

General Specifications

Model ALP111
PROFIBUS-DP
Communication Module (for FIO)

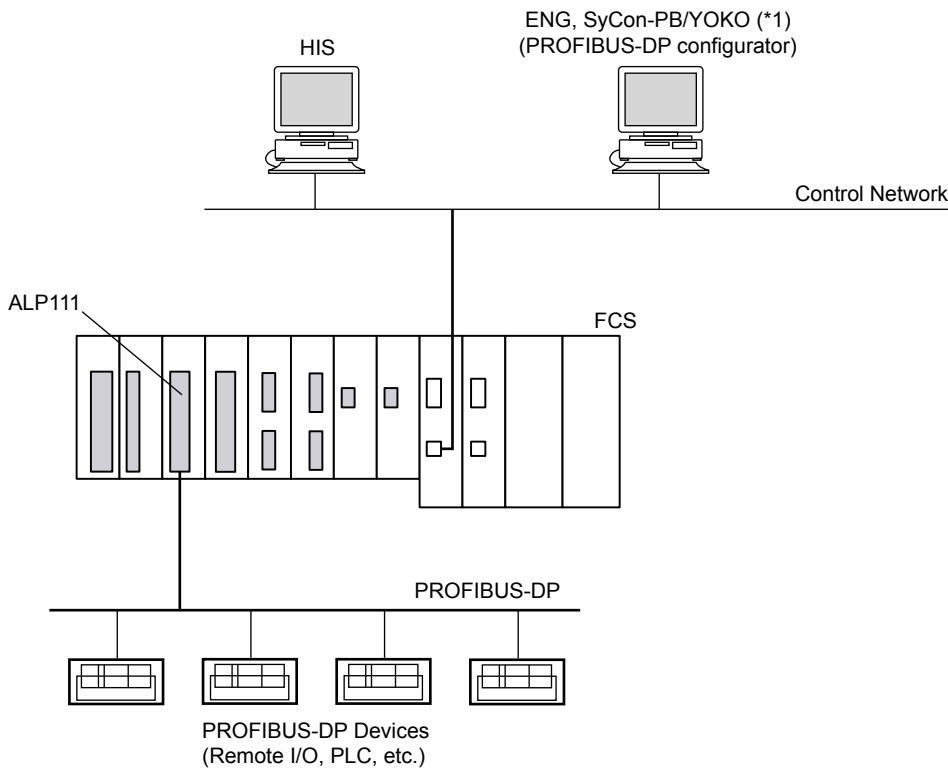


GS 33K50G80-50E

[Release 5]

■ GENERAL

This document describes about Model ALP111 PROFIBUS-DP Communication Module (for FIO) which performs as the PROFIBUS-DP master device to communicate and exchange data with PROFIBUS-DP slave devices. This PROFIBUS-DP communication module can be mounted on field control units (AFV30□, AFV40□, AFV10□, and AFF50□), ESB bus node unit (ANB10□), optical ESB bus node unit (ANB11□), and ER bus node unit (ANR10□). ALP111 module has been certified by PROFIBUS Nutzerorganisation e.V. as complying with the PROFIBUS DP-V0.



*1: SyCon-PB/YOKO is a dedicated engineering configuration tool provided by Hilscher GmbH.

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Figure System Configuration

■ HARDWARE SPECIFICATIONS

Hardware specifications for ALP111 PROFIBUS-DP communication module are as shown below.

Table PROFIBUS-DP Communication Module Hardware Specifications

Item	Specifications
Model	ALP111
Interface	PROFIBUS-DP
Connection method	EIA-RS-485-compliant
Signal isolation	Isolated
Transmission speed	9600 bps to 12 Mbps
Transmission route	Shielded
Maximum transmission distance	1.2 km per segment (at the communication speed of 9600 bps).
No. of communication port	One port (*1)
Communication port	D-sub 9 pin (female) (*2)
Maintenance port	D-sub 9 pin (male), Interface: RS-232C
Maximum current consumption	0.7 A
Weight	0.3 kg

Note: The cables and terminators must comply with PROFIBUS-DP standards (PROFIBUS Specifications IEC 61158-2/EN 50170 volume 2).

*1: There is another port for maintenance.

*2: PROFIBUS-DP connector must comply with the PROFIBUS-Specification-Normative-parts-2.

