



# **IDEC** SmartRelay



## Smart Control - IDEC SmartRelay

Look around you. IDEC SmartRelays are everywhere! You can find them in lighting controls, ice-making machines, grocery store mist systems and more. And there's a good reason: IDEC SmartRelays meet all safety requirements, while at the same time saving you time and money.

Now our new fourth-generation SmartRelays include new advanced features that offer even more versatility and functions! With new features including: an analog output module, 3 new function block types, upgraded software and

available expansion modules, you can get everything you need from one compact module.

When you need a product you can rely on, is easy to use, and meets safety standards, look no further than IDEC. Our SmartRelays meet all industry standard approvals including cULus, CE, C-tick and ABS (American Bureau of Shipping). Plus they are FM approved for Class 1 Div 2 hazardous locations. The bottom line is IDEC SmartRelays provide the right solution for all your control needs!

### Industrial Facility Systems

- Conveyor systems
- Elevator controls
- Liquid level controls
- Motor, pump and valve controls
- Water treatment and irrigation systems



### Unique Solutions

- Solar-electric systems
- Traffic light controls
- Ventilation systems on ships
- Extreme environmental conditions



### Housing and Building Management

- Lighting controls
- HVAC
- Gate and door controls
- Shutter and sun blind controls
- Water and sprinkler systems



### Monitoring Systems

- Access controls
- Alarm systems
- Parking lot control monitoring



# The possibilities are endless

[www.idec.com/smartrelay](http://www.idec.com/smartrelay)

1



Select "Program" from the main menu.

2



Create your control logic.

3

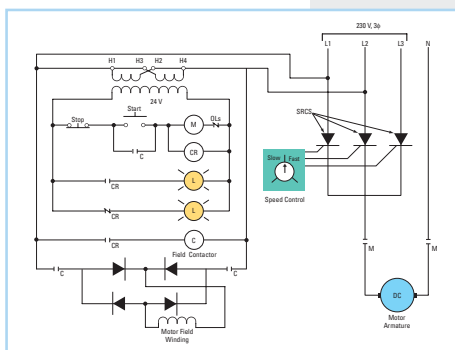


Select "Start," and you're done.

## Why spend all that time wiring when it's as simple as 1, 2, 3?

Your time is valuable and with that in mind, IDEC has created a product that will require very little of it. Using a system smaller than a PLC, with minimal wiring, mounting as simple as a quick snap on to a DIN rail, and programming as easy as one touch of a button, the user-friendly SmartRelay is the perfect solution.

Why wait? Replace your complicated system of relays, timers and counters with just one IDEC SmartRelay! It's safe to say we all want to reduce workloads while saving money, and with IDEC SmartRelays it's easy. These all-in-one controllers require less space in your control cabinet. And as you know, space in your panel is money in your pocket. Combine that with low maintenance and you've got a cost-effective product you can count on for all your control operations!



Your logic circuit can be accomplished ...

by just installing this unit.

### Digital/Analog Inputs

Each SmartRelay is equipped with 8 digital inputs for you to utilize in your applications. On selected models such as FL1D-H12RCE, FL1D-B12RCE and FL1D-H12SND, inputs 5 and 6 can be used as fast inputs up to 2 kHz and inputs 7 and 8 can be configured as 0-10V analog inputs. A maximum of 24 digital inputs can be utilized with this system using digital expansion modules.

### Universal Voltages

SmartRelays are available in 12/24VDC, 24VAC/DC, and 100-240VAC/DC voltages.

