

## OpenNet Controller



UL Listed  
File #E102342



### Programming Software; WindLDR®

- Programs all IDEC PLCs
- Windows-based (compatible with Windows 95, 98, 2000,
- NT 4.0, ME, XP or Vista)

### Features:

- Digital I/O
  - 8, 16, and 32 point cards
  - 224 inputs and outputs, 480 with expansion power supply
- Analog I/O
  - up to 42 analog inputs or 14 analog outputs
  - 0-5V, 0-10V, ±5V, ±10V, 4-20mA
- Built-In Communications Ports
  - 2 RS232 (programming port, ASCII, printer and modem ready)
  - 1 RS485 (programming port and data link)
- Built-in High-Speed Counter
  - 1 channel, 10kHz, 16-bit resolution
- Memory
  - 16K words (8K steps) user program capacity
- Realtime Calendar/Clock
- Password Protection
- PID Algorithm

### Programming Instructions


- Transmit/Receive
- Built-in X/Y Conversion
- Sub-Routine Call/Return for Modular Programming
- Square Root
- 16- and 32-bit Math, Add, Sub, Mult, Div
- Data Conversion to/from Dec, Hex, BCD, ASCII
- Block Move
- Summation
- Averaging
- Day of Week Program Scheduling

**Built-in Hayes "AT" command set for modem dialup/pager application**

**Hardware Features**

<b>CPUs</b>	<b>FC3A-CP2K</b>	High-speed counter sink output
	<b>FC3A-CP2S</b>	High-speed counter source output
<b>Electrical Specifications</b>	<b>Rated Voltage</b>	24V DC (19-30V DC, including ripple)
	<b>Maximum Input Current</b>	1.5A at 24V DC
	<b>Reverse Polarity Protection</b>	Prevents damage if incorrectly wired.
	<b>Operating Temperature</b>	0 to +55°C
	<b>Storage Temperature</b>	-25 to +70°C
	<b>Relative Humidity</b>	30 to 95% RH (non-condensing)
	<b>Vibration Resistance</b>	10 to 57 Hz, amplitude 0.075mm 57 to 150 Hz 9.8 m/sec <sup>2</sup> (1G) 10 sweep cycles/axis (IEC 1131)
	<b>Shock Resistance</b>	147 m/sec <sup>2</sup> (15G), 11ms 3 shocks each in 3 axes (IEC 1131)
	<b>Dielectric Strength</b>	Between power terminal and FG: 500V AC, 1 min Between I/O terminal and FG: 1500V AC, 1 min
	<b>Ground</b>	Grounding resistance 100Ω (maximum)
	<b>Mounting Style</b>	35mm DIN rail



 The eighth slot must be an expansion power supply module. (Photo is only an example of the range of available modules.)

		<b>Standard ONC CPU</b>
<b>General ONC Specifications</b>	<b>Available Instructions</b>	37 basic, 65 advanced (PID, square root, subroutine calls, etc.)
	<b>User Program Capacity</b>	16K words flash memory
	<b>Average Scan Time</b>	1 ms or greater
	<b>Input</b>	224 points (I0-I277)
	<b>Output</b>	224 points (Q0-Q277)
	<b>Total I/O Points</b>	Using expansion power supply: 480 I/O points
	<b>Internal Relay</b>	2048 (M0-M2557)
	<b>Special Internal Relay</b>	192 (M8000-M8237)
	<b>Shift Register</b>	256 (R0-R255)
	<b>Timer</b>	256 (T0-T255; 1-sec, 100-msec, 10-msec, 1-msec)
	<b>Counter</b>	256 (C0-C255; adding, dual pulse reversible, up/down selection reversible)
	<b>Data Register</b>	8000 (D0-D7999)
	<b>Link Register</b>	256 master (L1000 - L1317), 168 slave (L100 - L127, L200 - L227, ....., L700 - L727)
	<b>Remote I/O</b>	512 points
	<b>Real-Time Calendar/Clock Runtime</b>	Yes
	<b>Program Protection</b>	Yes (password protected)
	<b>External Run/Stop Control</b>	Yes
<b>Power Failure Protection</b>	Yes	
<b>Self-Diagnostics</b>	Yes	
<b>Auto Start Function</b>	Yes	

