IDEC

Think Automation and beyond...

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 feaures 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

Housing and Building Management

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

Unique Solutions

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

Monitoring Systems

- Access controls
- Alarm systems
- Parking lot control monitoring

The possibilities are endless

www.idec.com/smartrelay

1

Select "Program" from the main menu.

2

Create your control logic.

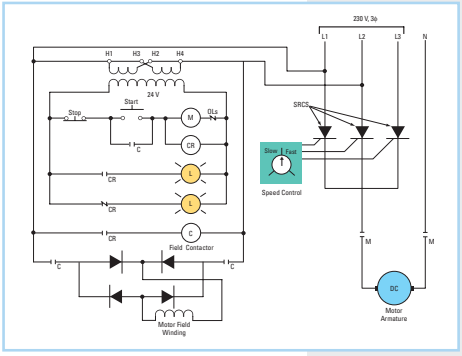
3

Select "Start," and you're done.

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

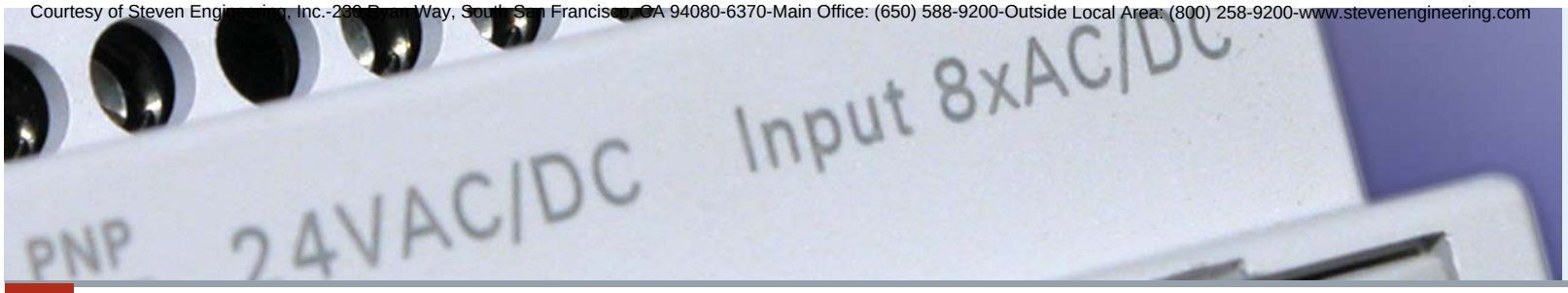
Your time is valuable and with that in mind, IDEC has created a product that will require very little of it. Using a system smaller than a PLC, with minimal wiring, mounting as simple as a quick snap on to a DIN rail, and programming as easy as one touch of a button, the user-friendly SmartRelay is the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



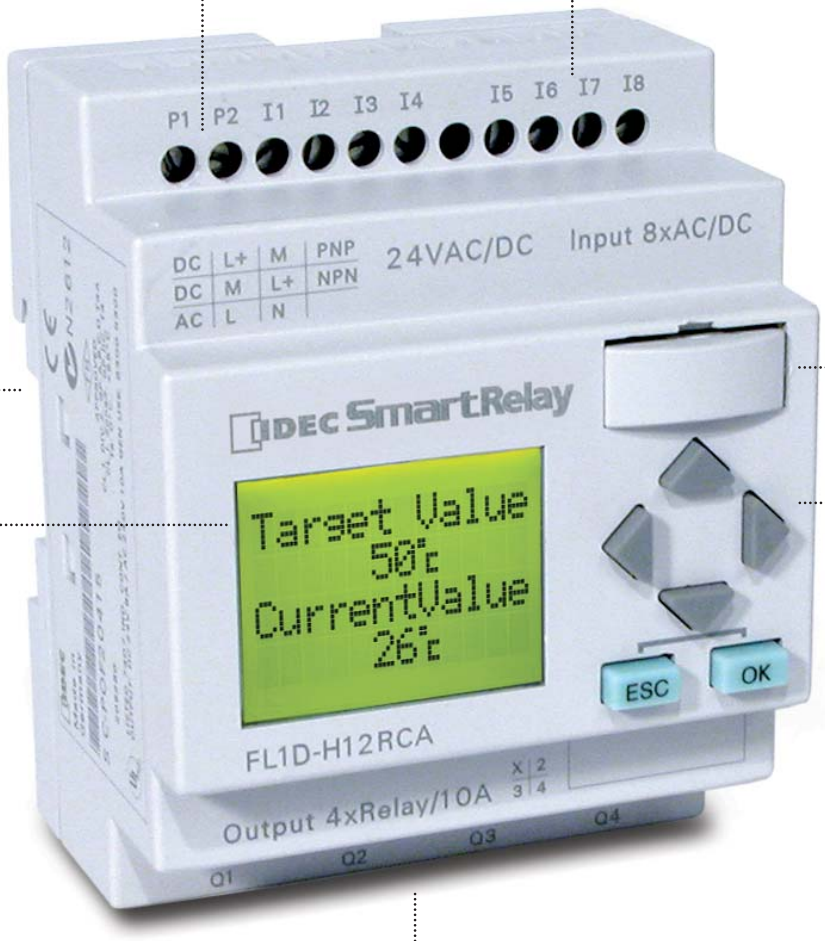
Digital/Analog Inputs

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 kHhz 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



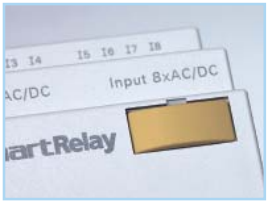
Backlit LCD Display

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



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.

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

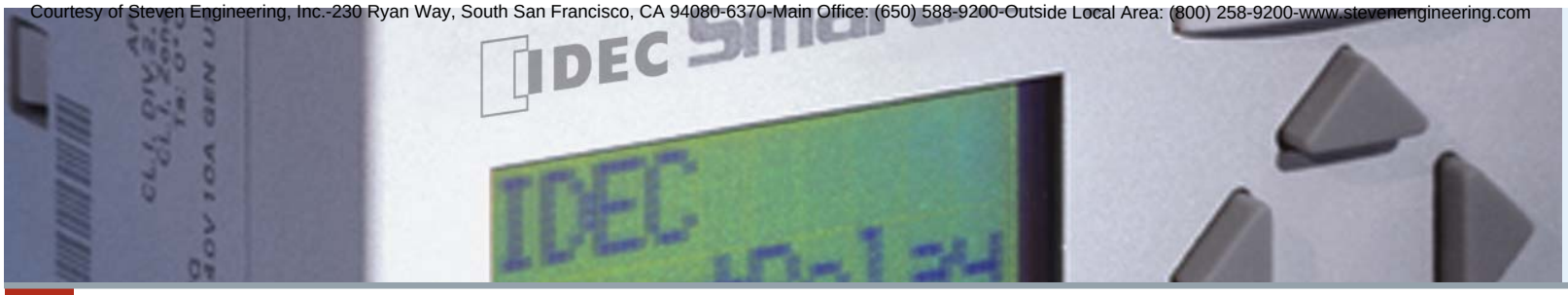
IDEC means quality and dependability you can trust and our SmartRelays are no exception. Each model is cULus listed, CE certified, EMC compliant, FM approved for Class 1 Div 2 hazardous locations, C-tick compliant, Lloyds Registered, and ABS approved.

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® 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.



WindLGC 5.0 Software

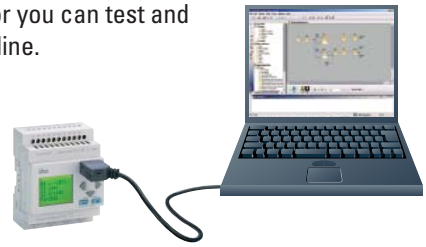
WindLGC is the exclusive programming software for the IDEC SmartRelay using Windows®.

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.



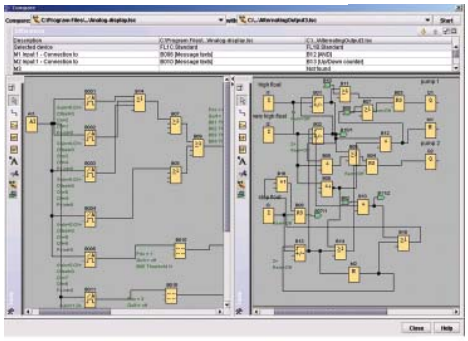
Documentation

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.

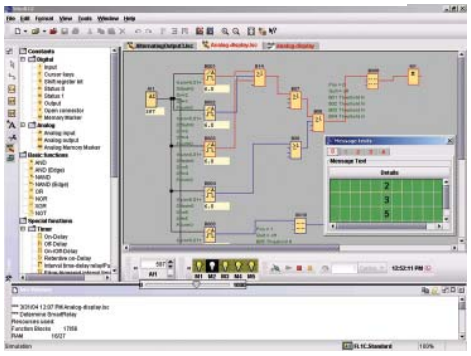
On the Web

Visit IDEC at www.idec.com/smartrelay for additional information on software upgrades, demo software, FAQs, manuals or brochures.