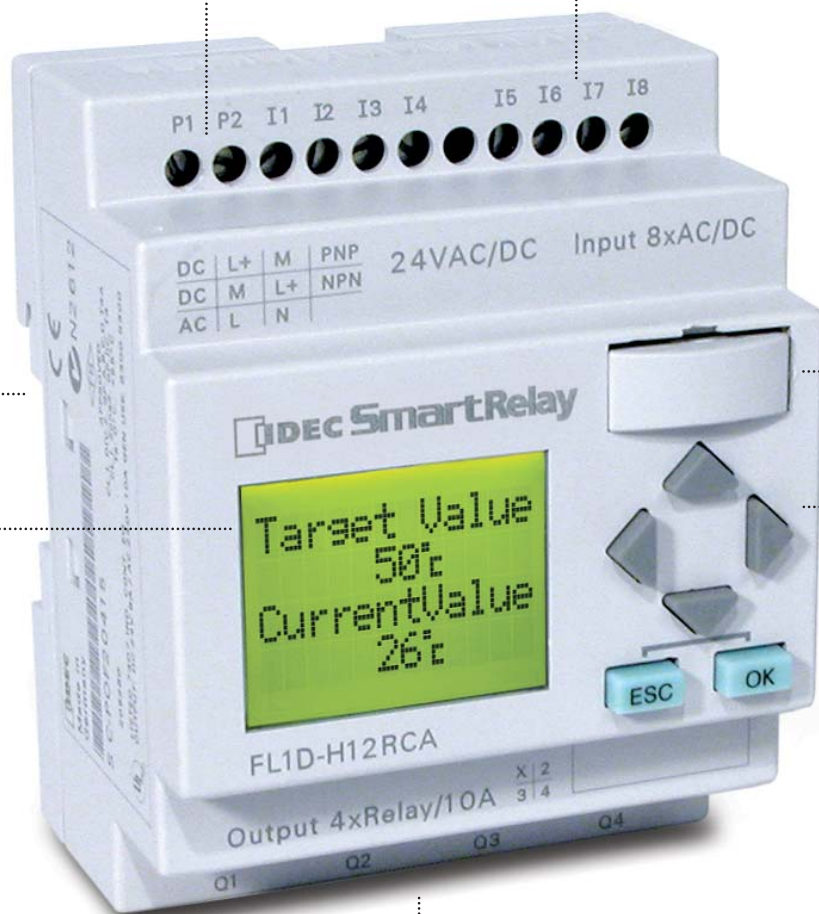
### DIN Rail or Surface Mountable

### Backlit LCD Display

System status — input, output, analog values, timers and counters — can be monitored through an embedded 4x12 LCD on your SmartRelay. This allows you to display a predefined message with up to 48 characters chosen from 103 special character types. **New** You can now adjust the contrast on your display screen to your preference. Non-LCD versions are also available.

### Digital Outputs

IDEC SmartRelays are equipped with 4 relay outputs rated at 10A/pt. A maximum of 16 outputs can be configured with this system using digital expansion modules.





# Control at the push of a button

[www.idec.com/smartrelay](http://www.idec.com/smartrelay)

## EEPROM memory

Never worry about your program being lost again! With IDEC SmartRelays, your program is stored in a non-volatile EEPROM.

## Password Protection

Concerned about your program being copied or altered? IDEC SmartRelays keep you safe with a unique password protection scheme allowing end users to access certain parameters without seeing or modifying the actual program.

## Large Program Capacity

Running out of program space is a thing of the past. IDEC SmartRelays can handle up to 130 function blocks (2000 bytes).

## Integrated Functions

8 predefined basic function blocks and 28 special function blocks ensure that almost all your conventional switching devices — timers and counters — can be replaced. Three **New** functions include a PI controller (e.g. for temperature control), a two-stage ramp function (e.g. for the control of frequency converters) and an analog multiplexer (e.g. for light control). See page 9.

## Quality

IDEC means quality and dependability you can trust and our SmartRelays are no exception. Each model is cULus listed, CE certified, EMC compliant, FM approved for Class 1 Div 2 hazardous locations, C-tick compliant, Lloyds Registered, and ABS approved.



## Expansion Modules

Just snap-on and go! No cable required. Each digital expansion module has 4 inputs and 4 outputs available in 12/24VDC, 24VAC/DC and 100-240VAC/DC. Up to 4 expansion modules can be mounted on an IDEC SmartRelay base module. Plus SmartRelay also has the capability to communicate within a LONWORKS<sup>®</sup> network and AS-interface system with its LONWORKS and AS-interface modules.

## Analog Inputs & Outputs

Using the 2-pt analog input and 2-pt analog output expansion modules allows you to easily control and process your analog signal. IDEC SmartRelays can control and process 0-10V and 4-20mA signals with a 10-bit resolution. Up to 4 analog input and 1 analog output modules can be attached to the base module.