Part Numbers

Item	Description	Part Number	
CPU Modules	High-speed counter, sink output	FC3A-CP2K	
	High-speed counter, source output	FC3A-CP2S	
Input Modules	DC Input	16 points 24V DC input, sink/source compatible, terminal block	FC3A-N16B1
		16 points 24V DC input, sink/source compatible, nylon connector	FC3A-N16B3
		32 points 24V DC input, sink/source compatible, nylon connector	FC3A-N32B4
		32 points 24V DC input, sink/source compatible, FUJITSU connector	FC3A-N32B5
	AC Input	8 points 100V AC input, terminal block	FC3A-N08A11
Analog Input	6 channels, 4-20mA, selectable by DIP sw, terminal block	FC3A-AD1261	
	2 channels, 4-20mA, selectable by DIP sw, terminal block	FC3A-DA1221	
Output Modules	Relay Output	16 points relay output, terminal block	FC3A-R161
		16 points relay output, nylon connector	FC3A-R162
	Transistor Output	16 points transistor output sink, terminal block	FC3A-T16K1
		16 points transistor output sink, nylon connector	FC3A-T16K3
		16 points transistor output protect source, terminal block	FC3A-T16P1
		32 points transistor output sink, nylon connector	FC3A-T32K4
		32 points transistor output sink, FUJITSU connector	FC3A-T32K5
	Expansion Module	Expansion power supply	FC3A-EA1
Network Interface Modules	Remote I/O Master Module	FC3A-SX5SM1	
	IDEC-Modbus Converter Package (see Communication & Networking section for details)	IDEC-MBUS-CONVPCK	
Accessories	Housing (4 pcs/bag) for FC3A-R162	VHR-5N	
	Housing (2 pcs/bag) for FC3A-T16K3, -N16B3	VHR-10N	
	Housing (2 pcs/bag) for FC3A-T32K4, -N32B4	H18-SHF-AA	
	Pins (40 pcs/bag) for FC3A-T32K4, -N32B4	SHF-001T-0.8BS	
	Pins (20 pcs/bag) for FC3A-R162/T16K3, -N16B3	SVH-21T-P1.1	
	Cable with Fujitsu connector (for FC3A-T32K5/N32B5)	FC3A-KUSA1	
	Breakout Module (for FC3A-T32K5, -N32B5)	BX1D-T40A or BX1D-S40A	
Software	Windows-based programming software for IDEC PLCs - WindLDR	FC9Y-LP2CDW*	
	Software application to link OPC/DDE compliant windows applications to IDEC PLCs (for more information see Communication Section )	WINDSRV†	
Programming Cable	Cable to connect ONC to PC	FC2A-KC4C	
Manuals	ONC User Manual	EM345-0	



- \*For more information on WindLDR see page 23 and the Automation Software section.
- †For more information on WindSRV see the Automation Software section.

PLCs

Operator Interfaces

Automation Software

Power Supplies

Sensors

Communication & Networking

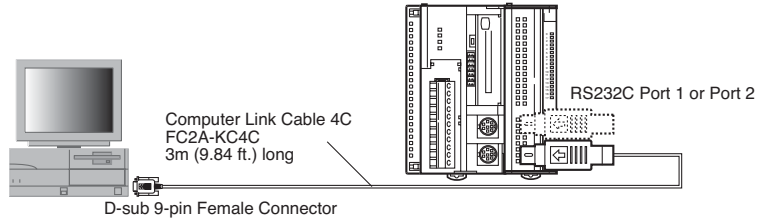
OpenNet Controller, Networking & Applications

PLCs

**PC Communication**

The ONC is programmed by our intuitive WindLDR™ software

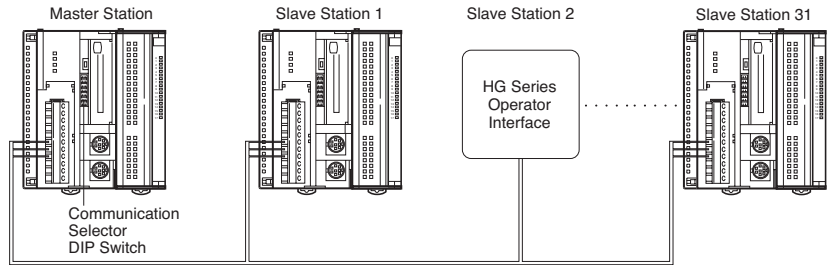
- use RS232 or RS485 ports
- upload, download and monitor programs