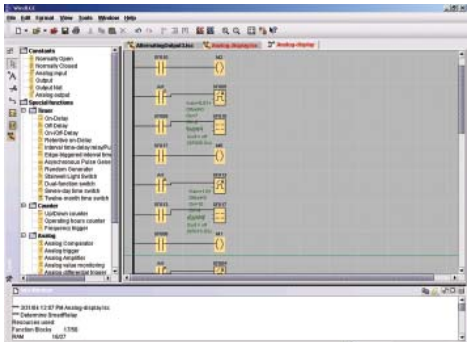
Program Comparison



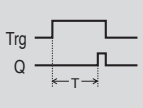
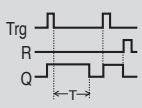
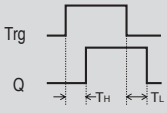
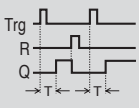
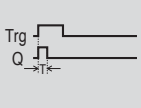
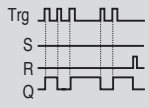
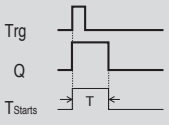
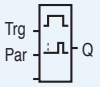
Simulation Mode/Online Monitor



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

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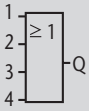
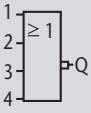
Basic Function Blocks

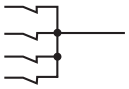
OR
Parallel connection of normally open contacts

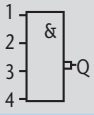


NOR
Series connection of normally closed contacts

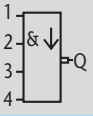


NAND
Parallel connection of normally closed contacts

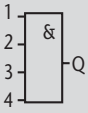




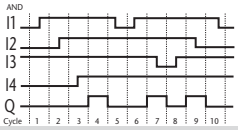
NAND (Edge)
Edge detection with edge evaluation (neg. edge)

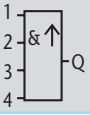


AND
Series connection of normally open contacts

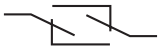


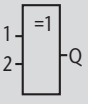
AND (Edge)
Edge detection with edge evaluation (pos. edge)



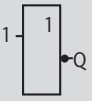


XOR
Double changeover contact

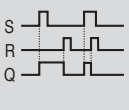
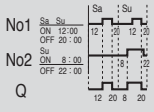
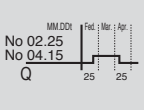
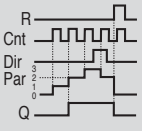
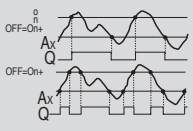
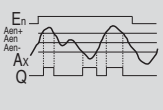
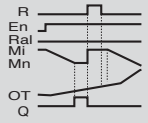
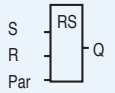
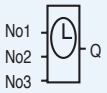
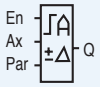




NOT
Connection of closed contact



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
						
						

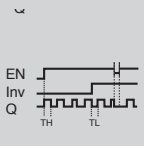
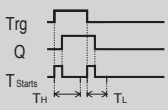
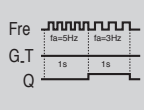
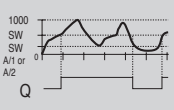
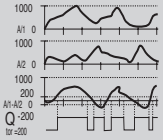
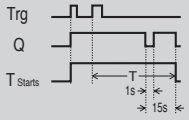
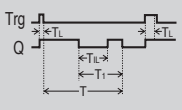
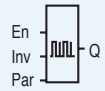
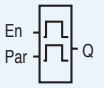
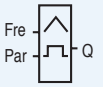
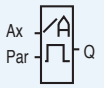
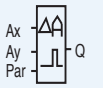
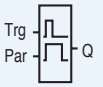
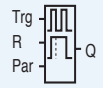
FL1D Base Modules – With LCD

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	AC/DC	PNP/NPN	Relay Output	Yes
FL1D-B12RCC	100-240V AC/DC		PNP		

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
- See page 11 for more details

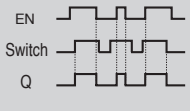
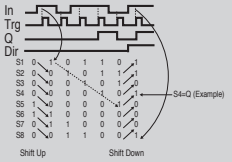
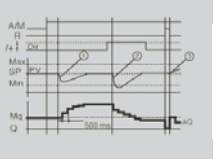
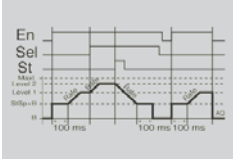
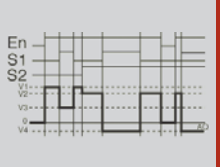
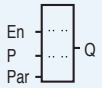
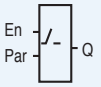
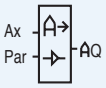
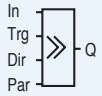
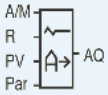
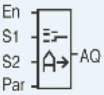
Part Number	Module	Input Power	Total I/O
FL1B-CL1C12	LonWorks® Communication Module	24V AC/DC	Input: 16 points Analog Input: 8 points Output: 12 points

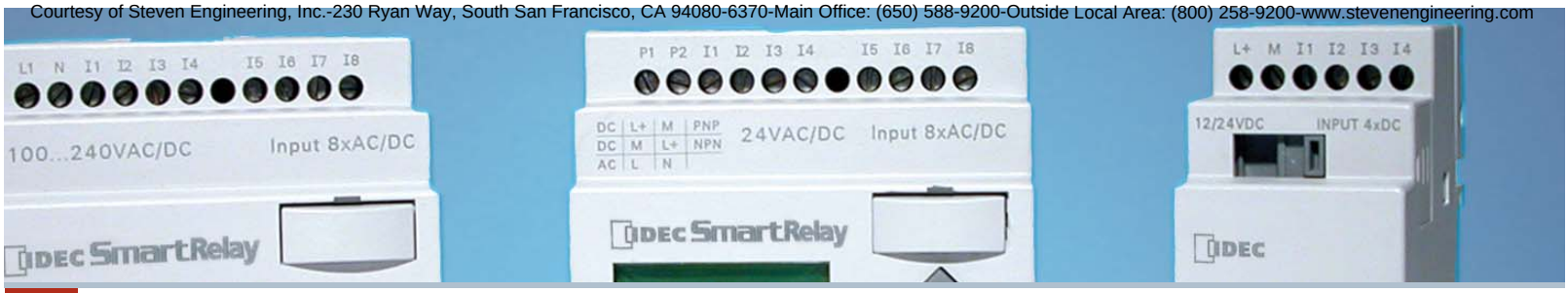
LonWorks® is a registered trademark of Echelon

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 (New)	Analog Ramp Control (New)	Analog Multiplexer (New)
						
						



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

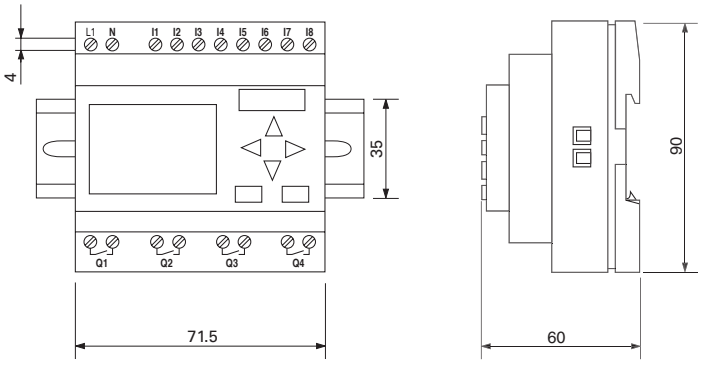
Part Number	Description
FL1C-PM3	Memory cartridge, with user defined protection freature
FL9Y-LP1CDW	Programming Software: WindLGC Ver. 5CD w/Online Manual
FL1A-PC1	Programming Cable
BNDN1000	35mm Aluminum DIN Rail, 1m/3.28ft
BNL6	End Clips, Prevents modules from sliding off DIN Rail
MT-101	Memory Cartridge 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: www.idec.com/smartrelay
FC4A-USB	USB to RS232 Converter, For use with "USB Only" PC's

