PLANNING AND INTEGRATION INFORMATION

LB8106* Integration in Yokogawa CENTUM VP





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1

Introduction

This document describes how to integrate a remote I/O unit into Yokogawa CENTUM VP and how to define the communication settings.

This document provides system-related information that is not included in the manual of the device itself.

Software and Hardware Revisions

Product Name	Revision		
Yokogawa CENTUM VP	R5.02		
ALP121 PROFIBUS DP	U	0	
communication module	H1	1	
	H2	3	
	F	2	
LB8106*	FW 6.28		
GSE file PFV61711.gse	V 1.12		

2

Add Communication Module

To communicate with the remote I/O unit, add a PROFIBUS DP communication module to Yokogawa CENTUM VP.



Create new Input Output Module

- 1. Navigate to the IOM folder in the System View window.
- 2. Right-click the subnode NODE1 and select Create New > IOM



Figure 2.1 Create New > IOM...

→ The Create New IOM window appears.

	_	
reate New IOM		
Type and Position Set Details		
	-	
Category Profibus-DP Communication		
Type ALP121(Profibus-DP Communication)		
Slot 1 🗄		
✓ Duplicate Next Card		
Output Type	-	
© Output in a lump C Output immediately		
	_	
High Speed Read		
IOM Comment		

Figure 2.2

Type and Position tab

- Select PROFIBUS-DP Communication from the Category drop-down list in the IOM Type area.
- 4. Select the communication module from the **Type** drop-down list, in this example **ALP121(Profibus-DP Communication)**.



- 5. Enter the slot number of the rack in which the communication module has been installed in the **Slot** field.
- 6. Select the Set Details tab.



Figure 2.3 Set Details tab

- 7. Select a redundancy mode. For more information on redundancy strategies, see chapter 8.1.
- 8. The **Perform Fallback** area defines the behavior in case of an error. You can adopt the default settings.
- 9. Deactivate Set all corresponding module input data to IOP and Set all corresponding module output data to IOP. For more information on channel-specific diagnostics, see chapter 8.3.
- 10.Enter 0 for Head of Slot numbers of Slave Device in Message and 0 for Prefixed slave device channel number in alarm message.
- 11.Click **OK**. If redundancy has been selected, two communication modules are created automatically.



Figure 2.4

Communication modules in the System View window

3 Import GSE File

To integrate the remote I/O unit, import the GSE file of the com unit which describes the communication options and available diagnostics of the remote I/O unit.

0 ∏

Note! If using the LB8106* respectively FB8206* com unit, use the **PFV61711.gse** GSE file. If using the LB8105* or LB8109* respectively FB8205* or FB8209* com units, use the **PFV61710.gse** GSE file. These com units must be configured using an external FDT/DTM framework, for example, PACTwareTM. For more information, see the software manual of the com unit.



Import GSE File

1. Double-click the PROFIBUS DP communication module in the System View window.

\mapsto The **Start Builder** window appears.

Figure 3.1 Start Builder window

2. Select PROFIBUS-DP Configurator and click OK.

→ The SYCON.net window opens

-	
SYCON.net - [Pjt:MYPJT Stn:FCS0102 Trai	n:1 Node:1 File:1ALP121.edf]
File View Help 도 😨 ᆣ 프 🌚 - 🎒 2월 283	四,
netProject 🔺 🗙	netDevice 🔺 🗙
□- Project: ProfibusPjt [ALP121[ALP121]<2>(#1)]	ALP121[ALP121]<2>(#1)
	▼ ▼
Configurations files were successful cr	eated> Device: ALP121[ALP121]<2>(#1)

Figure 3.2 SYCON.net window

 To import a GSE file, select Network > Import Device Descriptions.... To get the correct display in the network area, we recommend that you import the PF_LB_FB.bmp image file as well.

SYCON.net - [Pjt:MY	SYCON.net - [Pjt:MYPJT Stn:FCS0102 Train:1 Node:1 File:1ALP121							
File View Device	Net	work Help						
	랔	Add Busline						
netProject	르	Delete Last Busline						
Project: Profibus		Device Catalog						
ALP121[ALP1		Import Device Descriptions						
		Print Project Data						
		Import SyCon-PB/YOKO Project						

Figure 3.3 Network > Import Device Descriptions...

→ After you imported the GSE file, the com unit is available in the library area on the right.