Operator Interfaces

**Data Link - Superiority in Networking**

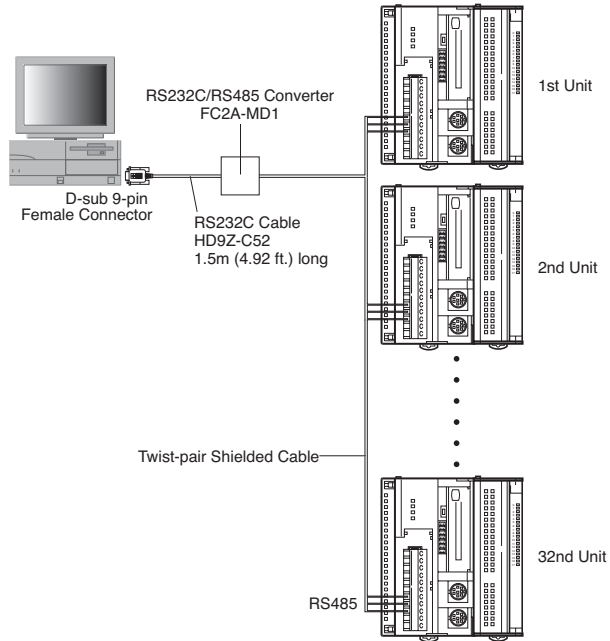
Connect up to 32 ONC PLCs or the HG Series operator interface on a data link network.



Automation Software

**Computer Link - Power & Versatility**

Connect 32 ONCs on a 1:N computer link system. Upload, download, monitor, and update data.



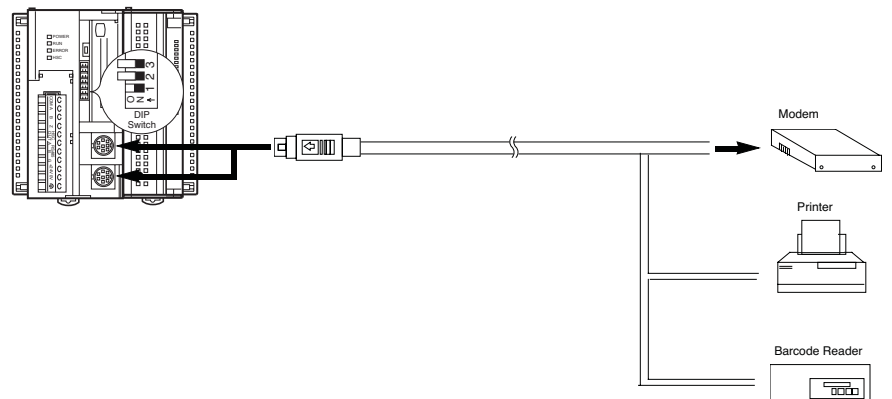
Power Supplies

Sensors

**Communication Flexibility**

Easy connections to any R232C equipment through the user defined RS232C port 1 or 2.

Built-in Hayes "AT" command set for direct modem dialup and pager applications.