Memory Cartridge
FL1C-PM3

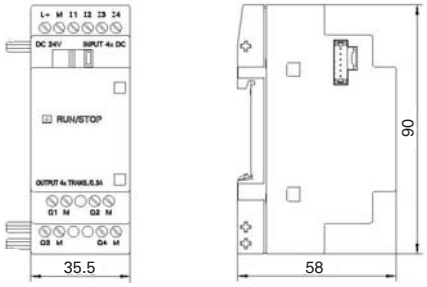
Simulator Switch
FL1B-Y1371-SW8

Programming Cable
FL1A-PC1

Base Module Dimensions

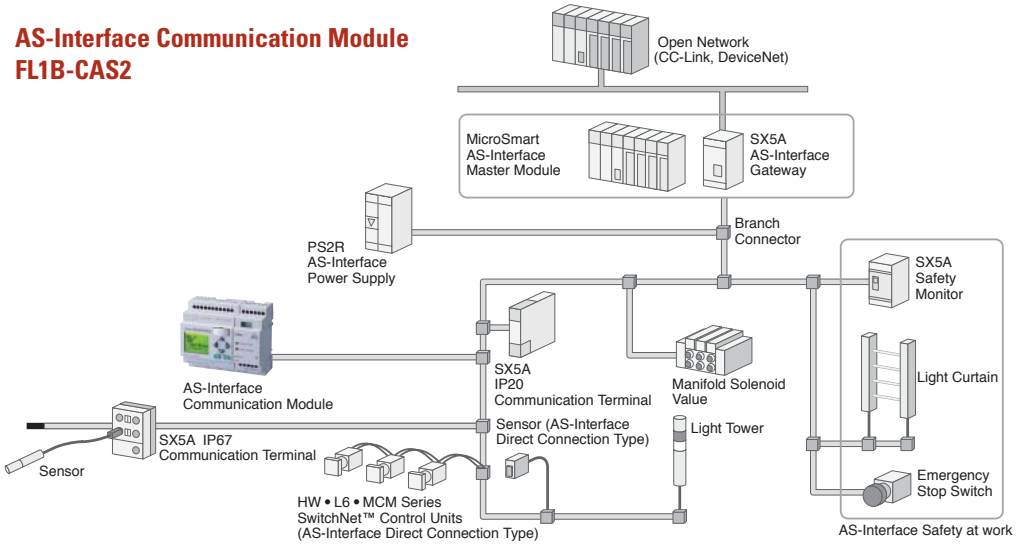


I/O Expansion Module Dimensions



All dimensions in mm.
Detailed CAD drawings are available on our website at: www.idec.com/smartrelay.

AS-Interface Communication Module
FL1B-CAS2



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

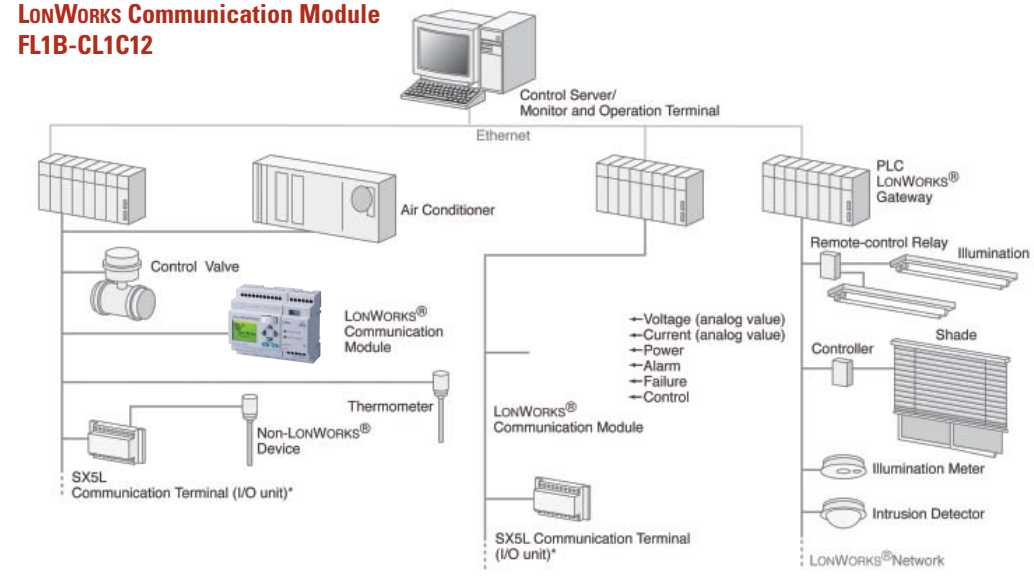
Using expansion I/O modules

		FL1D-H12RCE								FL1B-MO8B2R2						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

FL1B-J2B2

Base module
Analog input module
Combination I/O module
AS-interface communication module

LonWorks Communication Module
FL1B-CL1C12



Combination of easy-to-program IDEC SmartRelay and LonWorks communicaton 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				

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-MO8B2R2						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:	AI															1	2												
Digital Output:	Q	1	2	3	4					5	6	7	8					9	10	11	12	13	14	15	16				

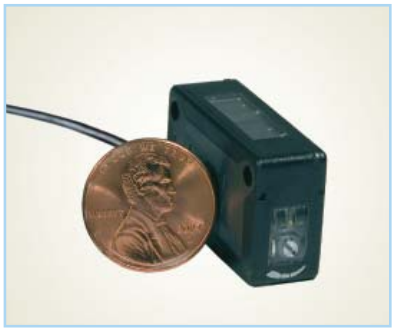
FL1B-J2B2 FL1D-K2B2

Base module
Combination I/O module
LonWorks communication module
Analog input module
Analog output module

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 AI2 are occupied whether the analog inputs are used or not.

PS5R Slim Line Power Supplies

IDEC PS5R Slim Line power supplies have all the features, all the power, and only half the size of traditional power supplies. Save valuable DIN Rail space with the 30W, 60W, 90W, 120W, or 240W models which can fit any of your power needs. The PS5R Slim Line models are UL508 and UL1604 listed for hazardous locations. The 30W and 60W models are also NEC Class 2 rated. The 120W and 240W models comply with SEMI F47 sag immunity requirements.



SA1E Sensors

Choose your sensing method, operation mode, control output and connection method with the simple and affordable SA1E sensors, and get exactly what you need in a very small package. There are 32 models available, all rated IP67 for water resistance, with a response time of 1 msec (maximum). Special interference prevention allows close mounting of two sensors (except for through-beam type), and the quick connect and disconnect option make installation a breeze.

Support Information

IDEC SmartRelay
www.idec.com/smartrelay

Technical support:
support@idec.com

800-262-IDEC
www.idec.com

HW Switches

In basic black or stylish metal, the HW series of 22mm switches from IDEC are available in several styles to dress up any panel. HW pushbuttons and pilot devices are internationally-rated, designed for use almost anywhere in the world, and have removable contact blocks, finger-safe terminals, and tamperproof construction. Choose simple black plastic bezels for clean uniformity or chrome-plated metallic bezels for a rugged industrial look.

IDEC *Think Automation and beyond...*

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Catalog No. FL9Y-B100-0 *2/06 15K*

Section H

IDEC SmartRelay

www.idec.com/smartrelay

for more information on this product family visit

www.idec.com/smartrelay

Additional Web Resources

- New and updated product information
- Downloadable software demos & upgrades
- Part configuration tool & cross reference
- Online stock check & ordering
- IDEC field sales & distributor search
- Online literature request
- Downloadable manuals & CAD drawings
- Manufacturer's suggested retail price list
- Product training schedule & locations
- Advertising & trade show schedules
- Press releases & FAQs

IDEC SmartRelay

IDEC SmartRelay –the smart and expandable solution

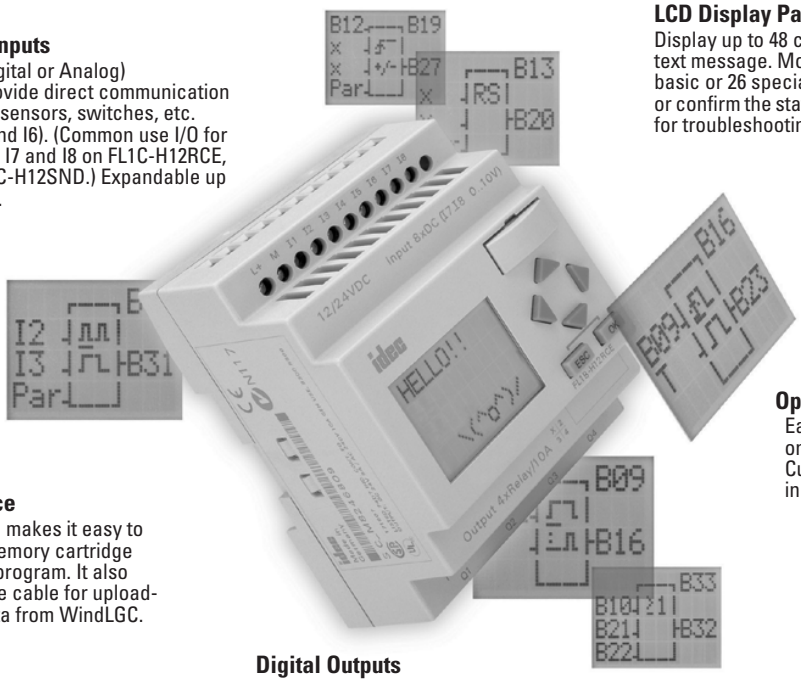
Get smart with the fully programmable IDEC SmartRelay, a compact, expandable CPU that can replace multiple timers, relays and counters. Each CPU houses a real-time clock and calendar, and supports optional expansion I/O modules to enhance your control and monitoring applications. Program and edit using either the "smart" on-board selection buttons and display interface, or our even "smarter" software, WindLGC. The IDEC SmartRelay is the ideal solution for managing automatic lighting, access control, watering systems, pump control, or ventilation systems in factory or home automation.