PEPPERL+FUCHS



Add Remote I/O Unit to PROFIBUS Line

Drag and drop the com unit from the library into the network area on the PROFIBUS line.



Figure 3.5 Drag and drop the com unit on the PROFIBUS line

 \rightarrow The remote I/O unit has been added to the PROFIBUS line. The system automatically assigns the next free PROFIBUS address. If there are no other slaves configured yet, the remote I/O unit receives the address that follows the address of the master. For more information on the communication settings, see chapter 5.







Configure Remote I/O Modules

Note!

You can configure the I/O modules only if using the LB8106* respectively FB8206* com unit. If using the LB8105* or LB8109* respectively FB8205* or FB8209* com units, the I/O modules must be configured using an external FDT/DTM framework, for example, PACTwareTM. For more information, see the software manual of the com unit.



о П

Rebuild Structure of the Remote I/O Unit

1. To open the configuration editor, double-click the remote I/O unit in the network area.





 \mapsto The **netDevice** window opens.

2. Select Configuration > Modules in the Navigation Area.

Neogation Ares Modeles Configuration General Modeles Neode No.04 Neode Planneter Groups Image: Configuration (Configuration) No.04 No.04 No.04 No.04 PV12 Image: Configuration (Configuration) Image: Configuration (Configuration) No.04 No.04 No.04 No.04 PV2 Image: Configuration (Configuration) Image: Configuration (Configuration	Device ID: 0x1711 Wendor ID: -	
Configuration General Avabable Modules: • Modules • Module	Modules	
General Hodde ipuda Odgots ivOdd ivoda ipuda Outputs ivOdd identifier Medide: Parameters 100 10 0000000000000000000000000000000		
	in a set the set of th	
Parameters Groups Into Plate Courts 328 4 0 0 0.651 Groups Entonions Entonions Entonions 2 0 0 0.552 DV12 Entonions Entonions 2 0 0 0.552 DV14 Entonions 2 0 0 0.511 0 0.511 DV14 Entonions 2 0 0 0.511 0 0.511 DV14 Entonions 2 0 0 0.511 0.501 DV2 Entonions 2 0 0 0.501 0 0.511 Dv14 Entonions 2 0 0 0.501 0 0.501 Dv14 Entonions 2 0 0 0.502 0 0.501 Dv14 Entonions 2 0 0 0.501 0 0.501 Dv14 Entonions 8 2 0 0.505 0 0.501	riputa j outputa j informa j information	
Groups Extensions III M33 Regenery-Counter 6 0 0 0.352 Extensions + 1007 Digate Nput Schemmels 2 0 0 0.11 DPV1 + 1005 Digate Nput Schemmels 2 0 0 0.11 DPV2 + 1005 Digate Nput Schemmels 2 0 0 0.11 DPV2 + 1005 Digate Nput Schemmels 2 0 0 0.11 DPV2 + 1005 Digate Nput Schemmels 2 0 0 0.11 DPV2 + 1005 Digate Nput Schemmels 2 0 0 0.11 DPV2 + 1005 Digate Nput Schemmels 2 0 0 0.02 Device - 3002 PART Anis + 104 PTV we 0 0 0.020 0 0.020 GSD + 3002 PART Anis + 14 PTV we 10 0 0 0 0.020 0 0.020 GSD + 3002 PART Anis + 14 PTV we 10 0 0 0.020 0 0.020 GSD - 3002 PART Ani + 14 PTV we<	0 0 0.651	
Descriptions DPV2 Dit// Ugal hpu/ A chainments 2 0 0 DA11 DPV1	0 0 0.52	
DPUL DPU2 DPU2 DPU2 Control (Due 2 double hour 8 channes) 2 0 0 DM1 DP1 DP1 DP1 DP1 DP1 DP1 DP1 DP1 DP1 DP	0 0 0 0 0 0	
Configured Nobles Modula input scharmels 2 0	0 0 001	
Containing This byte steps (200) 1950 2 0		
Inductionality Inducement (Notified and Notified and Not	0 0 0/11	
Unit of Units (provide) from a sector of the sect		
Linking Status	0 0 0:50	
GSD Image: State HART HART HART HART HART HART HART HART	0 0 0-50	
Image: Stand Processing State 0 0 0.054 Image: State Processing State 0 0.056 Image: State Processing State Processing State 0 0.056 Image: State Processing State 0 0.056 Image: State Processing State 0 0.056 Image: State Processing State 0 0 0.056 0 Image: State Processing State 0 0 0.056 0 0.056 Image: State Processing State 0 0 0.056 0.056 0.056 0.056 Image: State Processing State 0 0 0 0.056 0.05	0 0 0+52	