Communication & Networking

### Analog Input and Output Modules



Analog Output Module  
FC3A-DA1221

**Features:**

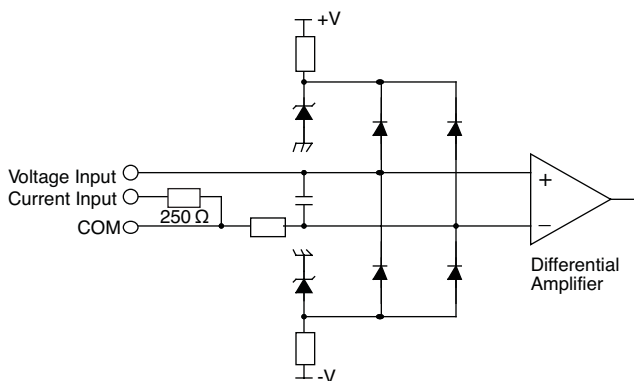
- One card handles 5 different signal types, [ $\pm 5V$ ,  $\pm 10V$ ,  $0-5V$ ,  $0-10V$ , or  $4-20mA$ ], switch selectable
- Input module has 6 inputs per card, 7 cards per CPU, 42 analog input points maximum
- Output module has 2 outputs per card, 7 cards per CPU, 14 analog output points maximum
- 12-bit resolution, 0-4000 counts, count range divides evenly
- Fast input scan, 3ms + 1 scan time
- I/O error  $\pm 0.6\%$  full scale @  $25^\circ C$
- Convenient input termination

**Specifications**

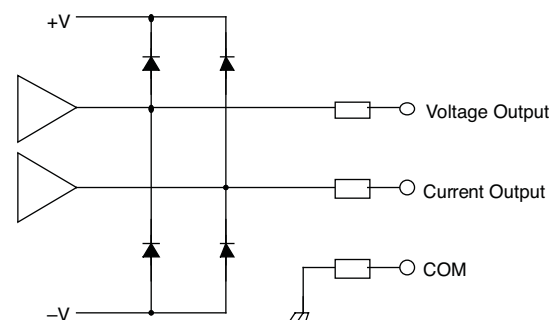
Analog	Input	Output
Points Per Card	6	2
Part Number	FC3A-AD1261	FC3A-DA1221
Connector	Removable screw terminal blocks	Removable screw terminal blocks
Input Signal	0-10V DC, $\pm 10V$ DC, 0-5V DC, $\pm 5V$ DC, 4-20mA	0-10V DC, $\pm 10V$ DC, 0-5V DC, $\pm 5V$ DC, 4-20mA
Resolution	12 bits	12 bits
Range	0-4000 counts	0-4000 counts
Input Error	$\pm 0.6\%$ of full scale @ $25^\circ C$	NA
Output Error	NA	$\pm 0.6\%$ of full scale @ $25^\circ C$
Conversion Time	3ms per point	NA
Settling Time	NA	3ms
Input Impedance	Voltage: 1 M $\Omega$ minimum Current: 250 $\Omega$	NA
Output Load Impedance	NA	Voltage=2 k $\Omega$ minimum (Current=250 $\Omega$ , 300 $\Omega$ max.)
Internal Current Draw	120mA@24V DC	120mA@24V DC

**Type of Protection**

**Analog Input Module**



**Analog Output Module**



16-Point DC Input Modules



DC Input Module  
FC3A-N16B1

DC Input Module  
FC3A-N16B3

Features:

- One card handles sink (NPN) or source (PNP) input signals
- 16 points per card, 7 cards local, 8 cards expansion, 15 cards max. per CPU
- 19-30V DC input voltage range
- Software selectable input filtering, 0-32 msec
- High-speed catch inputs, first 8 points user definable, pulse detection within 20-120µsec range
- Termination connector
  - FC3A-N16B1 - removable screw terminal blocks
  - FC3A-N16B3 - removable nylon pin connector

Specifications

Input	DC Sink/Source	
Part Number	FC3A-N16B1	FC3A-N16B3
Connector	Screw terminal blocks	Nylon pins
Input Voltage Range	19-30V DC	19-30V DC
Input Voltage	24V DC	24V DC
Current Per Point	7mA	7mA
Internal Current - all inputs ON	40mA	40mA
Input Impedance	3.4kΩ	3.4kΩ
On/Off Voltage	15/5V DC	15/5V DC
On/Off Time	20/120µs	20/120µs

32-Point DC Input Modules



DC Input Module  
FC3A-N32B4

DC Input Module  
FC3A-N32B5

Features:

- One card handles sink (NPN) or source (PNP) input signals
- 16 points per card, 7 cards local, 8 cards expansion, 15 cards max. per CPU
- 20-30V DC input voltage range
- Software selectable input filtering, 0-32 msec
- High-speed catch inputs, first 8 points user definable, pulse detection within 20-120µsec range
- Termination connector
  - FC3A-N32B4 - removable nylon pin connector
  - FC3A-N32B5 - Fujitsu connector