HIghlights of the FL1C series

- 32-bit processor
- 130 connectable blocks
- 4 new function blocks
- 4 x12 backlight display
- Timer and counter frequency up to 2KHz
- Online monitor
- Ladder programming
- Invert of inputs saves NOT function blocks

Digital/Analog Inputs
(6 Digital plus 2 Digital or Analog)
Multiple inputs provide direct communication with pushbuttons, sensors, switches, etc. (2kHz max. on I5 and I6). (Common use I/O for digital and analog: I7 and I8 on FL1C-H12RCE, FL1C-B12RCE, FL1C-H12SND.) Expandable up to 24 digital inputs.

LCD Display Panel
Display up to 48 characters as a text message. Monitor any of the 8 basic or 26 special function blocks, or confirm the status of the program for troubleshooting.



Operational Control Buttons
Easy programming interface uses only six buttons. No tools necessary. Cursor keys can also be configured as inputs.

Multifunction Interface
A multifunction interface makes it easy to insert and remove the memory cartridge that controls the circuit program. It also supports the PC interface cable for uploading and downloading data from WindLGC.

Digital Outputs
Use the outputs to control lights, small-sized motors and solenoid valves up to 10A. Expandable up to 16 digital outputs.

Other Key Features
- Password protection
- Daylight savings time
- UL/c-UL listed, IEC61131/VDE0631, EMC Compliant, C-tick listed
- FM approved for Class 1, Div 2 Class 1, Zone 2 hazardous locations.

Other Characteristics

Text Display
It can display messages with background lighting up to 48 characters long from a selection of 97 character types.

Operational Buttons
Use the selection buttons for easy confirmation or modification of the circuit being displayed. The cursor keys can be configured as inputs.

Memory Cartridge
FL1C-PM3 is a memory cartridge with know-how protection. Not only is it possible to save your program, but also to protect it from unintended modification, copying or deletion.
Not required for operation.

Expansion Modules
Optional expansion I/O modules allow you to add digital input, output and LONWORKS®/ AS-Interface communication modules as well as analog inputs to your system. Just snap-on and go – no special software or cables required.

Part Numbers

Base Module Part Number

Part Number	Rated Voltage	Input Signal	Input Type	Output Signal	With Display	With Clock	Input/Output
FL1C-H12RCE	12/24V DC	DC I7and I8 are used for digital/analog	PNP	Relay Output	Yes	Yes	8/4
FL1C-B12RCE					—		
FL1C-H12SND	24V DC			Transistor Source Output	Yes	—	
FL1C-H12RCA	24V AC/DC	AC/DC	PNP/NPN	Relay Output	Yes	Yes	
FL1C-B12RCA					—		
FL1C-H12RCC	100-240V AC/DC		PNP		Yes		
FL1C-B12RCC					—		

Expansion Module Part Number

Part No.	Module	Power Voltage	Input	Output	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	Analog input	–	2 (2 in/0 out)
FL1B-CL1C12	LonWorks® Communication Module*	24V AC/DC	–	–	–
FL1B-CAS2	AS-Interface Communication Module*	30V DC	–	–	–

** For more information see Section M, Communications & Networking.*

Starter Kit Part Number

Part Number	Description
SMARTSTART-BAC-C	FL1C-B12RCC, WindLGC software, and programming cable
SMARTSTART-BDC-C	FL1C-B12RCE, WindLGC software, programming cable, and simulator switch
SMARTSTART-HAC-C	FL1C-H12RCC, WindLGC software, and programming cable
SMARTSTART-HDC-C	FL1C-H12RCE, WindLGC software, programming cable, and simulator switch

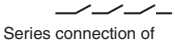
Accessories

Part Number	Description		Note
FL1C-PM3	Memory Cartridge		Memory cartridge with know-how protection
FL9Y-LP1CDW	Programming Software: WindLGC Ver. 4		CD w/Online Manual
FL1A-PC1	PC Interface Cable		Connection of SmartRelay to PC
BAA1000 BNDN1000	35MM DIN Rail	Aluminum, 1m/3.28ft	
BNL6	Mounting Clips		
MT-101	Memory Cartridge Removal Tool		
FL1B-PSP1	Direct Mounting Slides		
FL1B-Y1371-SW8	8pt simulator switch		used with 12, 24V DC base module only
FL9Y-B827	FL1C user's manual		
FC4A-USB	USB/RS232 converter		

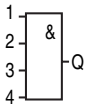
Function Blocks

General Function Blocks

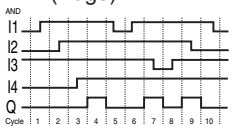
• AND



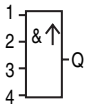
Series connection of normally open contacts



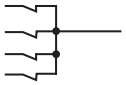
• AND (Edge)



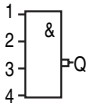
Edge detection with edge evaluation (pos. edge)



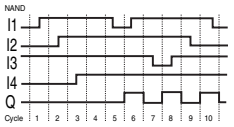
• NAND



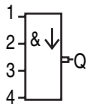
Parallel connection of normally closed contacts



• NAND (Edge)

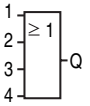


Edge detection with edge evaluation (pos. edge)



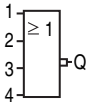
• OR

Parallel connection of normally open contacts

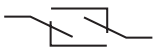


• NOR

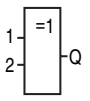
Series connection of normally closed contacts



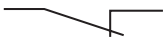
• XOR



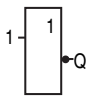
Double changeover contact



• NOT

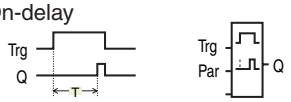


Connection of closed contact

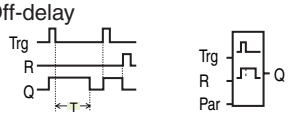


Special Function Blocks

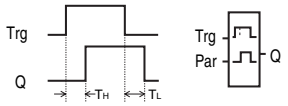
• On-delay



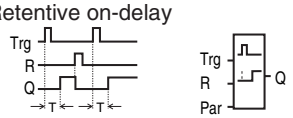
• Off-delay



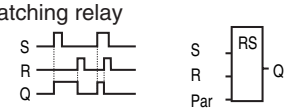
• On-/Off-delay



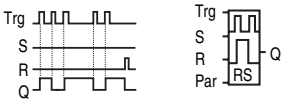
• Retentive on-delay



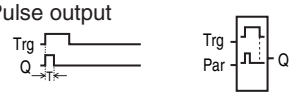
• Latching relay



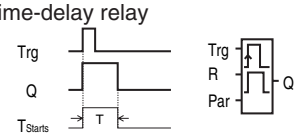
• Current impulse relay



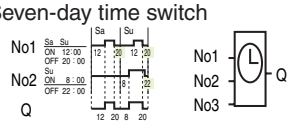
• Interval time-delay relay/ Pulse output



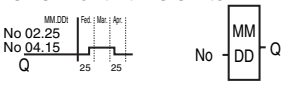
• Edge-triggered interval time-delay relay



