Chapter 1 Overview

1.1 How to use the User's Manual

This User's Manual provides the information such as product specification, performance and operation method needed to use PLC System composed of Smart I/O module.

The User's Manual is composed of as follows.

CHAP.1 Overview
> Here describes the configuration of the user's manual, product characteristics and terminology.

CHAP.2 Product Specification
> Here describes common specification of each product used for Smart I/O series.

CHAP.3 System Configuration
> Here describes the kinds of product available for Smart I/O series and system configuration method.

CHAP.4 Communication Programming
> Here describes common communication program operation method to act Smart I/O module.

CHAP.5 Profibus-DP Communication
> Here describes basic communication method of Profibus-DP(Pnet) communication module.

CHAP.6 DeviceNet Communication
> Here describes basic communication method of DeviceNet(Dnet) communication module.

CHAP.7 Rnet Communication
> Here describes basic communication method of FIELDBUS(RNET) communication module.

CHAP.8 Modbus Communication
> Here describes basic communication method of Modbus(Snet) communication module.

CHAP.9 Installation and Wiring
> Here describes installation and wiring method, and notices to make sure of the reliability of PLC system.

CHAP.10 Maintenance and Repair
> Here describes check list and method to run PLC system normally for a long term.

CHAP.11 Trouble Shooting
> Here describes various errors to be occurred while using the system and the action to solve the problem.

Appendix
> Here describes the product terminology and external dimension for system installation.

1.2 Characteristics of Smart I/O

1) The characteristics of Smart I/O series is as follows.

(1) Product design based on International Electrotechnical Commission (IEC 61131) (GLOFA series in common)

• Easy support to programming device

• Standard language (IEC 61131-3) provided (IL / LD / SFC)

(2) Open network by selecting international standard communication protocol.

(3) Available to communicate with remote master module independently without power module/CPU module.

(4) Available to set maximum 32 ~ 64 stations.

- Maximum 64 stations (Rnet,Dnet)

- Maximum 32 stations (Pnet,Snet)

(5) Enables to save the cost for installation and maintenance.

(6) Various system configuration and simple maintenance and repair.

(7) Easy to change the system.

(8) Compatible with other maker's product.

- Available to connect Smart I/O to other maker's master.

(9) Easy to set the system as the station address setting by hardware is available.

(10) Simple communication programming.

- Using the GMWIN/KGLWIN   high speed link parameter

- But for Modbus, using function block

(11) Supports various I/O.

- DC input 16/32 points, TR output 16/32 points, Relay output 16 points

(12) Supports various OPEN type communication method.

- Profibus-DP, DeviceNet, Rnet, Modbus

(13) Easy to configure and use as integrating PLC.

- Packaged by one unit including CPU, I/O and communication function.

(14) Provides the online network status detection function.

- Available to know the remote module status through high speed link monitor.

(15) Supports high speed communication.

(16) Flexible communication relation is available as the speed shall be set automatically according to the speed of master.

- Profibus-DP, DeviceNet etc.

1.3 Product Configuration of Smart I/O

1.3.1 Type Name Indication

Classification		Model name	Type name indication
DC Input	16 point	GPL-D22A	
		GDL-D22A	
		GRL-D22A	
		GSL-D22A	
	32 point	GPL-D24A	
		GDL-D24A	
		GRL-D24A	
		GSL-D24A	
TR output	16 point	GPL-TR2A	
		GDL-TR2A	
		GRL-TR2A	
		GSL-TR2A	
	32 point	GPL-TR4A	
		GDL-TR4A	
		GRL-TR4A	
		GSL-TR4A	
RY Output	16 point	GPL-RY2A	
		GDL-RY2A	
		GRL-RY2A	
		GSL-RY2A	
DC/TR combined	32 point	GPL-DT4A	
		GDL-DT4A	
		GRL-DT4A	
		GSL-DT4A	

Type name indication detail:

G — L : Communication — (Char. class)