Image: State TAN + 13 HART Vare 14 0 0 budde Image: State TAN + 13 HART Vare 18 0 0 budde Image: State TAN + 13 HART Vare 18 0 0 budde Image: State TAN + 13 HART Vare 18 0 0 budde Image: State TAN + 13 HART Vare 18 0 0 budde Image: State TAN + 13 HART Vare 18 0 0 budde Image: State TAN + 13 HART Vare 18 0 0 budde Image: State TAN + 13 Image: State TAN + 13 HART Vare 18 0 0 budde Image: State TAN + 13 Image: State TAN + 13 HART Vare 18 0 0 budde Image: State TAN + 13 Image: State TAN + 13 HART Vare 18 0 0 budde budde Image: State TAN + 13	0 0 0x54	
Image: State of the s	0 0 0x56	
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0 2 Empty Sot 0 0 0.000 6:3 Empty Sot 0 0 0.000 6:4 1028 Digital Reg Schannels 2 0 0 0.000 6:5 Empty Sot 0 0 0 0.000 6:8 S200 Ama in +HART Supply 4Dn 8 0 0 0.000 6:9 Empty Sot 0 0 0 0.000 6:9 Empty Sot 0 0 0 0.000 6:9 Empty Sot 0 0 0 0.000 6:10 2.005 Ama in +HART Supply 4Dn 8 0 0 0.000 6:11 Empty Sot 0 0 0 0.000 0.000 11:1 Sot Sot Sot Ama in +HART Suppl	Involut InvOut Identifier atus 8 2 0 0xC0,0x01,0x07	
#: 3 Empty Solt 0 0 0.000 #: 4 1000 Double Input & channels 0 0 0.001 #: 5 Empty Solt 0 0 0.000 #: 6 5000 Double Adput & channels 0 0 0.000 #: 6 5000 Double Adput & channels 0 0 0.000 #: 6 5000 Double Adput & channels 0 0 0.000 #: 6 5000 Double Adput & channels 0 0 0.000 #: 8 3000 Ama h + HART Supply 40h 8 0 0 0.001 #: 11 3006 Ama h + HART Supply 40h 8 0 0 0.053 #: 13 Empty Sot 0 0 0 0.001 #: 13 Empty Sot 0 0 0 0.001 Length of Input Joint data: 63 bytes (max 400 bytes) 0 0 0.001 Length of Input Joint data: 63 bytes (max 400 bytes) 0 0 0	0 0 0 0x00	
# 4 T038 Digital lengt 8-brannels 2 0 0 0 0 # 5 Entryl Syst 0 0 0 0 0 0 # 6 SX38 Digital Oxpate Actionnels 0 0 2 0x31 6 7 Entryl Syst 0 0 0 0x00 6 7 Entryl Syst 0 0 0 0x00 6 8 3005 Aralin + HART Supply 4Ch 8 0 0 0x00 (b) 10 7x04 4-barreril UD 0 0 8 0x73 (c) 11 3006 Aralin + HART Supply 4Ch 2 8 0 0 0x03 (c) 11 3006 Aralin + HART Supply 4Ch 2 8 0 0 0x53 (c) 12 4x05 HART Aralog Oxpate 4Ch 2 8 0 0 0x04 (c) 12 4x05 HART Aralog Oxpate 4Ch 2 8 0 0x00 0x01 (c) 12 4x05 HART Aralog Oxpate 4Ch 2 0 0 0x02 <td>0 0 0 0x00</td> <td></td>	0 0 0 0x00	
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Implementation 0 0 2 0631 IB 7 Empty Status 0	0 0 0 000	
0 0	a 0 0 2 0631	
Image: Instant Control of Contro		
Image: Instant and the stant and th	0 0 8 0x73	
☐ (1): 12 40/05 HART Analog Output ACh 2 8 0 0xC0 (0x3,0x40) ☐ (1): 13 Energy Status 0 0 0 0x00 Length of Input/longua data: 61 bytes (max. 400 bytes) 0 0 0 0x00 Length of Input/longua data: 41 bytes (max. 400 bytes) 0 0 0 0 Number of module: 12 bytes (max. 400 bytes) 0 0 0 0	4Ch 8 0 0 0x53	
Imply Set 0 0 0.00 Length of Input/Subjuct data: 62 bytes (bytes) 0 0.00 Length of Input/Subjuct data: 42 bytes (max. 240 bytes) 0 0.00 Length of Input/Subjuct data: 21 bytes (max. 240 bytes) 0 0.00 Length of Input/Subjuct data: 21 bytes (max. 240 bytes) 0 0.00 Number of modelse: 12 bytes (max. 240 bytes) 0 0.00	Ch 2 8 0 0xC0.0x43,0x40	
Length of Freque/Joséput data: 62 bytes (max. 480 bytes) Length of Freque/data: 43 bytes (max. 240 bytes) Length of Freque/data: 21 bytes (max. 240 bytes) Length of Freque/data: 21 bytes (max. 240 bytes) Number of Freque/data: 21 bytes (max. 240 bytes) Number of Freque/data: 21 bytes (max. 240 bytes)	0 0 0 0x00	
Length of input/output calase: 6 - drysters (max sko otyreta) Length of input/calase: 44 Johrsten (max 240 Johrsten) Length of output datase: 2 Johrsten (max 240 Johrsten) Number of modulese: 13 (max 49)	n n n++	
Length of injunctatias: 4 Joynes (max. 240 Joynes) Length of Linguist data: 22 Joynes (max. 240 Joynes) Number of modules: 15 (max. 49)	bytes)	Reitary
Number of modules: 15 (ms. 40)	bytes)	
	orew .	
OK Cancel Apply	OK Cancel Ac	olv Help