Specifications

Input	DC Sink/Source	
Part Number	FC3A-N32B4	FC3A-N32B5
Connector	Nylon	Fujitsu
Input Voltage Range	20-28V DC	20-28V DC
Input Voltage	24V DC	24V DC
Current Per Point	5mA	5mA
Internal Current - all inputs ON	50mA	50mA
Input Impedance	4.7kΩ	4.7kΩ
On/Off Voltage	15/5V DC	15/5V DC
On/Off Time	20/120µs	20/120µs

### 8-Point AC Input Module



AC Input Module  
FC3A-N08A11

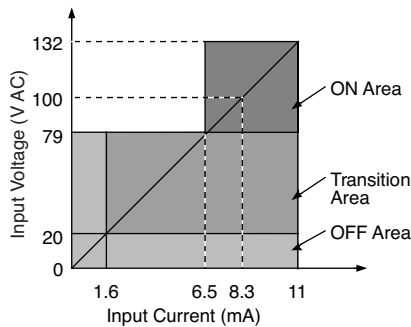
**Features:**

- 8 points per card, 7 cards local, 8 cards expansion, 15 cards max. per CPU
- 100-120V AC rated input voltage
- 85-132V AC input voltage range
- On/off detection set at 20ms
- Convenient termination connector, removable screw terminal blocks

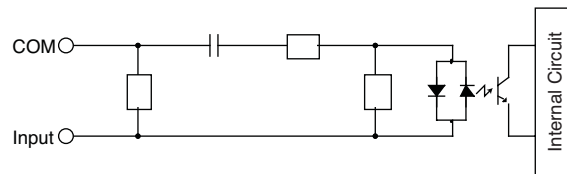
**Specifications**

Input	AC
Part Number	FC3A-N08A11
Connector	Removable screw terminal blocks
Input Voltage Range	85-132V AC
Input Voltage	100-120V AC
Current Per Point	8mA
Internal Current - all inputs ON	30mA
Input Impedance	12kΩ (60Hz)
On/Off Voltage	79/20V AC
On/Off Time	20ms

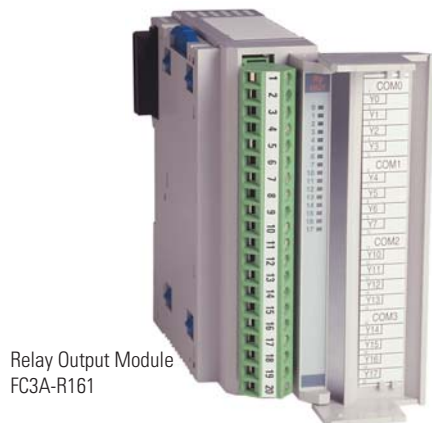
**Input Operating Range**



**Input Internal Circuit**



### 16-Point Relay Output Modules



Relay Output Module FC3A-R162

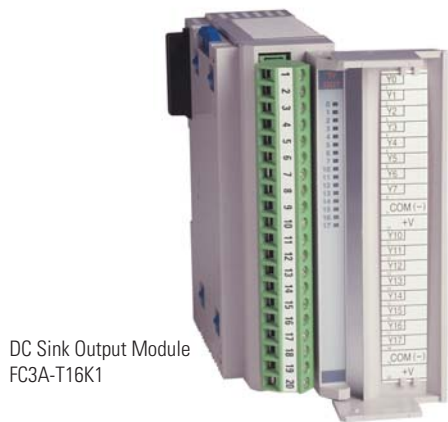
**Features:**

- 16 points per card, 4 points per common, 15 cards max. per CPU
- Outputs rated 240V AC/2A or 24V DC/2A
- Turn On/Off delay 6-10ms
- 20,000,000 operations per relay minimum
- Termination connector
  - FC3A-R161 - removable screw terminal blocks
  - FC3A-R162 - removable nylon pin connectors