## Multifunction Interface

If you prefer not to program your SmartRelay using the LCD and keypad, simply connect the interface cable to your PC and program with our WindLGC software instead. Or you can plug-in the special memory cartridge (FL1C-PM3) and have your SmartRelay operate the circuit program through the cartridge itself.

## Operational Control Buttons

IDEC SmartRelays can be programmed with just the push of a button! Control buttons can be used to program, modify and change preset parameters. The four cursor keys can also be configured as inputs if needed.



## WindLGC 5.0 Software

WindLGC is the exclusive programming software for the IDEC SmartRelay using Windows®.

### Simplicity

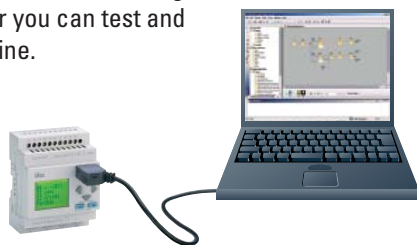
Create, simulate, test and save your program in just a matter of seconds using drag and drop functions.

### Control

Choose either function block or ladder programming, but keep in mind that you can always convert from one to the other with just the click of an icon. Offline program simulation (without the need for an actual unit) enables testing of the entire program from a PC, or you can test and monitor your IDEC SmartRelay online.

### Documentation

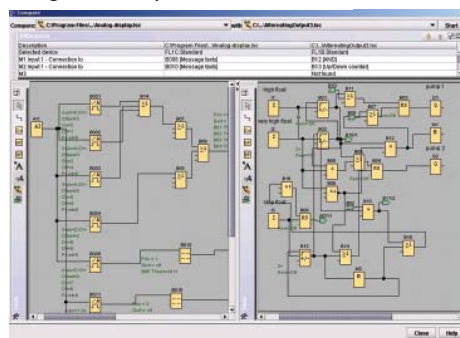
You can create and save your WindLGC program as a .pdf or .jpg file. Professional documentation is included with all necessary configuration information such as comments and program settings.



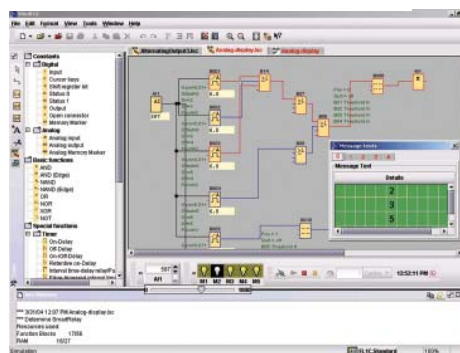
### On the Web

Visit IDEC at [www.idec.com/smartrelay](http://www.idec.com/smartrelay) for additional information on software upgrades, demo software, FAQs, manuals or brochures.

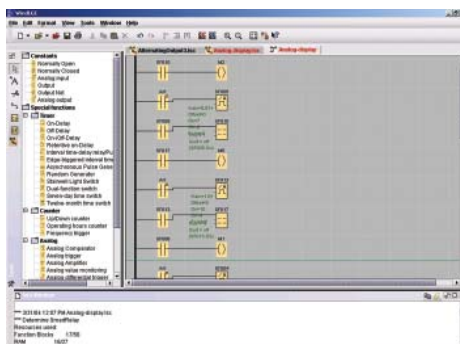
## Program Comparison



## Simulation Mode/Online Monitor



## Ladder Programming



## Special Function Blocks


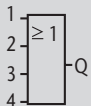
ON Delay	OFF Delay	ON/OFF Delay	Retentive ON Delay	Interval Time-Delay Relay/Pulse Output	Current Impulse Relay	Edge-Triggered Interval Time-Delay Relay

# Create, test and save your program in seconds


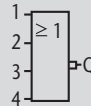
[www.idec.com/smarterelay](http://www.idec.com/smarterelay)

## Basic Function Blocks

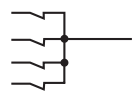
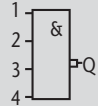
**OR**  
Parallel connection of normally open contacts

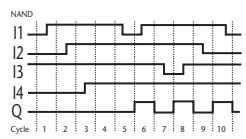
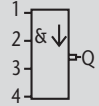
**NOR**  
Series connection of normally closed contacts