■ OPERATING ENVIRONMENT

Hardware Requirements

The PROFIBUS-DP communication module runs on the following FCS.

AFV30S, AFV30D, AFV40S, AFV40D, AFV10S, AFV10D,
 AFG30S, AFG30D, AFG40S, AFG40D,
 AFG81S, AFG81D, AFG82S, AFG82, AFG83S, AFG83D, AFG84S, AFG84D,
 AFF50S, AFF50D

Software Requirements

The PROFIBUS-DP communication module runs on the control functions of the following FCS.

LFS1700 Control Function for Field Control Station (for AFV30□/AFV40□, Vnet/IP and FIO):
 for AFV30□/AFV40□
 LFS1500 Control Function for Field Control Station (for AFV10□, Vnet/IP and FIO): for AFV10□
 LSF1330 Control Function for Enhanced Field Control Station (for V net and FIO):
 for AFG30□/AFG40□/AFG8□□
 LFS1350 Control Function for Compact Field Control Station (for V net and FIO): for AFF50□

Engineering Requirements

Works on LHS5100/LHMS5100 Standard Builder Function.

PROFIBUS-DP System Configurator

Combinations of SyCon–PB/YOKO version and the Windows OS are as shown below.

Windows XP (32 bits):	V2.881 or later
Windows Vista (32 bits):	V2.953 or later
Windows 7 (64 bits):	V2.959 or later

■ INSTALLATION ENVIRONMENT

LFS1700 Control Function for Field Control Station (for AFV30□/AFV40□)

No. of ALR111/ALR121/ALE111/ALP111/AGS813/AGP813 modules	Max. 8 units/FCS (Max. 4 pairs for dual-redundant operation)
No. of ALF111 modules	Max. 30 units/FCS (Max. 15 pairs for dual-redundant operation)
No. of all the communication modules	Max. 30 modules/FCS (*1)
I/O data capacity for communication	1000 words/ALP111
No. of communication definition	200 definitions/ALP111
No. of communication functions	Max. 8 types/FCS (*2)
Communication I/O data capacity	Max. 8000 words/FCS (incl. data from other communication function)

*1: This is the sum of ALR111, ALR121, ALE111, ALF111, ALP111, AGS813, and AGP813 modules.

*2: This is the sum of communication functions of ALR111, ALR121, ALE111 and ALP111.

LFS1700 Control Function for Field Control Station (for AFV30□/AFV40□) + LFS1750 Node Expansion Package (for 10 nodes)

No. of ALR111/ALR121/ALE111/ALP111/AGS813/AGP813 modules	Max. 16 units/FCS (Max. 8 pairs for dual-redundant operation)
No. of ALF111 modules	Max. 32 units/FCS (Max. 16 pairs for dual-redundant operation)
No. of all the communication modules	Max. 48 modules/FCS (*1)
I/O data capacity for communication	1000 words/ALP111
No. of communication definition	200 definitions/ALP111
No. of communication functions	Max. 8 types/FCS (*2)
Communication I/O data capacity	Max. 8000 words/FCS (incl. data from other communication function)

*1: This is the sum of ALR111, ALR121, ALE111, ALF111, ALP111, AGS813, and AGP813 modules.

*2: This is the sum of communication functions of ALR111, ALR121, ALE111, and ALP111.

LFS1700 Control Function for Field Control Station (for AFV30□/AFV40□) + LFS1750 Node Expansion Package (for 14 nodes)

No. of ALR111/ALR121/ALE111/ALP111/AGS813/AGP813 modules	Max. 32 units/FCS (Max. 16 pairs for dual-redundant operation)
No. of ALF111 modules	Max. 64 units/FCS (Max. 32 pairs for dual-redundant operation)
No. of all the communication modules	Max. 64 modules/FCS (*1)
I/O data capacity for communication	1000 words/ALP111
No. of communication definition	200 definitions/ALP111
No. of communication functions	Max. 8 types/FCS (*2)
Communication I/O data capacity	Max. 8000 words/FCS (incl. data from other communication function)

*1: This is the sum of ALR111, ALR121, ALE111, ALF111, ALP111, AGS813, and AGP813 modules.

*2: This is the sum of communication functions of ALR111, ALR121, ALE111, and ALP111.