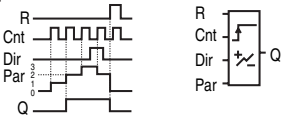
• Seven-day time switch



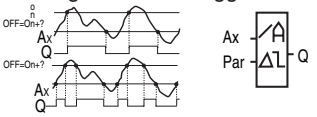
• Twelve-month time switch



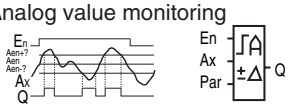
• Up/down counter



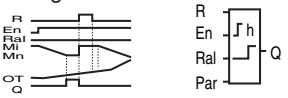
• Analog differential trigger



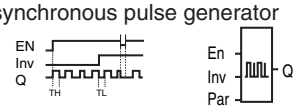
• Analog value monitoring



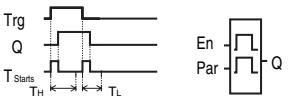
• Operating hours counter



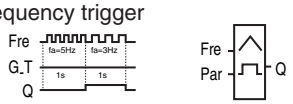
• Asynchronous pulse generator



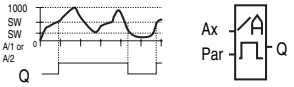
• Random generator



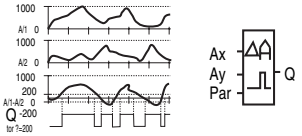
• Frequency trigger



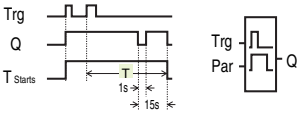
• Analog trigger



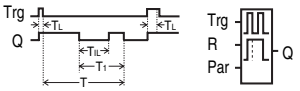
• Analog comparator



• Stairwell light switch

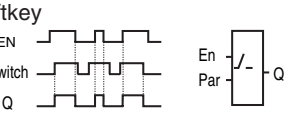


• Dual-function switch

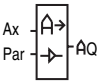


• Message texts

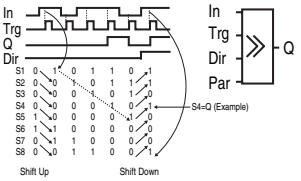
• Softkey



• Analog amplifier



• Shift register



Specifications

	Item			Specifications	Compliant Standards
General Specifications	Dimensions (W x H x D)			72 x 90 x 55 mm	—
	Weight			Approx. 190g	—
	Operating temperature		Horizontal	0 to +55°C	Cold: IEC60068-2-1 Hot: IEC60068-2-2
			Vertical	0 to +55°C	
	Storage temperature			-40 to +70°C	—
	Relative humidity			10 to 85%	IEC60068-2-30
	Pressure			795 to 1080 hPa	—
	Corrosion immunity			Free from corrosive gases	—
	Degree of protection			IP20	
	Vibration resistance			5 to 9Hz (amplitude: 3.2mm) 9 to 150Hz (acceleration: 10m/s^2)	IEC60068-2-6
	Shock resistance			150 m/s^2	IEC60068-2-27
	Dropping			50 mm (Drop height)	IEC60068-2-31
	Free fall (packaged)			1 m	IEC60068-2-32
	Emission			Class B Group 1	EN55011
	EMC	Emitted interference		—	EN50081-2, EN50082-2
		Electrostatic discharge		8kV Air Discharge 6kV Contact Discharge	IEC61000-4-2
		Electromagnetic fields		10V/m	IEC61000-4-3
		Burst pulses		2KV (Supply and Signal Lines)	IEC61000-4-4
		Energy carriers single pulse (surge)		0.5kV(Power Lines): Symmetrical 1kV (Power Lines): Asymmetrical	IEC61000-4-5
	Communication cable			2 x 1.5 mm^2, 1 x 0.5 to 2.5 mm^2	—

	Base Module Part Number		FL1C-H12RCE FL1C-B12RCE	FL1C-H12SND –	FL1C-H12RCA FL1C-B12RCA	FL1C-H12RCC FL1C-B12RCC
Base Module Operating Specifications	Power Supply	Rated voltage	12/24V DC	24V DC	24V AC/DC	100-240V AC/DC
		Allowable Voltage Range	10.8-28.8V DC	20.4-28.8V DC	20.4V-26.4V AC 20.4V-28.8V DC	85-265 AC 100-253 V DC
		Rated Frequency	—	—	47-63Hz	50/60Hz (47-63Hz)
		Input Current	30-140 mA (12V DC) 20-75 mA (24V DC)	30-55 mA (24V DC)	40-110 mA (24V AC) 20-75 mA (24V DC)	10-40 mA (100V AC) 10-25 mA (240V AC) 5-25mA (100V DC) 5-15mA (240V DC)
		Allowable Momentary Power Interruption	2 ms (12V DC) 5 ms (24V DC)	—	5 ms	10 ms (100V AC) 20 ms (240V AC)
		Power Consumption	0.3-1.7W (12V DC) 0.4-1.8W (24V DC)	0.7-1.3W (24V DC)	0.9-2.7W (24V AC) 0.4 to1.8W (24V DC)	1.1-4.6W (100V AC) 2.4-6.0W (240V AC) 0.5-2.9W (100V DC) 1.2-3.6W (240V DC)
		Reverse Polarity Protection	Yes	Yes	—	—
	Clock	Backup Duration	80h at 25°C	—	80h at 25°C	80h at 25°C
		Clock Accuracy	±2s / day maximum	—	±2s / day maximum	±2s / day maximum

Specifications con't

Base Module Part Number			FL1C-H12RCE FL1C-B12RCE	FL1C-H12SND –	FL1C-H12RCA FL1C-B12RCA	FL1C-H12RCC FL1C-B12RCC
Base Module Operating Specifications (con't)	Input	Input Signal	DC	DC	AC/DC	AC/DC
		Input Points	8 (I1-I8)	8 (I1-I8)	8 (I1 - I8)	8 (I1-I8)
		Analog Input Points	2 (I7, I8)*	2 (I7, I8)*	—	—
		Fast Inputs	2 (I5, I6) Max 2KHz**	2 (I5, I6) Max 2 KHz**	—	—
		Analog Input Voltage Range	0 to10V DC (maximum rated voltage: 28.8V DC)	0 to 10V DC (maximum rated voltage: 28.8V DC)	—	—
		Rated Input Voltage	12/24V DC	24V DC	24V AC/DC	100-240V AC/DC
		Allowable Voltage Range	10.8-28.8V DC	20.4-28.8V DC	0-26.4V AC 0-28.8V DC	85-253V AC, 100-253 VDC
		Isolation	Not Isolated	Not Isolated	Not Isolated	Not Isolated
		Operating Range – Turn OFF Voltage	< 5V DC	< 5V DC	< 5V AC/DC	< 40V AC, < 30 VDC
		Operating Range – Turn ON Voltage	> 8V DC	> 8V DC	> 12V AC/DC	> 79V AC, > 79VDC
		Operating Range – Turn OFF Current	< 1.0 mA (I1-I6) < 0.05 mA (I7-I8)	< 1.0 mA (I1-I6) < 0.05 mA (I7-I8)	< 1.0 mA	< 0.03 mA
		Operating Range – Turn ON Current	> 1.5 mA (I1-I6) > 0.1 mA (I7-I8)	> 1.5 mA (I1-I6) > 0.1 mA (I7-I8)	> 2.5 mA	> 0.08 mA
		Turn ON Time	1.5ms (Typ.) (I1-14) <1.0ms (I5, I6) 300ms Typ. (I7, I8)	1.5ms (Typ.) (I1-14) <1.0ms (I5, I6) 300ms Typ. (I7, I8)	1.5 ms (Typ.)	50 ms (Typ.)
		Turn OFF Time	1.5ms (Typ.)	1.5 ms (Typ.)	15 ms (Typ.)	50 ms (Typ.)
		Wire Length	100m	100m	100m	100m
	Output	Output Signal	Relay Output	Transistor Source Output	Relay Output	Relay Output
		Output Type	4NO contacts	4 points	4NO contacts	4NO contacts
		Isolation	Isolated	Not Isolated	Isolated	Isolated
		Dielectric Strength (between power/input terminal and output terminals)	2,500V AC/1 minute 500V DC/1 minute	—	2,500V AC/1 minute 500V DC/1 minute	2,500V AC/1 minute 500V DC/1 minute
		Output Voltage	—	Ext. power supply 20.4-28.8V DC	—	—
		Maximum Load Current	Resistive Load 10A at 12/24V AC/DC 10A at 100/120V AC 10A at 230/240V AC Inductive Load 2A at 12/24V AC/DC 3A at 100/120V AC 3A at 230/240V	0.3A	Resistive Load 10A at 12/24V AC/DC 10A at 100/120V AC/DC 10A at 230/240V AC/DC Inductive Load 2A at 12/24V AC/DC 3A at 100/120V AC/DC 3A at 230/240V AC/DC	Resistive Load 10A at 12/24V AC/DC 10A at 100/120V AC 10A at 230/240V AC Inductive Load 2A at 12/24V AC/DC 3A at 100/120V AC 3A at 230/240V AC
		Short Circuit Protection	External fuse 16A maximum	Internal current limiting circuit: 1A	External fuse 16A maximum	External fuse 16A maximum
		Minimum Switching Load	10 mA, 12V DC	—	10 mA, 12V DC	10 mA, 12V DC
		Initial Contact Resistance	100 mΩ maximum (at 1A, 24V DC)	—	100 mΩ maximum (at 1A, 24V DC)	100 mΩ maximum (at 1A, 24V DC)
		Mechanical Life	10,000,000 operations minimum (no load, 10Hz)	—	10,000,000 operations min (no load, 10Hz)	10,000,000 operations minimum (no load, 10Hz)
		Electrical Life	100,000 operations minimum (rated load 10A, 1,800 operations/hour)	—	100,000 operations min (rated load 10A, 1,800 operations/hour)	100,000 operations minimum (rated load 10A, 1,800 operations/hour)
	Switching Rate	Mechanical Load	10 Hz	—	10 Hz	10 Hz
		Electrical Load	—	10 Hz	—	—
		Resistive Load/Lamp Load	2 Hz	10 Hz	2 Hz	2 Hz
		Inductive Load	0.5 Hz	0.5 Hz	0.5 Hz	0.5 Hz