**Specifications**

Output	Relay Output	
Part Number	FC3A-R161	FC3A-R162
Connector	Removable screw terminal blocks	Nylon pin
Output Voltage	240V AC/24V DC	240V AC/24V DC
Current Per Point	2A	2A
Internal Current - all inputs ON	170mA	170mA
On/Off Time	6/10ms	6/10ms

### 16-Point DC Sink Output Modules



DC Sink Output Module FC3A-T16K3

**Features:**

- 16 transistor sink outputs per card, 15 cards max. per CPU
- Outputs rated 19-30V DC/0.5A
- Turn On/Off delay 500µsec max.
- Opto-isolated outputs
- Termination connector
  - FC3A-T16K1 - removable screw terminal blocks
  - FC3A-T16K3 - removable nylon pin connectors

**Specifications**

Output	DC Sink	
Part Number	FC3A-T16K1	FC3A-T16K3
Connector	Removable screw terminal blocks	Nylon pin
Output Voltage	19-30V DC	19-30V DC
Current Per Point	500mA@ 24V DC	500mA@ 24V DC
Internal Current - all inputs ON	60mA	60mA
On/Off Time	500/500µs	500/500µs



### 16-Point DC Protect Source Output Module



Protect Source Output Module  
FC3A-T16P1

**Features:**

- 16 transistor protect source outputs per card, 15 cards max. per CPU
- Outputs rated 19-30V DC/0.5A
- Turn On/Off delay 500µsec max.
- Opto-isolated outputs
- Termination connector, removable screw terminal blocks

**Specifications**

Output	DC Source
Part Number	FC3A-T16P1
Connector	Removable screw terminal blocks
Output Voltage	19-30V DC
Current Per Point	500mA @ 24V DC
Internal Current - all inputs ON	70mA
On/Off Time	500µs/500µs

### 32-Point DC Input Modules



DC Sink Output Module  
FC3A-T32K4



DC Sink Output Module  
FC3A-T32K5

**Features:**

- 32 transistor sink outputs per card, 15 cards max. per CPU
- Outputs rated 20.4-27.6V DC/0.1A
- Turn On/Off delay 500µsec max.
- Opto-isolated outputs
- Termination connector
  - FC3A-T32K4 - removable nylon pin connector
  - FC3A-T32K5 - removable Fujitsu connector

**Specifications**

Output	DC Sink	
Part Number	FC3A-T32K4	FC3A-T32K5
Connector	Nylon pin	Fujitsu
Output Voltage	20.4-27.6V DC	20.4-27.6V DC
Current Per Point	100mA@24V DC	100mA@24V DC
Internal Current - all inputs ON	90mA	90mA
On/Off Time	500/500µs	500/500µs

## Expansion Power Supply Module



Expansion Power Supply Module  
FC3A-EA1

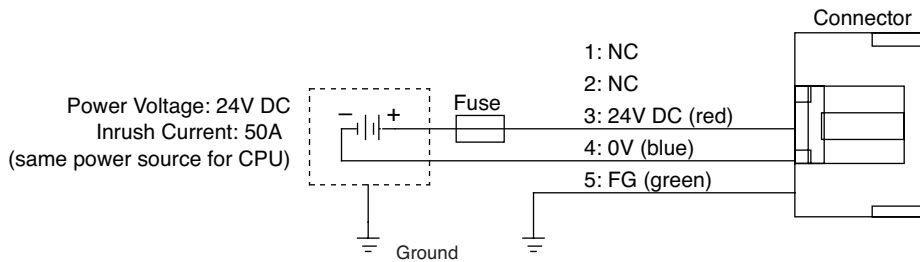
### Features:

- Expands the ONC from 224 up to 480 I/O points
- Increases I/O and functional modules by 8
- Comes with a cable connector and contacts
- Simple, easy and convenient mounting
- Install in the 8th slot only