LFS1500 Control Function for Field Control Station (for AFV10□)

No. of ALR111/ALR121/ALE111/ALP111/AGS813/AGP813 modules	Max. 8 units/FCS (Max. 4 pairs for dual-redundant operation)
No. of ALF111 modules	Max. 30 units/FCS (Max. 15 pairs for dual-redundant operation)
No. of all the communication modules	Max. 30 modules/FCS (*1)
I/O data capacity for communication	1000 words/ALP111
No. of communication definition	200 definitions/ALP111
No. of communication functions	Max. 4 types/FCS (*2)
Communication I/O data capacity	Max. 4000 words/FCS (incl. data from other communication function)

*1: This is the sum of ALR111, ALR121, ALE111, ALF111, ALP111, AGS813, and AGP813 modules.

*2: This is the sum of communication functions of ALR111, ALR121, ALE111, and ALP111.

LFS1500 Control Function for Field Control Station (for AFV10□) + LFS1550 Node Expansion Package (for AFV10□)

No. of ALR111/ALR121/ALE111/ALP111/AGS813/AGP813 modules	Max. 16 units/FCS (Max. 8 pairs for dual-redundant operation)
No. of ALF111 modules	Max. 32 units/FCS (Max. 16 pairs for dual-redundant operation)
No. of all the communication modules	Max. 48 modules/FCS (*1)
I/O data capacity for communication	1000 words/ALP111
No. of communication definition	200 definitions/ALP111
No. of communication functions	Max. 4 types/FCS (*2)
Communication I/O data capacity	Max. 4000 words/FCS (incl. data from other communication function)

*1: This is the sum of ALR111, ALR121, ALE111, ALF111, ALP111, AGS813, and AGP813 modules.

*2: This is the sum of communication functions of ALR111, ALR121, ALE111, and ALP111.

LFS1330 Control Function for Enhanced Field Control Station (for AFG30□/AFG40□/AFG8□□)

No. of ALR111/ALR121/ALE111/ALP111/AGS813/AGP813 modules	Max. 16 units/FCS (Max. 8 pairs for dual-redundant operation)
I/O data capacity for communication	1000 words/ALP111
No. of communication definition	200 definitions/ALP111
No. of communication functions	Max. 4 types/FCS (*1)
Communication I/O data capacity	Max. 4000 words/FCS (incl. data from other communication function)

*1: This is the sum of communication functions of ALR111, ALR121, ALE111, and ALP111.

LFS1350 Control Function for Compact Field Control Station (for AFF50□)

No. of ALR111/ALR121/ALE111/ALP111/AGS813/AGP813 modules	Max. 8 units/FCS (Max. 4 pairs for dual-redundant operation)
I/O data capacity for communication	1000 words/ALP111
No. of communication definition	200 definitions/ALP111
No. of communication functions	Max. 4 types/FCS (*1)
Communication I/O data capacity	Max. 4000 words/FCS (incl. data from other communication function)

*1: This is the sum of communication functions of ALR111, ALR121, ALE111, and ALP111.

● Installations to the ER Bus Node Unit (*1) (*2)

No. of ALR111/ALR121/ALE111/ALF111/ALP111 modules: Max. 8 units

*1: Mounting on the ER bus node unit is applicable when the FCS's main memory is 32 Mbyte or more and EB401 firmware revision is R3 or later.

*2: Field control units (AFV30□ and AFV40□) do not support ER bus node unit (ANR10□).

● Note

ALP111 and ALP121 cannot be mounted on the same FCS together. An FCS with ALP111 and another FCS with ALP121 can co-exist in a same project.

■ PROFIBUS Communication Specifications

Communication with PROFIBUS Devices

The PROFIBUS-DP device data is stored in the communication modules' I/O image area. FCS accesses the communication module asynchronously from them, and refers to or sets the I/O images. This enables FCS to use the PROFIBUS-DP device data through the I/O terminals of the function block in the same way as the general analog and digital I/O signals.