Communication type
P : Profibus-DP
D : DeviceNet
R : Rnet
S : Modbus

I/O Type
D2 : DC24V input
RY : Relay output
TR : TR output
DT : DC input/ TR output

I/O points
2 : 16 points
4 : 32 points

Char. class

1.3.2 Characteristics per Module

Classifi cation	Product Name	Type name	Specification
Smart I/O	Profibus-DP	GPL-TR2A	• Input voltage(power section) : DC24V(rating) • I/O point : Transistor output 16 points
		GPL-TR4A	• Input voltage(power section) : DC24V(rating) • I/O point : Transistor output 32 points
		GPL-DT4A	• Input voltage(power section) : DC24V(rating) • I/O point(combined) : DC input 16 points/ TR output 16 points
		GPL-RY2A	• Input voltage(power section) : DC24V(rating) • I/O point : Relay output 16 points
		GPL-D22A	• Input voltage(power section) : DC24V(rating) • I/O point : DC input 16 points
		GPL-D24A	• Input voltage(power section) : DC24V(rating) • I/O point : DC input 32 points
	DeviceNet	GDL-TR2A	• Input voltage(power section) : DC24V(rating) • I/O point : Transistor output 16 points
		GDL-TR4A	• Input voltage(power section) : DC24V(rating) • I/O point : Transistor output 32 points
		GDL-DT4A	• Input voltage(power section) : DC24V(rating) • I/O point(combined) : DC input 16 points/ TR output 16 points
		GDL-RY2A	• Input voltage(power section) : DC24V(rating) • I/O point : Relay output 16 points
		GDL-D22A	• Input voltage(power section) : DC24V(rating) • I/O point: DC input 16 points
		GDL-D24A	• Input voltage(power section) : DC24V(rating) • I/O point: DC input 32 points
	Modbus	GSL-TR2A	• Input voltage(power section) : DC24V(rating) • I/O point : Transistor output 16 points
		GSL-TR4A	• Input voltage(power section) : DC24V(rating) • I/O point : Transistor output 32 points
		GSL-DT4A	• Input voltage(power section) : DC24V(rating) • I/O point(combined) : DC input 16 points/ TR output 16 points
		GSL-RY2A	• Input voltage(power section) : DC24V(rating) • I/O point : Relay output 16 points
		GSL-D22A	• Input voltage(power section) : DC24V(rating) • I/O point : DC input 16 points
		GSL-D24A	• Input voltage(power section) : DC24V(rating) • I/O point : DC input 32 points

Classifi cation	Product name	Type name	Specification
Smart I/O	Rnet	GRL-TR2A	• Input voltage(power section) : DC24V(rating) • I/O point : Transistor output 16 points
		GRL-TR4A	• Input voltage(power section) : DC24V(rating) • I/O point : Transistor output 32 points
		GRL-DT4A	• Input voltage(power section) : DC24V(rating) • I/O point(combined) : DC input 16 points / TR output 16 points
		GRL-RY2A	• Input voltage(power section) : DC24V(rating) • I/O point : Relay output 16 points
		GRL-D22A	• Input voltage(power section) : DC24V(rating) • I/O point : DC input 16 points
		GRL-D24A	• Input voltage(power section) : DC24V(rating) • I/O point: DC input 32 points

1.3.3 Version Compatibility Table per Smart I/O Module

The followings describe the list that enables the compatibility of O/S version between various CPU and master module to use Smart I/O series.
Before using the product, please refer to the list below and apply it to system configuration.

Classification	Model type	Available O/S
CPU	GM3	More than Version 2.5
	GM4	More than Version 2.6
	GM6	More than Version 1.9
	GM7	More than Version 1.6
	K1000S	More than Version 3.1
	K300S	More than Version 3.1
	K200S	More than Version 2.2
	K80S	More than Version 1.6
PADT	GMWIN	More than Version 3.6
	KGLWIN	More than Version 3.3
Smart I/O Master	Profibus-DP	More than Version 1.0
	DeviceNet	More than Version 1.2
	Rnet	More than Version 1.0
	Modbus	More than Version 2.0