Figure 4.2

Configuration > Modules

- Select an I/O module from the Available Modules list and click Insert or Append to rebuild the structure of the remote I/O unit in the Configured Modules list. Respect the following rules while rebuilding the structure of the remote I/O unit.
 - The first I/O module is always the com unit. You can select between four different configuration types that provide different diagnostic data.
 - COM Unit without data
 The com unit does not provide any diagnostic data.
 - COM: GI.-Status + Command Reg. The com unit provides the global status register and the command register as cyclic I/O data.
 - COM: Mod. Status (1 Bit/Mod.) The com unit provides the module status register as cyclic I/O data.
 - COM: Cmd + Status + Mod.-Status The com unit provides the global status register, the command register, and the module status register as cyclic I/O data.

For more information on cyclic diagnostic information, see chapter 8.2.

- Because the com unit is located at slot no. 1, the slot numbering in the configuration editor differs from the actual numbering in the remote I/O unit. If the remote I/O unit contains a non-redundant backplane, the configuration of the I/O modules starts with slot no. 2. If the remote I/O unit contains a redundant backplane with two com unit slots, the configuration of the I/O modules starts with slot no. 3.
- Dual width modules that occupy two slots are configured like single width modules, followed by an empty slot. Note that the last slot must not be an empty slot. If the last I/O module is a dual width module, configure this module like a single width module and omit the following empty slot.





Define Parameters for I/O Modules

1. Select Configuration > Parameters in the Navigation Area.

FDT Vendor:	Egres auto remote IU 2 Pepperl+Fuchs GmbH		Vendor ID:	0x1711 -		2
Vavigation Area 🛛 🚍		Parameters				
Configuration	Module: <pre></pre> <pre></pre> <pre></pre> <pre>Module: </pre> <pre></pre> <pre></pre> <pre>Module: </pre> <pre>Module: </pre> <pre>Module: </pre> <pre>Module: </pre> <pre>Module: </pre> <pre>Module: </pre> <pre></pre> <pre>Module: </pre> <pre>M</pre>		•	Display mode:	Hexadecimal	
Moduler						
modules	Baramahara					
Parameters	ra anexe si					
Groups	Name	Value				
Extensions	Redundancy	Application Redundancy				
DPV1	Profibus Diagnostics	status+error diagnostics				
DPV2	Profibus Suppress Clear	off				
Deducdance	Com Unit Setting	command/status+module status				
Redundancy	OFF delay on Profibus fault	off				
Device Description	Scaling 0%100%	10000 - 50000 (0-65535)				
Device	activate status bits globary	individual adjustment				
GSD	enor suppression	po datura bit far anales OUT				
	HART Communication Shi 01	no saus or for analog 0.01				
	HART Communication Set 02	00				
	HART Communication Set 03	00				
	HABT Communication Slot 04	00				
	HART Communication Slot 05	90				
	HART Communication Slot 06	on				
	HART Communication Slot 07	on				
	HART Communication Slot 08	00				
	HART Communication Slot 09	on				
	HART Communication Slot 10	on				
	HART Communication Slot 11	on				
	HART Communication Slot 12	00				
	HART Communication Slot 13	on				
	HART Communication Slot 14	on				
	HART Communication Slot 15	on				
	PVRT Communication Sof 15	on				
	HART Communication Site 12	UT CON				
	HART Communication Size 19	on				
	HART Communication Stat 20	00				
	HART Communication Slot 21	80				
	HART Communication Slot 22	00				
	HART Communication Slot 23	on				
	HART Communication Slot 24	on				
	HART Communication Slot 25	on				
	HART Communication Slot 26	on				
	USBT Communication Clat 27	80 N				
		0. m /2				-