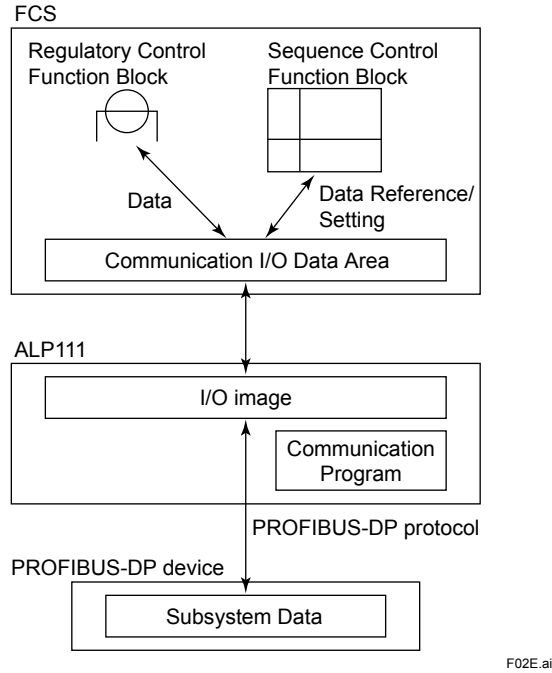


Figure Flow of Subsystem Data

Redundancy of Communication

It is possible to make the communication dual-redundant by installing ALP111 modules in adjacent slots of the same node unit. While the master device (ALP111) is configured dual-redundant, the bus/slave devices (*1) remain in single configuration.

*1: Maximum number of slave devices is 31 units per ALP111 without repeaters, and 125 units per ALP111 with repeaters. The number of repeaters must be three or less, and maximum four segments in a network.

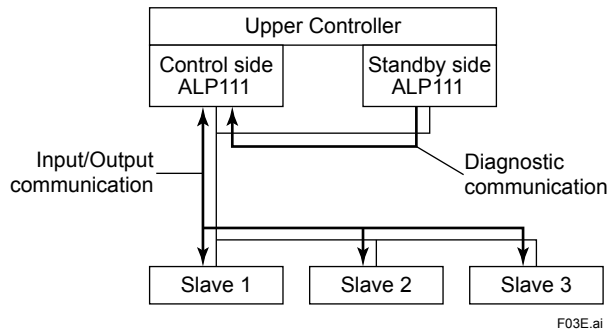


Figure Redundancy of Master Devices

● **Engineering**

For PROFIBUS-DP devices engineering, SyCon-PB/YOKO, the PROFIBUS-DP configurator, is provided by Hilscher GmbH. Configuration definitions are loaded into CENTUM VP, from which they are then downloaded to each device via control network (Vnet/IP or V net), FCS, and ALP111 modules. ALP111 modules are also defined in SyCon-PB/YOKO as PROFIBUS masters.