### Specifications

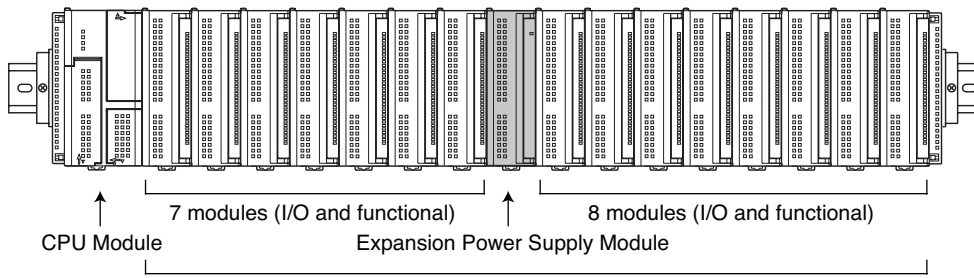
Part Number	FC3A-EA1
Connector	Nylon - 5 pin
Input Voltage Range	19 - 30V DC (including ripple)
Input Voltage	24V DC
Internal Current	30mA
Momentary Power Interruption	10 msec (24V DC), Level PS-2 (EN61131)

### Power Supply Wiring



### FC3A-EA1 Expansion Power Supply Module Mounting Position

Mount the expansion power supply module in the eighth slot



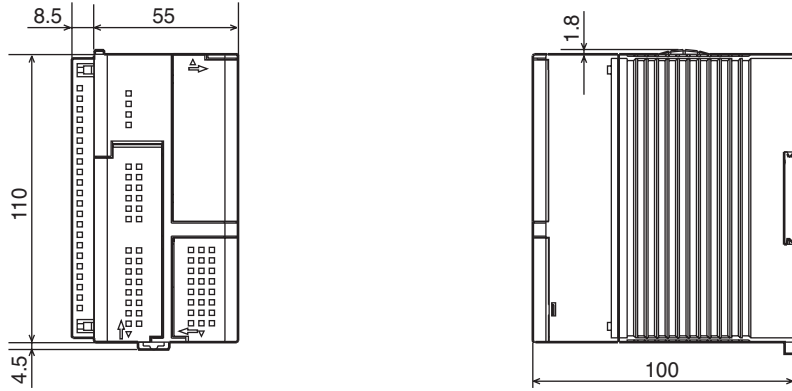
A maximum of 7 functional modules can be mounted in any of 15 slots



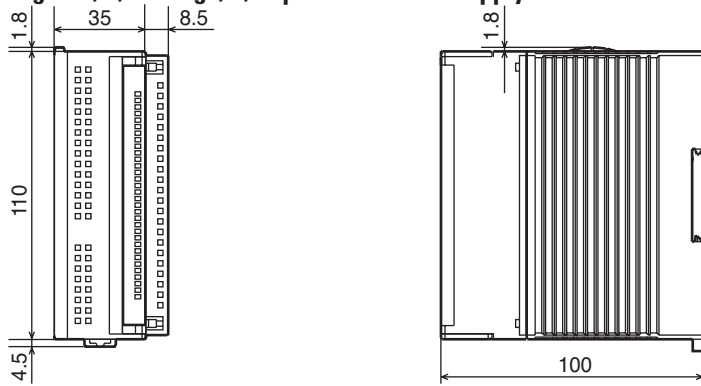
Mount the expansion power supply module only in the eighth slot, otherwise correct allocation of I/O and link register numbers may not occur.

Dimensions

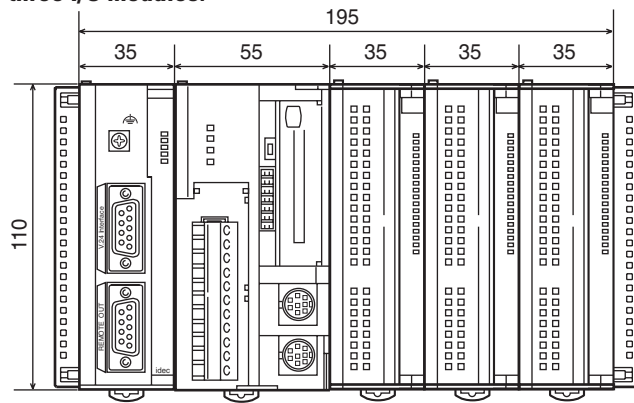
CPU Module



Digital I/O, Analog I/O, Expansion Power Supply



Example: the following figure illustrates a system setup consisting of a remote I/O master module, a CPU module, and three I/O modules.



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