** Input terminals 17 and 18 are used for digital and analog inputs.*
*** When selecting frequency trigger function.*

Specifications con't

			Expansion I/O Part Number	Combination I/O Module				Analog Input Module
				FL1B-M08B2R2	FL1B-M08B1S2	FL1B-M08D2R2	FL1B-M08C2R2	FL1B-J2B2
Operating Specifications - Expansion Module	Power Supply		Rated voltage	12/24V DC	24V DC	24V AC/DC	100-240V AC/DC	12/24V DC
			Allowable Voltage Range	10.8-28.8V DC	20.4-28.8V DC	20.4V-26.4V AC 20.4V-28.8V DC	85-265V AC 100-253V DC	10.8-15.6V DC 20.4-28.8V DC
			Rated Frequency	—	—	47-63Hz	50/60Hz (47-63Hz)	—
			Input Current	30-140 mA (12V DC) 22-75 mA (24V DC)	30-45 mA (24V DC)	40-110 mA (24V AC) 20-75 mA (24V DC)	10-30 mA (100V AC) 10-20 mA (240V AC) 5-15mA (100V DC) 5-10mA (240V DC)	25-50mA
			Allowable Momentary Power Interruption	2 ms (12V DC) 5 ms (24V DC)	—	5 ms	10 ms (100V AC) 20 ms (240V AC)	5 ms
			Power Consumption	0.3-1.7W (12V DC) 0.4-1.8W (24V DC)	0.8-1.1W (24V DC)	0.9-2.7W (24V AC) 0.4 to 1.8W (24V DC)	1.1-3.5W (100V AC) 2.4-4.8W (240V AC) 0.5-1.8W (100V DC) 1.2-2.4W (240V DC)	0.3-0.6W (12V DC) 0.6-1.2W (24V DC)
			Reverse Polarity Protection	Yes	Yes	—	—	Yes
	Input		Input Signal	DC	DC	AC/DC	AC/DC	Analog
			Input Points	4	4	4	4	—
			Analog Input Points	—	—	—	—	2
			Input Impedance	—	—		—	76 kΩ (0-10V DC) 155-250 Ω (0-20mA DC)
			Analog Input Range	—	—		—	0-10V DC (28.8V max) 0-20mA (40mA max)
			Digital Resolution	—	—		—	10 bits (0-1000)
			Rated Input Voltage	12/24V DC	24V DC	24V AC/DC	100-240V AC/DC	—
			Allowable Voltage Range	10.8-15.6V DC 20.4-28.8V DC	20.4-28.8V DC	0-26.4V AC 0-28.8V DC	85-253V AC 100-253V DC	—
			Isolation	Not Isolated	Not Isolated	Not Isolated	Isolated	Not Isolated
		Operating Range	Turn OFF Voltage	< 5V DC	< 5V DC	< 5V AC/DC	< 40V AC < 30V DC	—
			Turn ON Voltage	> 8V DC	> 8V DC	> 12V AC/DC	> 79V AC > 79V DC	—
			Turn OFF Current	< 1.0 mA	< 1.0 mA	< 1.0 mA	< 0.3 mA	—
			Turn ON Current	> 1.5 mA	> 1.5 mA	> 2.5 mA	> 0.08 mA	—
			Turn ON Time	1.5ms	1.5 ms	1.5 ms (Typ.)	50 ms (Typ.)	—
			Turn OFF Time	1.5ms	1.5 ms	15 ms (Typ.)	50 ms (Typ.)	—
			Analog Value Conversion Interval	—	—		—	50ms
			Wire Length	100m	100m	100m	100m	10m (twisted-pair shielded cable)
	Output		Output Signal	Relay Output	Transistor Source Output	Relay Output	Relay Output	—
			Output Type	4NO contacts	4 points	4NO contacts	4NO contacts	—
			Isolation	Isolated	Not Isolated	Isolated	Isolated	—
			Dielectric Strength (between power/ input terminal and output terminals)	2,500V AC/1 minute 500V DC/1 minute	2,500V AC/1 minute 500V DC/1 minute	2,500V AC/1 minute 500V DC/1 minute	2,500V AC/1 minute 500V DC/1 minute	—
			Output Voltage	—	Ext. power supply 20.4-28.8V DC	—	—	—
			Maximum Load Current	Resistive Load 10A at 12/24V AC/DC 10A at 100/120V AC 10A at 230/240V AC Inductive Load 2A at 12/24V AC/DC 3A at 100/120V AC 3A at 230/240V	0.3A	Resistive Load 5A at 12/24V AC/DC 5A at 100/120V AC/DC 5A at 230/240V AC/DC Inductive Load 2A at 12/24V AC/DC 3A at 100/120V AC/DC 3A at 230/240V AC/DC	Resistive Load 10A at 12/24V AC/DC 10A at 100/120V AC 10A at 230/240V AC Inductive Load 2A at 12/24V AC/DC 3A at 100/120V AC 3A at 230/240V AC	—
			Short Circuit Protection	External fuse required 16A max	Internal current limiting resistor: 1A	External fuse 16A maximum	External fuse 16A maximum	—
			Minimum Switching Load	10 mA, 12V DC	—	10 mA, 12V DC	10 mA, 12V DC	—
			Initial Contact Resistance	100 mΩ maximum (at 1A, 24V DC)	—	100 mΩ maximum (at 1A, 24V DC)	100 mΩ maximum (at 1A, 24V DC)	—
			Mechanical Life	10,000,000 operations (no load)	—	10,000,000 operations min (no load, 10Hz)	10,000,000 operations (no load)	—
			Electrical Life	100,000 operations (rated resistive load 1,800 operations/hr)	—	100,000 operations minimum (rated load 1,800 operations/hour)	100,000 operations (rated resistive load 1,800 operations/hr)	—
	Switching Rate		Mechanical Load	10Hz	—	10 Hz	10Hz	—
			Electrical Load	—	10Hz	—	—	—
			Resistive Load/Lamp Load	2Hz	10Hz	2 Hz	2Hz	—
			Inductive Load	0.5Hz	0.5Hz	0.5 Hz	0.5Hz	—

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IDEC SmartRelay

Specifications con't

Operating Specifications - LonWorks Communication Module

Operating Temperature		0 to 55°C (no freezing)
Operating Humidity		10 to 85% RH (no condensation)
Storage Temperature		–40 to +70°C (no freezing)
Storage Humidity		10 to 85% RH (no condensation)
Rated Power Voltage		24V AC/DC
Allowable Voltage Range		20.4 to 26.4V AC, 20.4 to 28.8V DC
Current Draw		33 mA max.
Dielectric Strength		500V DC, 1 minute (between power terminal and dead parts)
Insulation Resistance		10 MΩ minimum (500V DC megger between power terminal and dead parts)
EMC	Electrostatic Discharge	8 kV air discharge 6 kV contact discharge
	Burst Pulses	2 kV (power terminal)
Vibration Resistance		5 to 9 Hz, amplitude 3.5 mm 9 to 150 Hz, 9.8 m/s^2
Shock Resistance		150 m/s^2
Dimensions		35.5W × 90H × 58D mm
Mounting Style		DIN rail or panel surface
Degree of Protection		IP20
Terminal Style		Screw-cage clamp terminal
Weight		85g
Communication System		LON® system
Transceiver		FTT-10A
Topology		Bus topology, free topology
Transmission Rate		78 kbps
Neuron Chip		TMPN3120FE5M (Toshiba)
CPU Clock Frequency		20 MHz
Transmission Distance		Bus topology: 1400m (only FTT-10A transceiver, using Level 4 AWG22 cable) Free topology: 500m total, 400m between nodes (when using Level 4 AWG22 cable)

Network Variables

Input Network Variable	SNVT_obj_request: (Quantity 1)	Request object mode
	SNVT_switch: (Quantity 14)	Switch light, alarm, window contact, free inputs/outputs
	SNVT_occupancy: (Quantity 2)	Occupancy
	SNVT_temp_p: (Quantity 1)	Room temperature (°C)
	SNVT_lux: (Quantity 1)	Brightness - lighting level (lux)
	SNVT_lev_percent: (Quantity 6)	Position (%)
Output Network Variable	SNVT_obj_status: (Quantity 1)	Output object status
	SNVT_switch: (Quantity 8)	Switch light, alarm, window contact, free inputs/outputs
	SNVT_occupancy: (Quantity 2)	Occupancy
	SNVT_tod_event: (Quantity 2)	Scheduler program Just current state
Configuration Property	SCPTmaxSendTime:	Send heartbeat (Q5 to Q16)