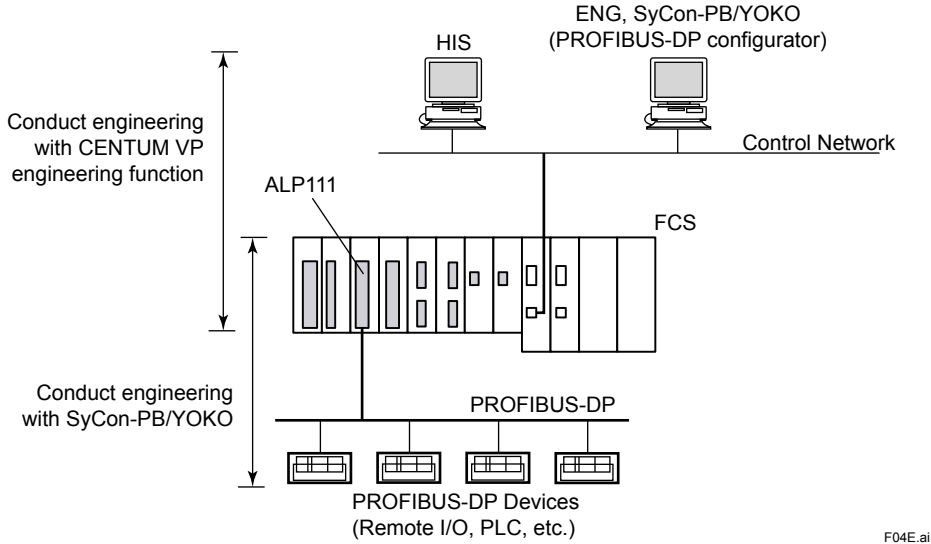


Figure Scope of Engineering

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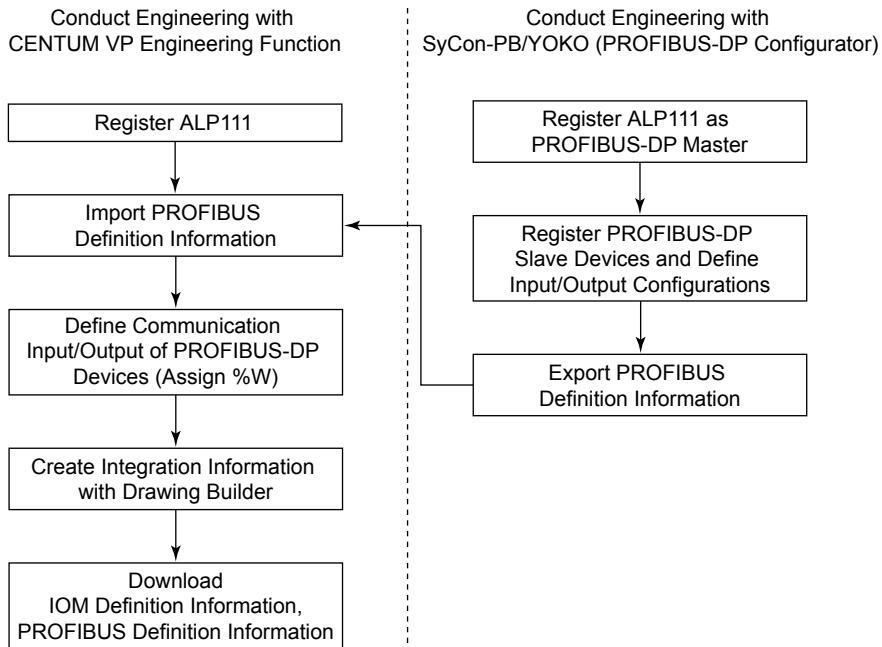
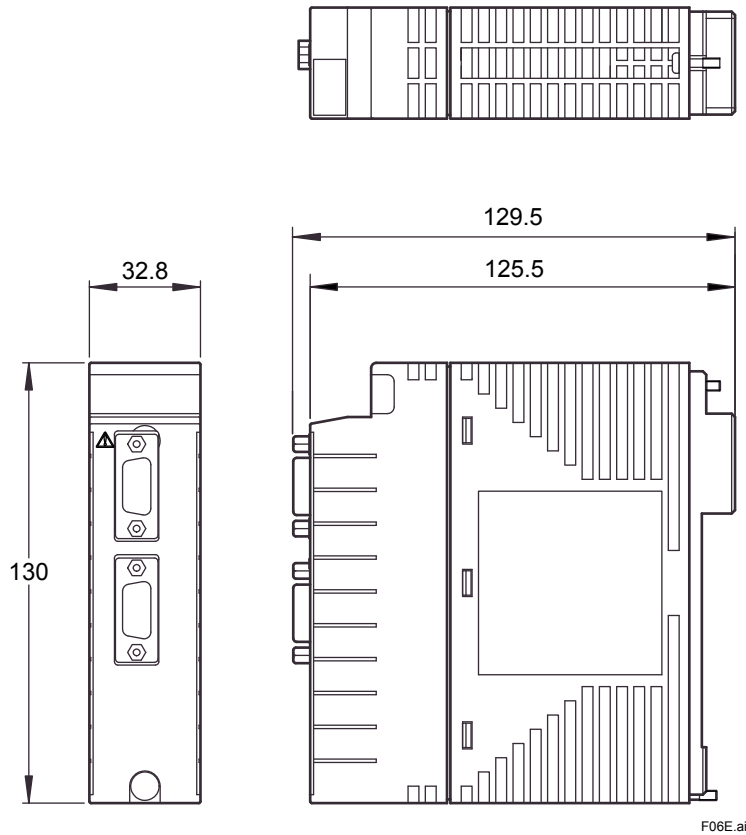


Figure Flow of Engineering

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EXTERNAL DIMENSIONS

Unit: mm



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MODEL AND SUFFIX CODES

		Description
Model	ALP111	PROFIBUS-DP Communication Module
Suffix Codes	-S	Standard type
	0	Always 0
	0	Basic type
	1	With ISA Standard G3 option

ORDERING INFORMATION

Specify model and suffix codes.

TRADEMARKS

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