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Betrifft: **Unterstützung Unigyr PRU**

Von:

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Seite(n) : 1 – 1

folgende Firma hat mehrere PRU's mit SAIA PCD erfolgreich eingesetzt:

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Hr. Theis kennt sich auch in der Konfiguration der PRU aus.

Mit freundlichen Grüssen

Saia-Burgess Controls AG
Abteilung

Profibus FMS SAIA PCD2 - UNIGYR PRU

Die Einstellungen können von folgenden Seiten übernommen werden.

Spezialität bei UNIGYR:

- Im Netz müssen alle UNIGYR- Stationsadressen tiefer als die SAIA- Station adressiert werden. (Zeitmaster)
- Nach jeder Parameteränderung SAIA oder UNIGYR müssen die UNIGYR Stationen durch Netz aus /ein neu gestartet werden (nur so wird die Konfiguration übernommen)

Beispiel

```
COB 0
  0
```

```
LD  R_Src      Source Register
      Src      Konstante
LD  R_Dest     Zielregister
      Dest     Konstante
CFB  PB_STXM   ;Kanal
      toSAIA2
      0
      R_Src    ; Source Register
      R_Dest   ; Ziel Register
```

ecob

```
FB  PB_STXM
      STXM =1
           =2
           =3
           =4
```

EFB

```
FB  PB_SRXM
      SRXM =1
           =2
           =3
           =4
```

EFB

SAIA-Burgess Electronics

SWITCHES - MOTORS - CONTROLLERS

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Your reference .

Your contactperson P. Koenekoop

Conc. Profibus with Landis & Gyr Unigyr PRU

Date April 11, 1996

Dear Urs,

→ R. Becht

First I have to thank you for your support during the test with Landis & Gyr. Without your help I was not able to succeed. I have tried to make a description of the configuration. If you have any remarks about it, please let me know.

I have noticed that the error flag is on after execution of the SASI-instruction, when the Fms features were 00, 48, 128, 00, 48, 24. When I changed it to 00, 48, 128, 128, 48, 24, the error flag is low. Can you explain why SAIA does not support the unconfirmed and high priority messages.

The reason we made a test with UNIGYR is that L&G has a project in Amsterdam. They have to connect a cooling unit with UNIGYR. The cooling unit is made by Stork Refac and contains a SAIA PCD2. The only way to connect UNIGYR and PCD2 is via Profibus. The company Stork Refac buys around 60 or 70 PCD2 systems a year.

Now after the test L&G will contact the system integrator. The system integrator has to negotiate with Stork Refac about the extra costs for the Profibus interface and the modification in the application program.

Can you also inform Rolf Müller about this project. A Profibus connection between PCD2 and building automation equipment can be very interesting in the building automation market.

With kind regards,

SAIA-Burgess B.V.