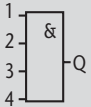
**NAND**  
Parallel connection of normally closed contacts

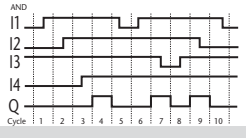
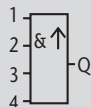
**NAND (Edge)**  
Edge detection with edge evaluation (neg. edge)

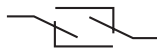

**AND**  
Series connection of normally open contacts



**AND (Edge)**  
Edge detection with edge evaluation (pos. edge)

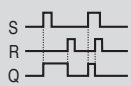
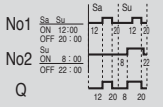
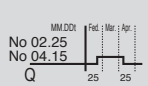
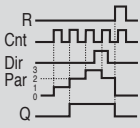
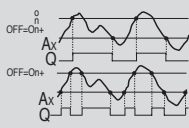
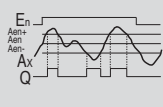
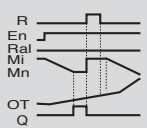
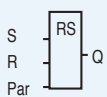
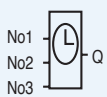





**XOR**  
Double changeover contact

**NOT**  
Connection of closed contact

## Loaded with functions!

Latching Relay	Seven-Day Time Switch	Twelve-Month Time Switch	Up/Down Counter	Analog Differential Trigger	Analog Value Monitoring	Operating Hours Counter
						
						



### FL1D Base Modules – With LCD

Part Number	Rated Voltage	Input Signal	Input Type	Output Type	With Clock
FL1D-H12RCE	12/24V DC	DC I7 and I8 are used for digital/analog	PNP	Relay Output	Yes
FL1D-H12SND	24V DC			Transistor Source Output	—
FL1D-H12RCA	24V AC/DC	AC/DC	PNP/NPN	Relay Output	Yes
FL1D-H12RCC	100-240V AC/DC		PNP		



### FL1D Base Modules – Without LCD

Part Number	Rated Voltage	Input Signal	Input Type	Output Type	With Clock
FL1D-B12RCE	12/24V DC	DC I7 and I8 are used for digital/analog	PNP	Relay Output	Yes
FL1D-B12RCA	24V AC/DC			Relay Output	Yes
FL1D-B12RCC	100-240V AC/DC	AC/DC	PNP	Relay Output	Yes

### Special Function Blocks (Cont.)

Asynchronous Pulse Generator	Random Generator	Frequency Trigger	Analog Trigger	Analog Comparator	Stairwell Light Switch	Dual-Function Switch



# Modules that expand the possibilities

www.idec.com/smartrelay



## I/O Expansion Modules

Part Number	Module	Input Power	Input Type	Output Type	Total I/O
FL1B-M08B2R2	Combination I/O Module	12/24V DC	DC input	Relay output	8 (4 in/4 Out)
FL1B-M08B1S2		24V DC	DC input	Transistor Output	8 (4 in/4 Out)
FL1B-M08C2R2		100-240V AC/DC	AC/DC input	Relay Output	8 (4 in/4 Out)
FL1B-M08D2R2		24V AC/DC	AC/DC input	Relay Output	8 (4 in/4 Out)
FL1B-J2B2	Analog Input Module	12/24V DC	0-10V, 4-20mA	—	2 (2 in/0 Out)
FL1D-K2B2	Analog Output Module	24V DC	—	0-10V	2 (0 in/2 Out)

New



## LONWORKS® Communication Module

- LONWORKS® Communication module contains standard network variable type (SNVT) to achieve open network communication for building automation
- Maximum virtual inputs/analog inputs/outputs: 16/8/12 points
- An external interface file (XIF extension) unique to each LONWORKS® module is needed to communicate through the LONWORKS® network and can be downloaded at [www.idec.com/smartrelay](http://www.idec.com/smartrelay)
- See page 11 for more details



Part Number	Module	Input Power	Total I/O
FL1B-CL1C12	LONWORKS® Communication Module	24V AC/DC	Input: 16 points Analog Input: 8 points Output: 12 points