Figure 4.3 Configuration > Parameters

 To define the parameters of an I/O module, select an I/O module from the Module dropdown list and define its parameters in the Parameters list. Note that for LB/FB2* modules and LB/FB6* modules you must specify the exact type of module in the Parameters list.

🕨 netDevice - Configurati	on LB/FB 8x06 Remote IO 2[LB/FB 8x06 Remote IO 2]<3>	Contraction (Pro-
IO Device: FDT Vendor:	LB/FB 8x06 Remote IO 2 Pepperl +Fuchs GmbH	
Navigation Area		Parameters
Configuration General Modules	Module: <pre> <slot 8=""> 200X Digital Out + 2 Digital In Parameters:</slot></pre>	
Groups	Name	Value
Extensions	output: type of output driver	Type 2 (24 V/210 Ohm)
DPV1	output: line fault detection	ott
DDV2	output: Inverter	off
DPV2	output: substitute value	off
Redundancy	input 1: line fault detection	off
Device Description	input 1: Inverter	off
Device	input 1: ON delay	off
GSD	input 1: OFF delay	off
050	input 2: line fault detection	-#
	input 2: Inverter	off
	input 2: OFF delay	off
	input 2. Off douby	01

Figure 4.4

Parameters for LB/FB2*

Configure PROFIBUS Master

To communicate with the remote I/O unit, the bus parameters of the PROFIBUS DP communication module must be adjusted. After these parameters have been adjusted, download the updated parameters to the communication module. See chapter 7



5

Define Bus Parameters

1. To open the configuration editor, double-click the PROFIBUS DP communication module in the network area.

netDevice	
ALP121[ALP121]]<2>(#1) LB/FB 8x06 Remote IO 2[LB/FB 8x06
Figure 5.1 F	PROFIBUS DP communication module in network area

Figure 5.1

- → The **netProject** window opens.
- 2. Select Configuration > Bus Parameters in the Navigation Area.

netProject - Configuration	ALP121[ALP121]<2>(#1)				
IO Device: ALI Vendor: Yol	P121 kogawa Electric Corporation		Device ID: Vendor ID:	0x45F0 0x0037	ченский
Navigation Area		Bus Para	meters		
 Configuration Bus Parameters DPM Management DPM Settings DPM Layout Station Table Master Settings Time Sync 	Profile: Bus Parameters Baud Rate: Slot Time: Min. Station Delay Time: Max. Station Delay Time: Quiet Time: Setun Time:	PROFIBUS DP • 1500 • 300 tBit Target Rotation 11 tBit 150 tBit GAP Actualization 0 tBit Max. Retry Limit 1 tBit	Time: <u>1</u> = ε n Factor: : :	tBit 3.2173 ms 10 1 126	
	Bus Monitoring Data Control Time: Min. Slave Interval: Calculated Timing Tid1: 37 tBit Tid1: 150 tBit	120 ms Overwrite slave s 2000 μs Watchdog Contro Auto Clear ON Auto Clear ON Values marked with ti adjusted to changes	specific Watchdog Contro ol Time:	1 Time 20 ms Adjust	
<			ОК	Cancel Appl	y Help
Disconnected 🚺 Data Se	et				



Configuration > Bus Parameters

- 3. Define the bus parameters as required. An exclamation sign indicates that the corresponding parameter must be adjusted to match the settings of the remote I/O unit. Click **Adjust** to correct the bus parameters automatically.
- 4. Select Configuration > Station Table in the Navigation Area.