Specifications con't

Operating Specifications - AS-Interface Communication Module			
	Operating Temperature		0 to 55°C
	Storage Temperature		–40 to +70°C
	Relative Humidity		10 to 85% (no condensation)
	Rated As-interface Voltage		30 VDC (26.5VDC to 31.6VDC)
	Reverse Polarity Protection		Yes
	Current Draw		70 mA max.
	EMC	Electrostatic Discharge	8 kV air discharge (IEC61000-4-2) 4 kV contact discharge
		Electromagnetic filed	Filed strength 10V/m (IEC61000-4-3)
		First Transient Burst Pulse	1kV (criteria A) (IEC61000-4-4) 1kV (criteria B)
		Radiated Emission	Class A (EN55011)
	Vibration Resistance		5 to 9 Hz, amplitude 3.5 mm 9 to 150 Hz, 9.8 m/s^2
	Shock Resistance		147 m/s^2 11ms (X, Y, Z each direction 3 times)
	Slave type		Standard slave
	Profile		I/O code 7 I/D code F I/D2 code F
	Degree of Protection		IP20
	Terminal Style		Screw terminal (tightening torque: max. 0.5Nm)
	Applicable wire		0.5 to 1.5mm^2
	Instruction		on a 35mm mounting rail according to DIN EN50022/wall mounting
	Dimensions		36W × 90H × 58D mm
	Weight		75g

Logic Assignments

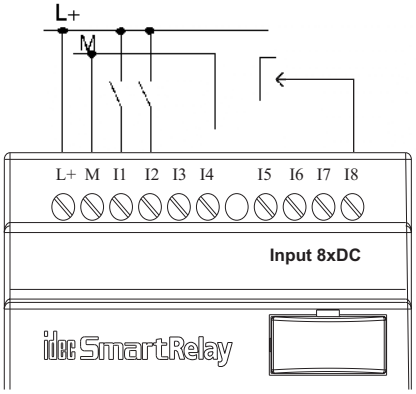
IDEC SmartRelay System		AS-Interface System
Inputs:		Output data bits:
In		D0
I_{n+1}		D1
I_{n+2}		D2
I_{n+3}		D3
Outputs:		Input data bits:
Q_n		D0
Q_{n+1}		D1
$Q_{n+}2$		D2
Q_{n+3}		D3

"n" depends on the plug-in position of the expansion module relative to the IDEC SmartRelay CPU. It indicates the number of the input or output in the IDEC SmartRelay program code.

Connection Diagrams

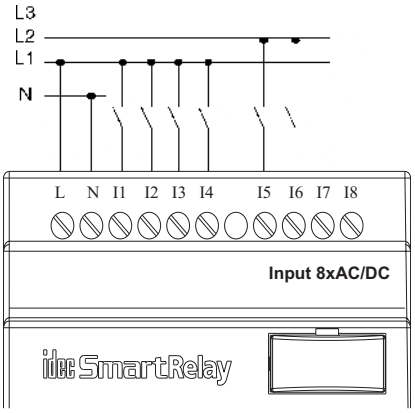
Inputs (CPU)

FL1C-H12RCE/-B12RCE/H12SND



The inputs of these devices are non-isolated and therefore require the same reference potential (ground) as the power supply. With the FL1B-H12RCE/-B12RCE and FL1B-H12SND you can tap the analog signal between the supply voltage and ground

FL1C-H12RCC/-B12RCC

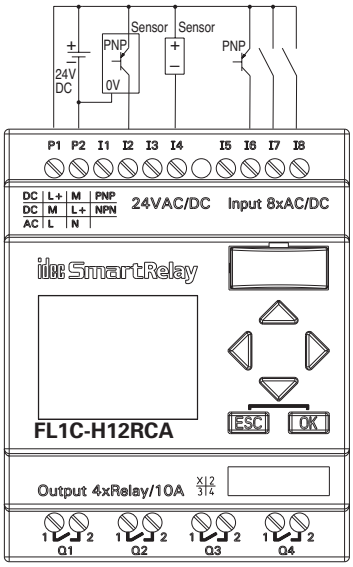


The inputs of these devices are arranged in 2 groups with 4 inputs each. Different phases are only possible between, but not within the blocks.

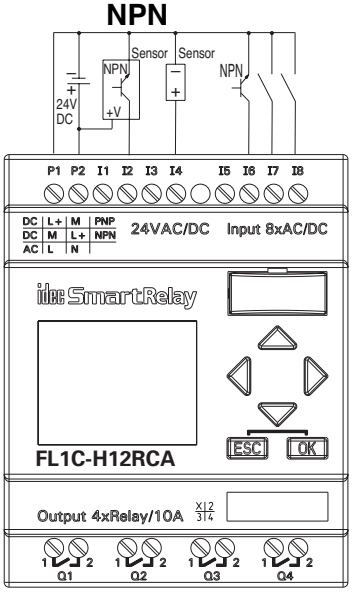
Current safety regulations (VDE 0110, ... and IEC 61131-2, ... as well as UL and CSA) do not permit the connection of different phases to one input group (I1-4 or I5-8) of an AC model or on the inputs of one digit al module.

FL1C-H12RCA/-B12RCA

PNP



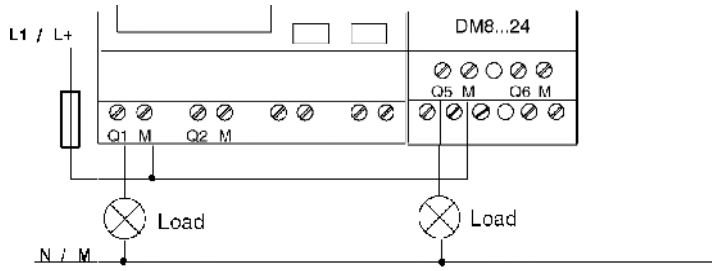
NPN



Connection Diagrams con't

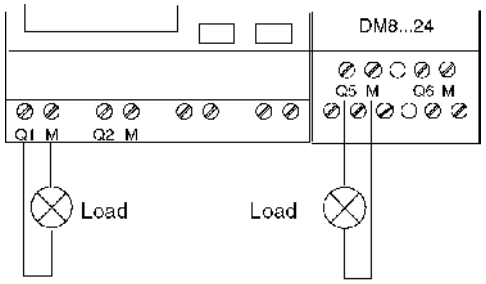
Outputs

Connecting the load to the FL1C-*12R:**



Protection with automatic circuit beaker (max. 16A) if desired

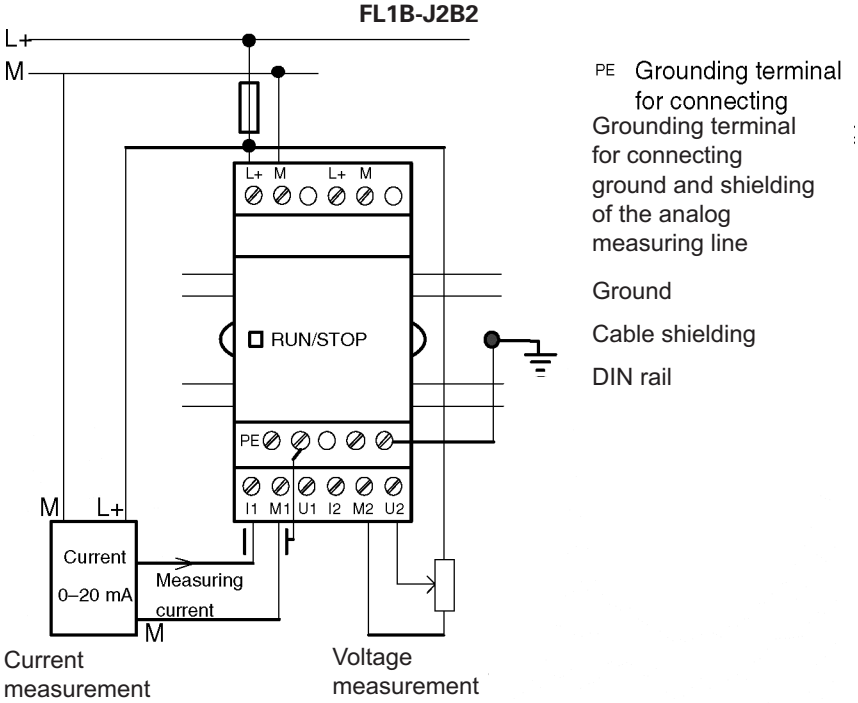
Connecting the load to a IDEC SmartRelay with transistor outputs (FL1C-H12SND):



Load: 24 V DC, 0.3 A max.