Peter Koenekoop

Peter Koenekoop

1592 240 0012

Event Notification

PROFIBUS-Fremdankopplung mit PRU1, PRU2, PRx10
17. Juli 2000



| Parameter | PRU2 und PRx10 <=V6.10 | | PRU2 und PRx10 >=V6.24 | | Einstellung für Fremdgerät | Einstellung via Diag. | Fremdgerät |
|---|---------------------------|-------------------------|---------------------------|-------------------------|-------------------------------|--------------------------|------------|
| | default Einstellung | Einstellung für PRU1 | default Einstellung | Einstellung für PRU1 | | | |
| Bus-Parameter | | | | | | | |
| HSA Highest Station Address (in baud) | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| BD Baudrate (in bits) | 93750 | 93750 | 93750 | 93750 | 93750 | 93750 | 93750 bd |
| TSL Slot Times (in bits) | 744 | 744 | 744 | 744 | 744 | 744 | 744 bits |
| TQUT Quiet Time (in bits) | 2 | 2 | 2 | 2 | 2 | 2 | 2 bits |
| TSDRmin Station-Delaytime-Respond min (in bits) | 95 | 95 | 95 / 105 | 95 / 105 | 95 / 105 | 95 / 105 | 160 bits |
| TSDRmax Station-Delaytime Respond max (in bits) | 140 | 140 | 140 / 160 | 140 / 160 | 140 / 160 | 140 / 160 | 205 bits |
| TTR Target-Rotation-Time (in bits) | 93750 | 93750 | 93750 | 93750 | 93750 | 93750 | 93750 bits |
| G Gap-Update-Factor | 1 | 1 | 1 | 1 | 1 | 1 | 1..10 |
| TSET Setup Time (in bits) | 160 | 160 | 160 | 160 | 160 | 160 | 160 bits |
| RDZ Redundance | none | none | none | none | none | none | none |
| KBI-Parameter | | | | | | | |
| LocalSAP Local Link Service Access Point (FDL) | Rem@+1 | Rem@+1 | Rem@+1 | Rem@+1 | Rem@+1 | Rem@+1 | Rem@+1 |
| RemLSAP Rem. Link Service Access Point (FDL) | Own@+1 | Own@+1 | Own@+1 | Own@+1 | Own@+1 | Own@+1 | Own@+1 |
| RemADR Remote Stationaddress (FDL) | Rem@ | Rem@ | Rem@ | Rem@ | Rem@ | Rem@ | Rem@ |
| CTYPE Connection Type (LLI) | MMAZ | MMAZ | MMAZ | MMAZ | MMAZ | MMAZ | MMAZ |
| MaxSQC MaxNbr of confirmed SrvReq (LLI) | 2 | 2 | 2 | 2 | 2 | 2 | 1..2 |
| MaxRCC MaxNbr of confirmed SrvInd (LLI) | 2 | 2 | 2 | 2 | 2 | 2 | 1 |
| MaxSAC MaxNbr of unconfirmed SrvReq (LLI) | 1 | 2 | 1 | 2 | 2 | 0 | 0..2 |
| MaxRAC MaxNbr of unconfirmed SrvInd (LLI) | 2 | 2 | 2 | 2 | 2 | 2 | 0..2 |
| ACI Acyclic-Contro-Interval (in 10ms) (LLI) | 60000 | 60000 | 60000 | 60000 | 60000 | 60000 | 60000 |
| ATT Connection-Attribute (D=defined) (LLI) | D | D | D | D | D | D | D |
| ! OV OV-Number (FMS) | OVnr | OVnr | OVnr | OVnr | OVnr | OVnr | 0 |
| ! ProName Profilename (FMS) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ! AccProt Access protected (FMS) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ! PwAccGrp Password and AccessGroups (FMS) | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| TxHi MaxLen of hi-prio TxTelegrams (FMS) | 0 | 220 | 0 | 220 | 0 | 0 | 0..220 |
| TxLo MaxLen of lo-prio TxTelegrams (FMS) | 220 | 220 | 220 | 220 | 220 | 220 | 0..220 |
| RxHi MaxLen of hi-prio RxTelegrams (FMS) | 220 | 220 | 220 | 220 | 220 | 220 | 0..241 |
| RxLo MaxLen of lo-prio RxTelegrams (FMS) | 220 | 220 | 220 | 220 | 220 | 220 | 220..241 |
| ReqSrv Requested Profibus-Services (FMS) | 58 30 D9 | FF FF FF | 58 30 D9 | FF FF FF | FF FF FF | 00 00 00 | 00 30 00 |
| OfSrv Offered Profibus-Services (FMS) | 58 30 D9 | FF FF FF | 58 30 D9 | FF FF FF | FF FF FF | 58 30 D9 | 00 00 00 |

z.B.



! Diese Parameter werden beim Verbindungsaufbau vom PRU2 resp. PRx10 nicht geprüft

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Landis & Staefa
Gebäudekomfort
und Energieeffizienz

SAIA*PCD2
with Profibus option card PCD7.F700
and Landis & Gyr Unigyr PRU

Application note by P. Koenekoop, SAIA-Burgess B.V. (NL)

Note: This document only describes the configuration of the SAIA*PCD2. For the UNIGYR PRU configuration we refer to the document "Fremdankoppelung via PROFIBUS" of W. Stöckli of Landis & Gyr. It is important that we use UNIGYR equipment > 4.30

1. Mounting and Installation.

For mounting and installation instructions we refer to the SAIA manuals:

- Hardware Manual PCD2 26/737, chapter 4.8.
- Installation Components for RS485 Networks 26/741, several chapters.