netProject - Configuration ALP121[ALP121]<2>(#1)							
IO Device: ALP121 Device ID: Vendor: Yokogawa Electric Corporation Vendor ID:					0x45F0 0x0037		
Navigation Area			Stat	tion Table			
Bus Decembers	Activate	Station Ad	Device	Name	Vendor		
Constanticers Constantiation of the second second DPM Layout Constantiation Table Master Settings Time Sync		3 4 5 6 7 8 •	LB/FB &x06 Remote IO 2	LB/FB &x06 Remote IO 2	Pepperl+Fuchs GmbH		

Figure 5.3 Configuration > Station Table

5. Select the PROFIBUS address of the remote I/O unit in the Station Address column. Note that the ALP121 PROFIBUS DP communication module does not support the DP-V0 command Set PROFIBUS Address in combination with Yokogawa CENTUM VP. This command can only be used in combination with the Yokogawa Plant Resource Manager (PRM). Thus, the PROFIBUS address of the remote I/O unit must be set using a class 2 master or via the service bus. For more information on the service bus connection, see the software manual of the com unit. 6

Define Communication Settings

Before the data of the I/O modules can be used by other processes, the PROFIBUS communication settings must be defined. After these settings have been defined, download the updated communication settings to the PROFIBUS DP communication module. See chapter 7



Import Data into Communication I/O Builder

1. Double-click the PROFIBUS DP communication module in the System View window.

```
\mapsto The Start Builder window appears.
```

PROFIBUS-DP Configurator Communication I/O Builder and Support Tool	Start Builder		X
Communication I/O Builder and Support Tool	C PROFIBUS-D	² Configurator	
OK Cancel	Communication	n I/O Builder and Support	Tool
	OK	Cancel	,

Figure 6.1 Start Builder window

2. Select Communication I/O Builder and Support Tool and click OK.

→ The Communication I/O Builder window and the Communication I/O Support Tool window open. The Communication I/O Support Tool provides a complete list of the data provided by the remote I/O unit.

3. Select all entries in the **Communication I/O Support Tool** window and drag and drop the selection into the configuration table of the **Communication I/O Builder** window.



Figure 6.2

Drag and drop the selection into the **Communication I/O Builder**



Element	Buffer	Program Name	Size	Port	IP Address	Station	Device&Address	Data Type	Reverse	Scan	
\$WW0001	500	K1-1-1PROFIBUS	4	1		5	1	Input (Discrete)	Bits	Normal	LB/FB
\$WW0002		*	*		*	*	*	*	*	*:	
\$WW0003	-	*	+		*		*	*		*	
\$WW0004		*	*	+	*		*	*	*	+	
\$WW0005		*	1	1		5	1	Output (Discrete)	Bits	Normal	LB/FE
8WW0006		*			*		*	*		w	
\$WW0007	-	*	1	1		5	4	Input (Discrete)	Bits	Normal	LB/FE
\$WW0008	-	•	+	-	+		•		*	+	
8WW0009		*	4	1		5	6	Input (16-Bit Unsigned)	No	Normal	LB/FE
\$WW0010	*	*	*		*		*	*	*	*	
\$WW0011	-	*	-	04	*		*	*	4 3	*	
\$WW0012	-	*	-	2	-	-	4	4	-	<u></u>	
\$WW0013	+	+	1	1		5	8	Input (Discrete)	Bits	Normal	LB/FE
\$WW0014		*		2#	*		*	*	*	*	
\$WW0015		*	1	1		5	8	Output (Discrete)	Bits	Normal	LB/FE
\$WW0016			-	-		-	*	-	*	w.	
\$WW0017		*	(1)4	1		(2)6	1 (3)	Input (Discrete)	Bits	Normal	LB/FE
\$WW0018		•	*		*	*	*	*	*	*	
\$WW0019		*	*	*	*		*	*	*	*	
\$WW0020		*	+	24	2 0		4	2	*	¥.	
\$WW0021	-	÷.	1	1		6	1	Output (Discrete)	Bits	Normal	LB/FB
\$WW0022		*	*		*		*	*	*	*	
\$WW0023		*	1	1		6	4	Input (Discrete)	Bits	Normal	LB/FE
\$WW0024	-	¥2	+		-		*	*	a .	*	
\$WW0025	-		1	1		6	6	Input (Discrete)	Bita	Normal	LB/F
\$WW0026		*	+	-	*		*	*	*	*	

Figure 6.3 Configuration table of the Communication I/O Builder

- 1 4 registers of input data
- 2 PROFIBUS address
- 3 Configured slot

You can enter variables for analog values directly into the table. Note that the variable must start with \$\$.