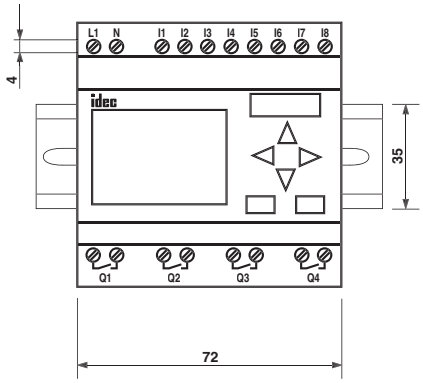
Analog Input Expansion Module

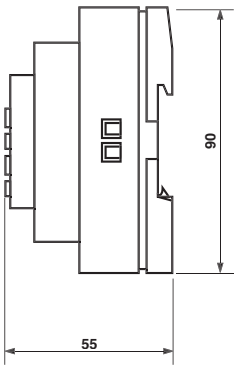
FL1B-J2B2



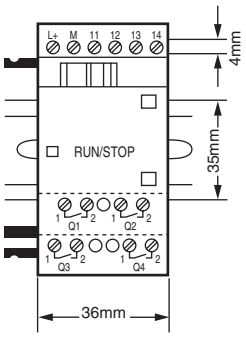
Dimensions

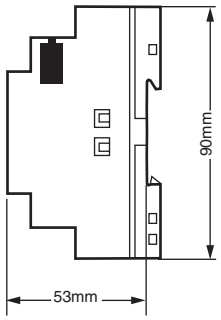
Base Module



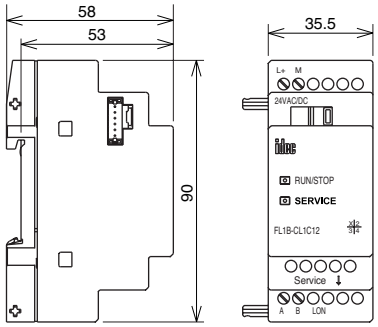


Expansion Module

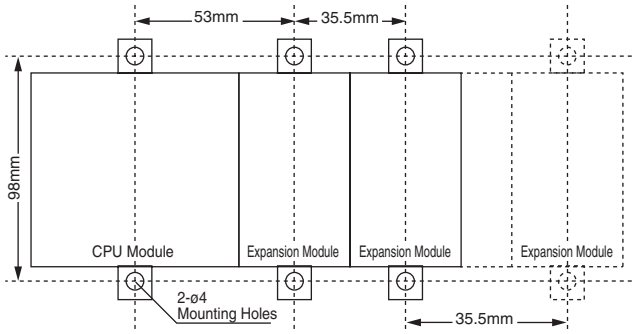




LonWorks®/AS-Interface Communication Module



Mounting Hole Layout



General Information

Maximum Setup

- **Maximum Setup of IDEC SmartRelay With Analog Inputs FL1C-H12RCE/B12RCE/H12SND**
  (CPU, 4 digital modules and 3 analog modules)

I1.....I6, I7, I8 AI1, AI2	I9...I12	I13...I16	I17...I20	I21...I24	AI3, AI4	AI5, AI6	AI7, AI8
CPU	FL1B-M08B2R2	FL1B-M08B2R2	FL1B-M08B2R2	FL1B-M08B2R2	FL1B-J2B2	FL1B-J2B2	FL1B-J2B2
Q1,,,Q4	Q5...Q8	Q9...Q12	Q13...Q16				

- **Maximum Setup of IDEC SmartRelay Without Analog Inputs FL1C-H12RCA/B12RCA/H12RCC/B12RCC**
  (CPU, 4 digital modules and 4 analog modules)

I1. . . . . I8	I9...I12	I13...I16	I17...I20	I21...I24	AI1, AI2	AI3, AI4	AI5, AI6	AI7, AI8
CPU	FL1B-M08	FL1B-M08	FL1B-M08	FL1B-M08	J2B2	J2B2	J2B2	J2B2
Q1,,,Q4	Q5...Q8	Q9...Q12	Q13...Q16					

- **High-speed/Optimal Communication Performance**
  For optimal and high-speed communication performance between the IDEC SmartRelay and the various modules, we recommend you install the digital modules first, then the analog modules (see example above).

Setup With Different Voltage Classes

- **Rules**
  Digital modules can only be connected to devices of the same voltage class.
- **Overview:** Connecting an expansion module to IDEC SmartRelay

CPU	Expansion Modules					
	M08B2R2	M08B1S2	M08D2R2	M08C2R2	J2B2	AS-i/LON
FL1C-H12RCE	X	X	X	–	X	X
FL1C-H12SND	X	X	X	–	X	X
FL1C-H12RCA	X	X	X	–	X	X
FL1C-H12RCC	–	–	–	X	X	X
FL1C-B12RCE	X	X	X	–	X	X
FL1C-B12RCA	X	X	X	–	X	X
FL1C-B12RCC	–	–	–	X	X	X

- **Overview:** Connecting an additional expansion module to an expansion module

Expansion Module	Additional Expansion Modules						
	M08B2R2	M08B1S2	M08D2R2	M08C2R2	J2B2	CAS2	CL1C12
FL1B-M08B2R2	X	X	X	–	X	X	X
FL1B-M08B1S2	X	X	X	–	X	X	X
FL1B-M08D2R2	X	X	X	–	X	X	X
FL1B-M08C2R2	–	–	–	X	X	X	X
FL1B-J2B2	X	X	X	–	X	X	X
FL1B-CAS2 AS-Interface	X	X	X	–	X	–	–
FL1B-CL1C12 LonWorks	–	–	–	–	–	–	–

I/O Configuration with LonWorks® Communication Module

Module Combination and Allocation Numbers

1. Maximum number of I/O points using LonWorks® communication module

	FL1C-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				

2. Using analog inputs on the base module

	FL1C-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 expansion I/O modules

	FL1C-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						
Digital Output:Q	1	2	3	4					5	6	7	8			9	10	11	12	13	14	15	16		

FL1B-J2B2

Base module, LonWorks® communication module, Combination I/O module, Analog input module

1. The LonWorks® communication module can be used with any base module and expansion I/O module.

2. The LonWorks® communication module must be mounted at the right-most position of the row.

3. I/O numbers are automatically allocated starting with the base module.

WindLGC Programming Software

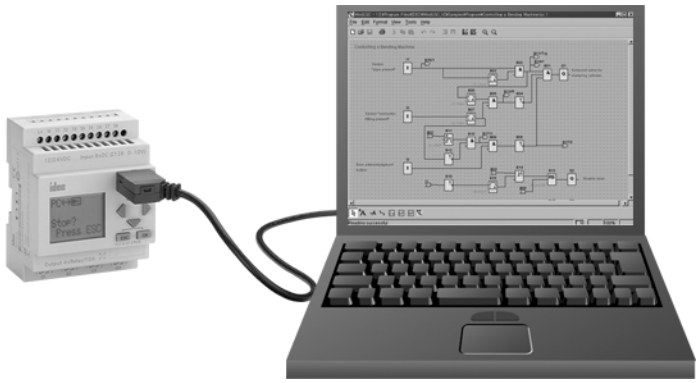
WindLGC is the exclusive programming software for the IDEC SmartRelay using Windows®. Edit, save, and print out your programs.

WindLGC Ver. 4 Features:

- Ladder programming
- Online Monitor
- Program Comparison
- Time Simulation
- Simplified connection of the functions
- Programs can be saved in PDF or JPG format

Just click the function blocks you need and link function blocks for easy wiring. Devise complicated circuits using the convenient functions of WindLGC.

To configure IDEC SmartRelay FL1C series, you must upgrade to WindLGC version 4.0.



WindLGC system requirements:

- OS: Windows95/98/ME/NT/2000/XP
- CPU recommendation: Pentium 266MHz or higher
- Memory: 64MB or more
- RAM recommendation: 128MB
- Hard disk space: 90MB or more for installing WindLGC software.
- Monitor Recommendation: Display more than 800 x 600 dots and 256 colors

Free download service, if upgrading from WindLGC Version 3 to Version 4, available at www.idec.com/usa

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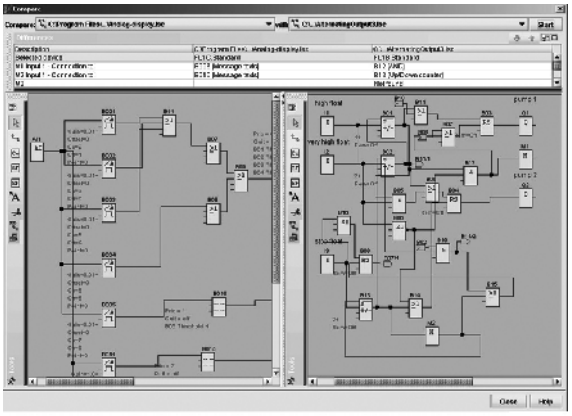
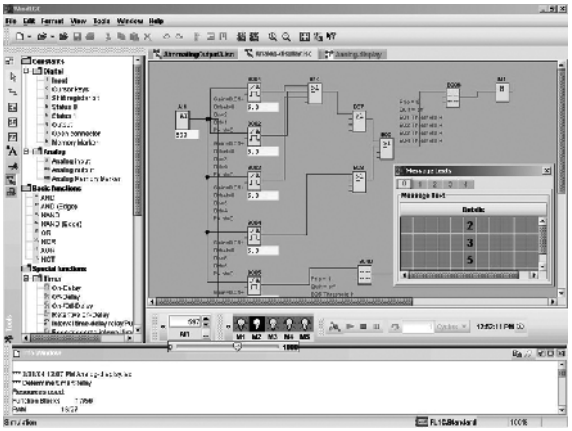
IDEC SmartRelay

Program Comparison



Simulation Mode/Online Monitor



Ladder Programming