2. Configuration of the PCD2.

2.1 Definition of bus parameters.

The bus parameters in the UNIGYR PRU are fixed, we have to adapt the PCD2 as followed:

| | | |
|------------------------------------|------------|-------------------------|
| Baud Rate | | 93,75 kBaud (PCD2 only) |
| In Ring Desired | | 1 (master) |
| Gap Update Factor | (G) | 1 |
| Highest Station Address | (HSA) | 32 |
| Maximum Retry Limit | | 1 |
| Slot Time | (TSL) | 744 |
| Quiet Time | (TQui) | 2 |
| SetUp Time | (TSet) | 160 |
| Target Rotation Time | (TTR) | 93750 |
| Minimum Station Delay of Responder | (Min TSDR) | 95 |
| Maximum Station Delay of Responder | (Max TSDR) | 140 |
| Segment Address | (Seg_Add) | 128 |

2.2. Definition of station and SAP.

With the UNIGYR equipment there is a fixed relation between the station address and the SAP. With the SAIA PCD2 we have to realize the same coherence.

Remote SAP = Own Address + 1
 Local SAP = Remote Address + 1

Example:

| | | |
|-----------------------------|-----------|---|
| Station Address | (SA) | 4 |
| Source Service Access Point | (SSAP) | 2 |
| Remote Address | (Rem_Add) | 1 |
| Remote SAP | (RSAP) | 5 |

2.3 Channel Definition.

Unigyr PRU supports Unconfirmed Services and Telegrams with High Priority. The SAIA PCD2 does not support these services, hence the SAIA Profibus configurator has no possibility to change these parameters. The output of the configuration is:

| | | |
|--|-------|-----|
| Protocol Data Unit Message Length: (PDU_L) | | |
| Send High Priority | | 0 |
| Send Low Priority | | 220 |
| Receive High Priority | | 0 |
| Receive Low Priority | | 220 |
| Maximum Service Counters: | | |
| Send Confirmed | (SCC) | 2 |
| Receive Confirmed | (RCC) | 2 |
| Send Acknowledged | (SAC) | 0 |
| Receive Acknowledged | (RAC) | 0 |

After generation of the SASI text for the PCD2 station, we can change the contents of the SASI texts in an editor to adapt the:

| | |
|---------------------------------|-----|
| Max. Send High Priority PDU | 220 |
| Max. Receive High Priority PDU | 220 |
| Max. Send Acknowledged (SAC) | 2 |
| Max. Receive Acknowledged (RAC) | 2 |

For further details see chapter 2.5

(A)cyclic Control Interval.

The output of the configurator is:

| | | |
|-------------------------|-------|-------|
| Cyclic Control Interval | (CCI) | 60000 |
|-------------------------|-------|-------|

FMS features supported.

Request: 00, 48, 00 SAIA supports Read, Write
Response: For the Unigyr PRU we must support Read, Write and Event Notification.

The SAIA Profibus configurator can only change the Read, Write and Get OV services. The output of the configurator is:

| | |
|-----------------------------------|---------------------|
| Field Message Specification (FMS) | Features Supported: |
| Request | Read Write |
| Response | GetOV Read Write |

After generation of the SASI texts for the PCD2 station, we can change the contents of the SASI texts in an editor to adapt the FMS services according to the following table.

Indication and Response

Request and Confirmation

| | | | | |
|----|---|-------------------------------------|----|-------------------------------------|
| 24 | 1 | Get-OV (lang) | 0 | Get-OV (lang) |
| 25 | | Unsolicited Status | 1 | Unsolicited Status |
| 26 | | Put-OV | 2 | Put-OV |
| 27 | | Download (Initiate, Terminate) | 3 | Download (Initiate, Terminate) |
| 28 | | Upload (Initiate, Terminate) | 4 | Upload (Initiate, Terminate) |
| 29 | | Request-Dormain-Download | 5 | Request-Dormain-Download |
| 30 | | Request Domain Upload | 6 | Request Domain Upload |
| 31 | | Program Invokation (Create, Delete) | 7 | Program Invokation (Create, Delete) |
| 32 | | Start, Stop, Resume, Reset | 8 | Start, Stop, Resume, Reset |
| 33 | | Kill | 9 | Kill |
| 34 | 1 | Read | 10 | 1 Read |
| 35 | 1 | Write | 11 | 1 Write |
| 36 | | Read with Type | 12 | Read with Type |
| 37 | | Write with Type | 13 | Write with Type |
| 38 | | Physical Read | 14 | Physical Read |
| 39 | | Physical Write | 15 | Physical Write |
| 40 | | Information Report | 16 | 1 Information Report |
| 41 | | Information Report with Type | 17 | Information Report with Type |
| 42 | | Variable List (Define, Delete) | 18 | Variable List (Define, Delete) |
| 43 | 1 | Event Notification | 19 | Event Notification |
| 44 | 1 | Event Notification with Type | 20 | Event Notification with Type |
| 45 | | Acknowledge Event Notification | 21 | Acknowledge Event Notification |
| 46 | | After Event Condition Monitoring | 22 | After Event Condition Monitoring |
| 47 | | Adressierung mit Namen | 23 | Adressierung mit Namen |

Request and Confirmation

00000000 | 00110000 | 10000000
 00 48 128

Indication and Response

10000000 | 00110000 | 00011000
 128 48 24

For futher details see chapter 2.6.

