried out
- Set_Slave_Address is **not** supported
- Set_Slave_Address is supported and correctly carried out
- errors in operation when:

Diagnostic

- mandatory diagnostic is carried out correctly
- ext_diag is **not** used
- ext_diag complies with the standard
- special behaviour when:

Acyclic DP-V1 Services

- DP-V1 services are **not** supported
- all following Class1 (MS1) functions are supported and are carried out correctly:
Read, Write, Alarms
- all following Class2 (MS2) functions are supported and are carried out correctly:
Read, Write, Data_Transport
- errors in operation:

Optional DP-V1 Features

- optional feature Prm_Block_Structure is **not** supported
- optional feature Prm_Block_Structure is supported and correctly carried out
- optional feature Ext_Prm_SAP is **not** supported
- optional feature Ext_Prm_SAP is supported and correctly carried out
- errors in operation:

4. I&M Functions

- I&M functions **not** supported
(in that case the following items of this chapter 4 are not applicable)

GSD File Test: Keyword Ident_Maintenance_supp

- supported and correctly defined
- GSD incorrect:.....

- I&M functions supported **according PA-Profile Specification**
(in that case the following items of this chapter 4 are not applicable;
see chapter I&M functions in the Attachment for PROFIBUS PA profile)

Implemented functional range

record	in Slot 0 (device) implemented & tested	in optional modules implemented & tested
I&M0	<input type="checkbox"/> (mandatory)	<input type="checkbox"/>
I&M1	<input type="checkbox"/> (optional)	<input type="checkbox"/>
I&M2	<input type="checkbox"/> (optional)	<input type="checkbox"/>
I&M3	<input type="checkbox"/> (optional)	<input type="checkbox"/>
I&M4	<input type="checkbox"/> (optional)	<input type="checkbox"/>

I&M Call Service

- Correct
- Incorrect:.....

I&M Addressing

- Correct
- Incorrect:.....

I&M Access Rights & Storage

- Correct
- Incorrect:.....

5. GSD File Test

- GSD syntactically correct
- GSD syntactically **not** correct
- Device properties are according to GSD
- Device properties are **not** according to GSD:

6. Interoperability

Load Test

- load test complies with specifications
 special behaviour when:

Functional Test

- no restrictions could be determined
 restrictions when:

7. EMC and Electrical Safety

- Correct **test report** according to CE standard available

Alternatively:

- Manufacturer's declaration** according CE standard available

Alternatively:

- Correct **test report** according to IEC 61000-6-2 and IEC 61000-6-3 or EN 61000-6-2 and EN 61000-6-3 standard available

or

- Manufacturer's declaration** according to IEC 61000-6-2 and IEC 61000-6-3 or EN 61000-6-2 and EN 61000-6-3 standard available

and

- Correct test report according to IEC 61010 or EN 61010 or EIC 61131-2 standard available

or

- Manufacturer's declaration** according to IEC 61010 or EN 61010 or EIC 61131-2 standard available

- No correct EMC and Electrical Safety test reports or declarations available

8. PROFILES

- no profiles tested

PROFIsafe

- this PROFIBUS DP Slave has been successfully tested in combination with the PROFIsafe profile

PROFIdrive

- this PROFIBUS DP Slave has been successfully tested in combination with the PROFIdrive profile

9. Supplementary Hints and other Restrictions

Here, descriptions of the following functions are reported:

- any errors or special behaviour with reference to the respective test area
- other test product peculiarities
- remarks concerning manufacturer explanations
- remarks concerning documentation comprehension

Hints:

The device variants GPU and PPU differ only in their functionalities which can be locked or unlocked by software. With the manufacturer declaration it is attested, that both device variants are identically in software and hardware.

Restrictions:

10. Attachments

The only enclosures are the measurement reports or recordings which are to inform the customer or PROFIBUS User Organization about abnormal behaviour.

All recordings are stored in the test laboratory in two separate places accessible only by test laboratory personnel. The customer and PROFIBUS User Organization can receive all recordings on demand.

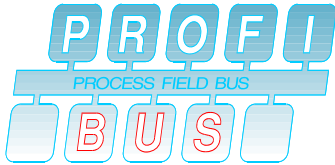
Here also the actual list of test apparatus and equipment used is added.

This documentation guarantees the test's reproducibility for 3 years.

Additionally forms, depending on the marked "Scope of test performed" at the cover sheet, are listed in this section, e.g. profile test specific results.