SWM0009 • 41 6 Input(16-Bit Unsigned) No Normal 18/FB 8x06 Remote IO,Input_03	#NN0008	• •		•	•		
53550020	5MN0009	• •	416	Input (16-Bit Unsigned)	No	Normal LB/FB 8x06 Remote IO, Input_03	95A101
	5100010			*			

Figure 6.4

Variable for analog value

2014-05





Edit Tag Elements

1. To edit the tag elements that can be used in control drawings, select **Tools** > **%WB Tag Number Definition Call(W)**.

🔁 Communication I/O B	uilder - [Pjt:MYPJT Stn:FCS0102 File:CommDataWW.e					
🔛 File Edit View Tools Window Help						
	Create Default File Delete Default File					
	%WB Tag Number Definition Call(W)					
	Tag/Window Name List					
	Options					

Figure 6.5 Tools > %WB Tag Number Definition Call(W)

 \mapsto A new window opens that enables you to edit the tag elements.

Communication I/O Builder											
File Edit View Tools Window Help											
	1										
Pjt:MVPJT Stn:FCS0102 File:CommDataWW ed	r .										
Buffer	10	Elen	ent Buffe	r Program Nam	e Size	nde	Station	Device&Address	Det	а Туре	
	-	-	014		•	• •		•	•		
		SHWO	015	4 A	1	1	5	8	Output (Discrete)		
BitMVPJT Stn:FCS0102 File/WBTagDef.edf											
Element		No.	Element	Tag Name	Tag	Co	mment	Swi	itch Position Label	Label	Btnl
	•	0001	\$WB000101	ACTIVE_SLAVE5	Aktiv-Bit	31	ave 5	ON,, OFF, ON		Direct	Red
		0002	\$NB001701	ACTIVE SLAVES	Aktiv-Bit					and the second second	A COMPANY OF A
						311	ave e	ON, OFF, ON		Direct	Red
		0003				311	ave 6	ON, , OFF, ON		Direct	Red
		0003		-		311	ave e	ON,, OFF, ON ON,, OFF, ON		Direct Direct	Red Red Red
		0003				31	ave 6	ON, OFF, ON ON, OFF, ON ON, OFF, ON		Direct Direct Direct Direct	Red Red Red Red
		0003 0004 0005 0006		-		314	ave 6	ON, OFF, ON ON, OFF, ON ON, OFF, ON ON, OFF, ON ON, OFF, ON		Direct Direct Direct Direct Direct	Red Red Red Red Red Red

Figure 6.6

Tag editor in **Communication I/O Builder**

2. In addition to the bit and word used, you can define multiple settings that affect the behavior of the value controls. The values you defined in the tag editor can directly be used in the **Control Drawing Builder**.



Figure 6.7

Control Drawing Builder window

7 Download Parameters

After you defined the parameters for the I/O modules and the PROFIBUS master, or after you defined the PROFIBUS communication settings in the **Communication I/O Builder**, download the updated configuration to the PROFIBUS DP communication module in the rack.



Download Parameters to Communication Module

1. Right-click the PROFIBUS DP communication module in the **System View** window and choose **Tools > PROFIBUS DP > Download PROFIBUS communication settings...**

ame	Туре	M	lodified		Comment
1ALP121	ALD121/Destibus	DB Comm ?	014/04/07 10:19		
1ALP	Open	2	014/04/07 10:19		
	Delete				
	Cut	Ctrl+X			
	Сору	Ctrl+C			
	View	•			
	Arrange Icons				
	Tools	۰	Fieldbus	+	
	Domain Properties		PROFIBUS-DP	•	Pre-check before downloading PROFIBUS communication settings
	Properties	T			Save PROFIBUS communication settings
_		,			Download PROFIBUS communication settings

Figure 7.1 Tools > PROFIBUS DP > Download PROFIBUS communication settings...

 \mapsto If the parameters of the communication module itself have been changed, the system displays a notification message.

BKESysViev	N		x
?	Parameter of ALP121 re-initializa perform initialization download?	tion has been changed. Do y	ou want to
		Yes	No

Figure 7.2 Download confirmation window

2. To download the new parameters to the communication module, click Yes.



8 Appendix

8.1 Redundancy Modes

Module Redundancy

The first ALP121 PROFIBUS DP communication module is communicating actively with the remote I/O units, while the second module is on standby, ready to take over the communication if the first module fails. Both modules are connected to one single PROFIBUS line.