2.4 Creation of communication connections.

2.4.1 Link Stations

Link between KNIGYR PRU and SAIA*PCD2: master-master acyclic.

The output of the configurator is:

Communication Type (CT) 0 (MMAC)

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F B: SAIA_PCD.SRC (4-02-96 8:56a)
SAIA-Burgess B.V. Gouda

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test voor koppeling met Landis & Gyr PRU, programma voor PCD2

| ADDR | MNEMO | MC | OPERAND | SYMBOL | COMMENT |
|------|---------|----|--|---------|---------|
| TEXT | T_As_10 | | "\$L",POBJ_1; "\$L",PBUS,"\$L",HEAD,"\$L",CREL_10;" | | |
| TEXT | POBJ_1 | | "POBJ:100,7,8,4,0,0,0.13059,R0,1;" | | |
| TEXT | PBUS | | "PBUS:4.2,1,128,1,32,1,744,95,140,2,160.93750;" | | |
| TEXT | HEAD | | "HEAD:128,3000;" | | |
| TEXT | CREL_10 | | "CREL:0.1,128,5,2,220,220,220,220,00,48,128,128,48,24,2,2,2,2,60000,0,0;" "DIAG:F8000,R4090;" | | |
| 0 | XOB | | 16 | | |
| 1 | SASI | | 10 | | |
| 2 | | | 3000 | T_As_10 | |
| 3 | EXOB | | | | |
| 4 | COB | | 0 | | |
| 5 | | | 0 | | |
| 7 | STL | F | 8003 | | |
| 8 | ANL | F | 8006 | | |
| 9 | JR | L | 4 (13) | L1 | |
| 10 | SCON | | 10 | | |
| 11 | | | 0 | | |
| 12 | | | 1 | | |
| L1: | | | | | |
| 13 | STL | F | 8003 | | |
| 14 | ANL | F | 8006 | | |
| 15 | JR | L | 5 (20) | L2 | |
| 16 | SRXM | | 10 | | |
| 17 | | | 0 | | |
| | | K | 9234 | | |
| | | K | 100 | | |
| L2: | | | | | |
| 20 | ECOB | | | | |

Documentation complete, 0 errors

2.5 Creation of objects.

During the testphase we tried several types of objects. An example is shown below.

```
*****
*   Object Dictionary (OD/OV)   *
*****
*   Static Objects List   *
Index                        (Ind)      100
Data Type                    (DT)      8 (Floating Point)
Object Code                  (OC)      7 (var. simple)
Length                       (L)       4
Number of elements          (NE)      0
Password                     (PW)      0
Access Group 1,2,3,4,5,6,7,8 (AG)    N,N,N,N,N,N,N,N
Access Rights:              (AR)
    Communication Partners    Read Write
    Password Processor        Read Write
    Group                     Read Write
Media and Address           R0
Count                       1
```

2.6 Generation and Modification of SASI texts.

The Profibus configurator generates the following texts:

```
TEXT T_As_10      "$L",POBJ_1;
                  "$L",PBUS,"$L",HEAD,"$L",CREL_10;"
TEXT POBJ_1      "POBJ:100,7,8,4,0,0,0,13059,R0,1;"
TEXT PBUS        "PBUS:4,2,1,128,1,32,1,744,95,140,2,160,93750;"
TEXT HEAD        "HEAD:128,3000;"
TEXT CREL_10     "CREL:0,1,128,5,2,0,220,0,220,00,48,00,128,48,00,2,2,0,0,
                  60000,0,0;"
                  "DIAG:F8000,R4090;"
```

Now we have to change the text CREL_10 with an ASCII-Editor before assembling, linking and downloading.

Modified text:

```
TEXT CREL_10     "CREL:0,1,128,5,2,220,220,220,220,00,48,128,128,48,24,2,
                  2,2, 2,60000,0,0;"
                  "DIAG:F80000,R4090;"
```

3. User program for the SAIA*PCD2.

An example of the user program is given at the next page.