Attachments:

- Test equipment used for PROFIBUS DP (mandatory)**
- for IsoM**
- for DXB**
- for PROFIBUS PA profile**
- for EDD**
- Additional attachments:**



Attachment № 1 to PNO Test Report



Used PROFIBUS-devices for DP-V0/-V1 Interoperability Test

Address								Stand
dec.	hex.	Device Type	Vendor Name	PNO-ID	Cfg.	Order-No. / others	Place	HW/FW/SW
0	0	Test-Master	Siemens			CP5611 in PC	PL	STEP D/V0.4/1028
1	1	CPU314-2 (Master 1)	Siemens			314-6CF00-0AB0	PL	1
2	2	CPU315-2 (Master 2)	Siemens			f. slaves from PA board	PL1	3/Z03
3	3	Test-Master	Siemens			CP5611 in PC	PL	STEP D/V0.4/1028
4	4	Diagnose-Repeater	Siemens	80AF	20; 00		PL2	R.1.12
5	5	PB-Module 12 MBd	Rexroth	CD12	23		PL1	---
6	6	IM-SC	Siemens	802B	SKF		PL1	1
7	7	ET 200B-32DO	Siemens	000D	23; 00	LSPM2	PL1	2
9	9	ET 200M / IM153-3	Siemens	8053	SKF	left module	PL1	1
10	A	ET 200M / IM153-3	Siemens	8053	SKF	right module	PL1	1
12	C	WDP5-318	Berger-Lahr	0096	B7		PL1	---
20	14	PDP-IM81	Turck	009D	00; 10	LSPM2	PR	---
22	16	PDP-OM81	Turck	009E	20; 00	LSPM2	PR	---
34	22	ET 200X 4DO+8DI	Siemens	803C	SKF		PR	9/1
35	23	ET 200X 8DI+4DO	Siemens	803D	SKF		PR	1/1
38	26	Winblock 16DI	Weidmüller	0251	00; 11	LSPM2	PR	---
39	27	Winblock 8DO	Weidmüller	0254	20; 00	LSPM2	PR	---
47	2F	res. f. other Test Devices						
48	30	res. f. other Test Devices						
49	31	res. f. other Test Devices						
50	32	res. f. Test Device						

57	39	FDO-VC-Ex4.PA	Pepperl+Fuchs	0841	A1; A1; A1; A1	37697	PA	---
58	3A	EH-Liquiphant (Bürkert)	Endress&Hauser	9723	91; 91; 91; 91		PA	---
59	3B	T3k	Siemens	8090	94		PA	---
60	3C	Sitrans LS	Siemens	80E9	91		PA	---
61	3D	Sitrans P (V2.0)	Siemens	804B	94	PTB-Nr.Ex-97.D.2178	PA	---
62	3E	Sipart PS2	Siemens	8079	A4		PA	---
63	3F	Bürkert I/O	Bürkert	6521	A1; A1; A1; A1		PA	---
64	40	Sitrans P (V3.0)	Siemens	80A6	94		PA	---
76	4C	S7-318 CPU	Siemens	807F	00; 00; 00; 1F; 2F; 1F; 2F	PR_318Sl.arj; 45,45kBit/s	PR	1
82	52	Absolut-Encoder	J. Heidenhain	A401	F1		PR	---
87	57	MBV-P 8DI	Murrelektronik	3101	00; 10	LSPM2	PR	---
88	58	ET 200M / IM153-1	Siemens	801D	00; 00; 00; 37; 37		PR	1
90	5A	ET 200B 32DO	Siemens	000D	23; 00	LSPM2	PR	1
91	5B	ET 200B 0,2ms 24DI/8DO	Siemens	000E	20; 12	LSPM2	PR	2
92	5C	ET 200B 8DI/8DO	Siemens	000B	20; 10	LSPM2	PR	2
93	5D	MBV-P 16DI	Murrelektronik	3101	00; 11	LSPM2	PR	---
94	5E	MBV-P 8DI/4DO 2A	Murrelektronik	3101	20; 10	LSPM2	PR	---
95	5F	MBV-P 8DO 2A	Murrelektronik	3101	20; 00	LSPM2	PR	---
96	60	PVM10-10-2-P	Hohner	484F	00; 93	LSPM2-Encoder	PR	---
97	61	AWG	Siemens	0024	D0	Encoder	PR	---
98	62	AWC58	Fraba	4711	D0	Encoder	PR	---
100	64	SPC200-COM-PDP	Festo	00C8	97; A7		PR	---
101	65	FB13 Typ 03	Festo	FB13	12; 22		PR	---
102	66	FB13 Typ 03	Festo	FB13	10; 10; 20; 20		PR	---
103	67	CB_FB13	Festo	F13C	31; 31; 31	2Byte EA/Strang, 3Str.	PR	---
---	---	Amprolyzer	Siemens	---	---	CP5611 in PC	PL	STEP E2/V 3.0