\*LONWORKS® is a registered trademark of Echelon



## AS-Interface Communication Module

- The AS-Interface communication module provides optimum solutions for decentralized controls and savings in installation space and wiring
- Virtual I/O points: 4 inputs, 4 outputs
- See page 11 for more details



Part Number	Module	Input Power	Total I/O
FL1B-CAS2	AS-Interface Communication Module	30V DC	Input: 4 points Output: 4 points

Message Text

Softkey

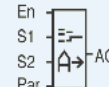
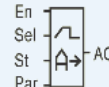
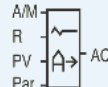
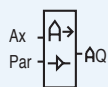
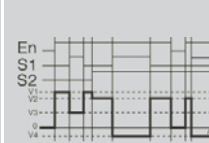
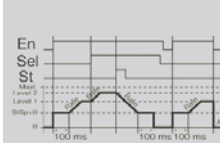
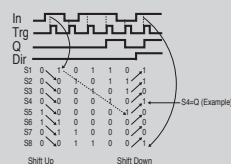
Analog Amplifier

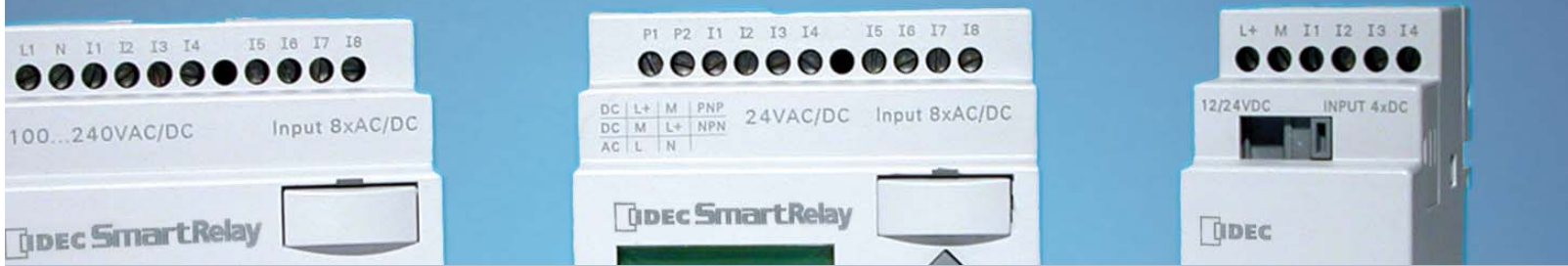
Shift Register

PI Controller

Analog Ramp Control

Analog Multiplexer





## Starter Kit



- IDEC SmartRelay Starter Kit is an economical and ideal solution for first time IDEC SmartRelay users
- Package includes a base module, WindLGC programming software, programming cable, simulator switch (DC models only) and a user's manual

Part Number	Description
SMARTSTART-BAC-D	FL1D-B12RCC, WindLGC software and programming cable
SMARTSTART-BDC-D	FL1D-B12RCE, WindLGC software, programming cable, and simulator switch
SMARTSTART-HAC-D	FL1D-H12RCC, WindLGC software and programming cable
SMARTSTART-HDC-D	FL1D-H12RCE, WindLGC software, programming cable, and simulator switch

## Accessories



User's Manual  
FL9Y-B966-0



WindLGC 5.0 Software  
FL9Y-LP1CDW

Part Number	Description
FL1C-PM3	Memory cartridge, with user defined protection feature
FL9Y-LP1CDW	Programming Software: WindLGC Ver. 5CD w/Online Manual
FL1A-PC1	Programming Cable
BNDN1000	35mm Aluminum DIN Rail, 1m/3.28ft
BNL6	End Clips, Prevents modules from sliding off DIN Rail
MT-101	Memory Cartridge Removal Tool
FL1B-PSP1	Mounts Module Directly to Panel
FL1B-Y1371-SW8	8pt Input Simulator Switch, Used with 12, 24V DC Base Module Only
FL9Y-B966-0	FL1D User's Manual, Available for download at: <a href="http://www.idec.com/smartrelay">www.idec.com/smartrelay</a>
FC4A-USB	USB to RS232 Converter, For use with "USB Only" PC's