In general, field devices are non-redundant because there is only one PROFIBUS line. Nevertheless, you can use redundant com units in the remote I/O unit if the com units are set to **Line Redundancy**. In this case, the first com unit has an active communication to the DCS, while the second com unit is on standby, ready to take over the communication if the first com unit fails. If using fiber optic couplers (FOL), different topologies are possible.

- T terminator
- A active com unit
- P passive com unit
- ↓↑ active communication
- ↓ passive communication

Network Redundancy

If a com unit in the remote I/O unit fails or if a PROFIBUS line is interrupted, the process control system (DCS) switches to the second ALP121 PROFIBUS DP communication module to communicate with the remote I/O units. If using this setting, the com units in the remote I/O units must be set to **Application Redundancy**.

This strategy refers to system redundancy as defined by the PROFIBUS user organization.

If using fiber optic couplers (FOL), different topologies are possible.

- T terminator
- A active com unit
- P passive com unit
- $\downarrow\uparrow$ active communication

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8.2 Cyclic Diagnostic Information

Cyclic diagnostic information is transferred like regular I/O data during cyclic bus communication. The following data is available.

- 2 bytes global status register
- 2 bytes command register
- 6 bytes module status register

Global Status Register

The global status register contains an overall diagnostic of the entire remote I/O unit.

If only one error occurs, the type of error and its position can be provided. If multiple errors occur, only the type of the error with the highest priority and the total number of errors can be provided.

Some process control systems (DCS) use the global status register in combination with the module status register to analyze the situation of the remote I/O unit.

Figure 8.1 Structure of global status register

Example

Command Register

The command register enables you to send a command to the remote I/O unit. For example, you can reset a 32-bit counter (LB/FB1*03), switch from the primary com unit to the redundant com unit, or force a certain com unit to be active or passive.

Parameter	Command	Description
module no.	0x08	reset counter
all modules = 0	0xF7	switch to redundant com unit (requires com unit firmware > 6.20)
	0xF5	make passive
	0xF6	make active

Example!

2014-05

Figure 8.2

Module Status Register

The module status register provides only 1 bit per slot. Thus, it cannot differentiate between an empty slot and a faulty slot or a missing module. Some process control systems (DCS) use the global status register in combination with the module status register to analyze the situation of the remote I/O unit.

Example!

6 byte of diagnostic data containing 1 bit per slot (6 byte = 48 bit)

8.3 Asynchronous Diagnostic Information

Asynchronous diagnostic information is transferred only if requested by the master. Thus, it is not part of the cyclic bus communication. The remote I/O unit supports the following diagnostics.

Standard PROFIBUS Diagnostics

This includes communication diagnostics like ConfigFault, PrmFault, Slave_not_ready, Diagnostic Data Overflow, etc. All messages are standard messages, defined by the PROFIBUS user organization.

Device-Specific Diagnostics

Device-specific diagnostics are specific to the com unit used. The structure and meaning of the diagnostic bits are defined in the GSE file. For more information, see the software manual of the com unit. The com units LB8106* and FB8206* provide 19 bytes of diagnostic information.

- 2 bytes global status register of the active com unit
- 2 bytes of standard PROFIBUS diagnostics of the passive com unit
- 2 bytes global status register of the passive com unit
- 12 bytes of additional module-specific diagnostics, containing 2 bits per slot
 - 00: no error
 - 01: module error
 - 10: wrong module
 - 11: missing module

Module-Specific Diagnostics

Module-specific diagnostics are defined by the PROFIBUS user organization. They provide the slot numbers for which an error occurred. The numbering is based on the numbering of the PROFIBUS configuration string. The numbering has an offset, depending on whether the numbering in the master starts with 0 or with 1.

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Channel-Specific Diagnostics

Channel-specific diagnostics are defined by the PROFIBUS user organization. The messages contain slot number, channel number, type of error and information on the channel type (input/output, byte/word).

Yokogawa CENTUM VP cannot process diagnostic information for digital channels, due to the data structure for digital channels (channel and status information in the same byte). Therefore we recommend that you do not use channel-specific diagnostics for digital input/outputs.

PROCESS AUTOMATION – PROTECTING YOUR PROCESS

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