Memory Cartridge  
FL1C-PM3

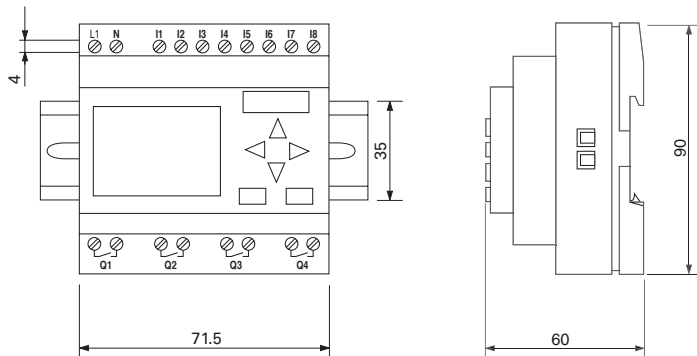


Simulator Switch  
FL1B-Y1371-SW8

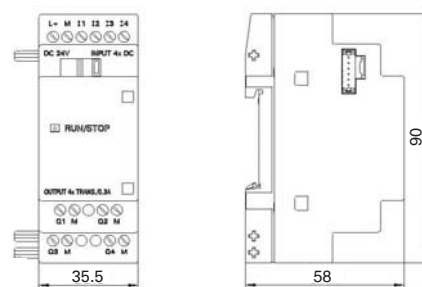


Programming Cable  
FL1A-PC1

## Base Module Dimensions



## I/O Expansion Module Dimensions

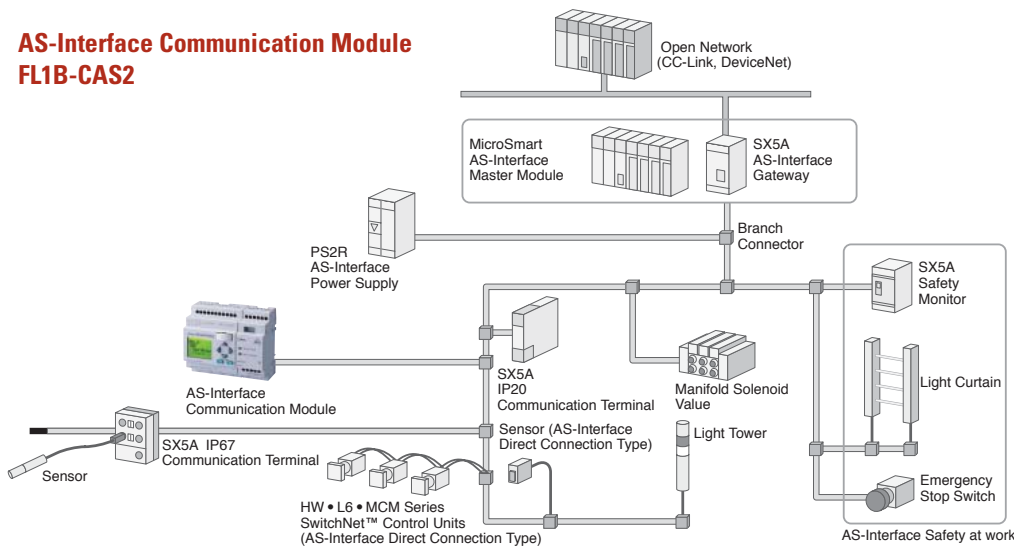


All dimensions in mm.

Detailed CAD drawings are available on our website at: [www.idec.com/smartrelay](http://www.idec.com/smartrelay).

## AS-Interface Communication Module FL1B-CAS2

www.idec.com/smartrelay



The AS-Interface communication module provides the optimum solution for savings in cables, installation space, and wiring costs, and offers the possibility of decentralized control.



### Module Combination and Allocation Numbers

Using expansion I/O modules

	FL1D-H12RCE								FL1B-M08B2R2								FL1B-CAS2							
Digital Input: I	1	2	3	4	5	6	7	8	9	10	11	12					13	14	15	16				
Analog Input: AI	1	2															3	4						
Digital Output: Q	1	2	3	4					5	6	7	8					9	10	11	12				

Base module

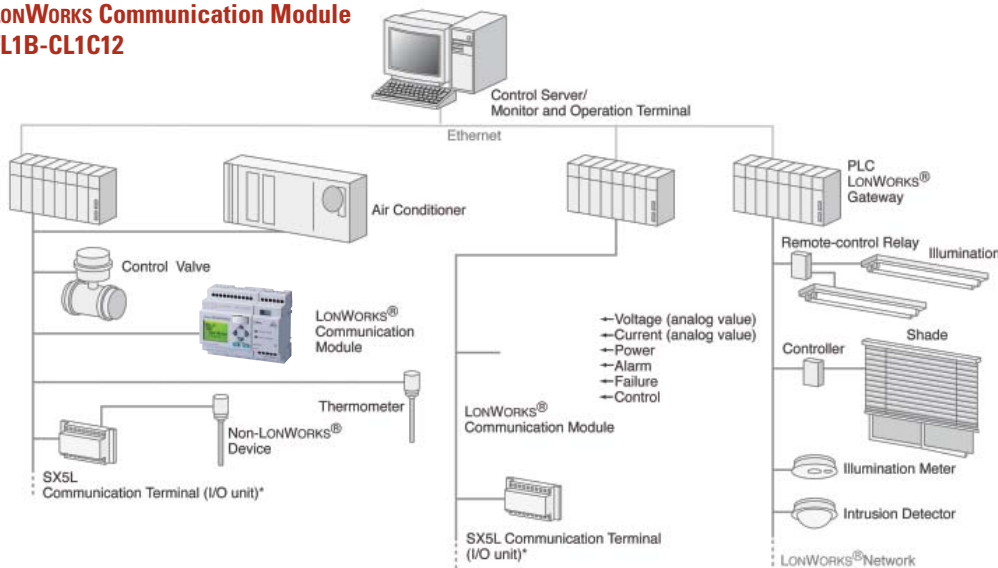
Analog input module

Combination I/O module

AS-interface communication module

FL1B-J2B2

## LonWorks Communication Module FL1B-CL1C12



Combination of easy-to-program IDEC SmartRelay and LONWORKS communication module achieves remote control and monitoring on a LONWORKS network.

### Module Combination and Allocation Numbers

1. Maximum number of I/O points when using LONWORKS communication module

FL1D-H12RCC										FL1B-CL1C12															
Digital Input:	I	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Analog Input:	AI									1	2	3	4	5	6	7	8								
Digital Output:	Q	1	2	3	4					5	6	7	8	9	10	11	12	13	14	15	16				

Base module

Combination I/O module

LONWORKS communication module

Analog input module

Analog output module

2. Using analog inputs on the base module

	FL1D-H12RCE								FL1B-CL1C12															
Digital Input: I	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Analog Input: AI	1	2							3	4	5	6	7	8										
Digital Output: Q	1	2	3	4					5	6	7	8	9	10	11	12	13	14	15	16				

3. Using I/O expansion module

	FL1D-H12RCE												FL1B-M08B2R2								FL1B-CL1C12											
Digital Input:	I	1	2	3	4	5	6	7	8	9	10	11	12					13	14	15	16	17	18	19	20	21	22	23	24			
Analog Input:	AI	1	2												3	4			5	6	7	8										
Analog Output:	AO																1	2														
Digital Output:	Q	1	2	3	4					5	6	7	8						9	10	11	12	13	14	15	16						

FL1B-J2B2 FL1D-K2B2

Note 1: One LONWORKS communication module can be used with a base module and must be mounted at the right-most position of the row.

Note 2: I/O numbers are automatically allocated starting with the base module.

Note 3: When the base module with analog inputs is used, I1 to I8, AI1, and AO1 are occupied whether the analog inputs are used or not.

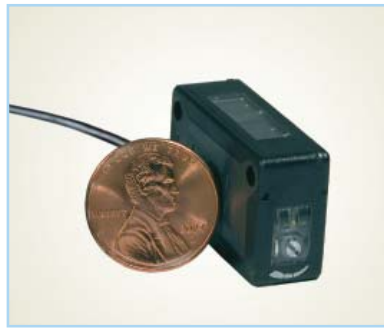


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### PS5R Slim Line Power Supplies

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### HW Switches

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