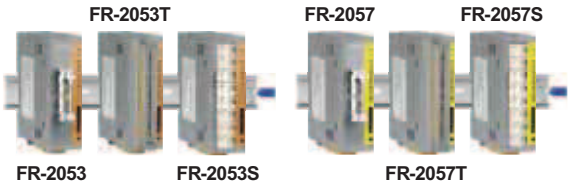
FRnet Distributed I/O Modules

FR-2053/2053T/2053S
Distributed I/O module with 16-points isolated digital intput

FR-2057/2057T/2057S
Distributed I/O module with 16-points isolated digital output



Features
- Built-in Wire-saving FRnet DI/DO control
- High-speed transmission reliability
- Simple synchronization mechanism
- No software overhead and no protocol processing
- Supporting broadcasting (1:n data transmission)
- Duplicating output easily
- Fixed I/O scan-time and I/O synchronization
- DIN-Rail mountable

Functional Description
The FR-2053/2053T/2053S has 16-channel isolated photo-coupler input, while the FR-2057/2057T/2057S has 16-channel isolated photo-coupler output. The default signal connector of FR-2053 and FR-2057 is a 20-pin header. The "T" stands for screw terminal connector and the "S" stands for 3-pin shroud connector. Each 3-pin connector has one Vcc pin, one ground and one signal pin. According to different applications, the users can choose suitable modules. The FR-2000 I/O module has an FRnet interface. The users can daisy chain several FR-2000 modules together. Via FRnet, the FR-2000 modules can extend the remote I/O control of PC, PAC, μPAC and PLC easily. Further information about the networking of FR-2053/2057; refer to literature related to I-7188EF, I-8172, FRB-100/200.

Applications
- Industrial Automation
- Remote I/O control
- Wire-saving application
- Signal transmitter

Specifications
- 2-wire cabling: CPEV 0.9S (2P twisted-pair cable), When different cables are used, the transmission distance may change.
- Power consumption: 2.0 W max
- Operating temperature: -25°C ~ +75°C
- Operating humidity: 10% ~ 90% RH, non-ondensing
- Storage temperature: -30°C ~ +85°C
- Storage humidity: 5% ~ 95% RH, non-condensing
- Weight: approximately 120g
- Dimensions: 99 mm x 32 mm x 83 mm

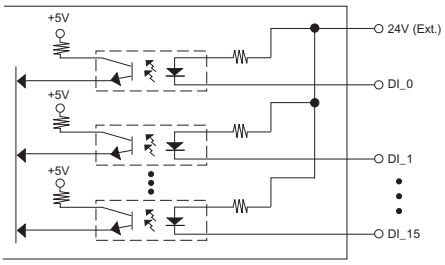
For FR-2053, FR-2053T, FR-2053S
- Input points: 16 points
- Input current: less than 6mA/channel
- Input impedance: approximately 4.1KΩ
- Digital Level 0: 3V max
- Digital Level 1: 24 +/-10%
- On delay time: less than 1.0ms
- Off delay time: less than 1.0ms

For FR-2057, FR-2057T, FR-2057S
- Output method: Isolated type NPN transistor open collector
- Output points: 16 points
- Output current: less than 30V@100mA/channel
- Load voltage: 24V max
- Turn-on delay time: less than 1.0ms
- Turn-off delay time: less than 1.5ms
- Transmission:

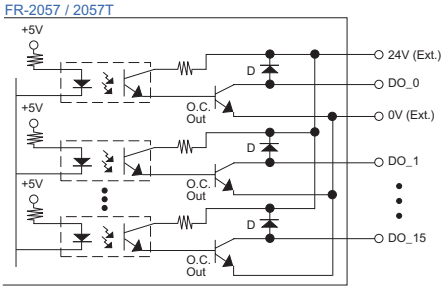
	FR-2053, FR-2053T, FR-2053S FR-2057, FR-2057T, FR-2057S
Transfer speed	250Kbps
Cyclic scan time	2.88ms
Transfer distance	max 400m

Interface circuits

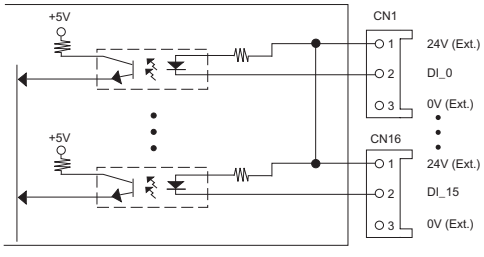
FR-2053 / 2053T



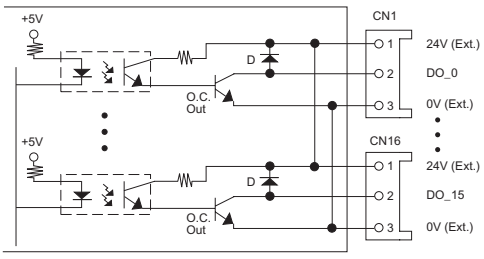
FR-2057 / 2057T



FR-2053S



FR-2057S

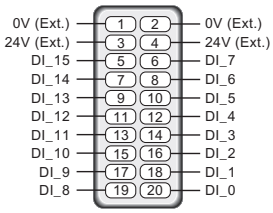


FR-2053/2053T/2053S
Distributed I/O module with 16-points isolated digital intput

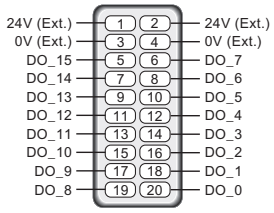
FR-2057/2057T/2057S
Distributed I/O module with 16-points isolated digital output

Pin Assignment

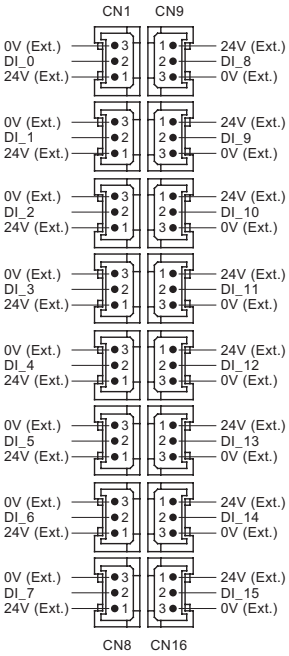
FR-2053



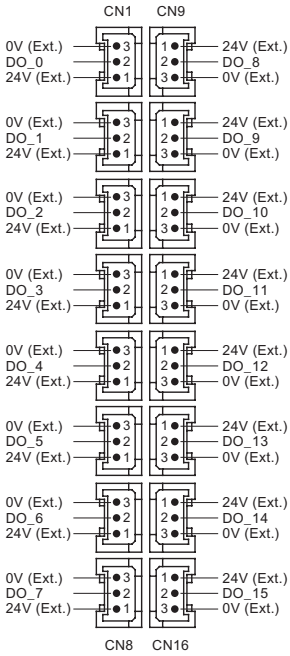
FR-2057



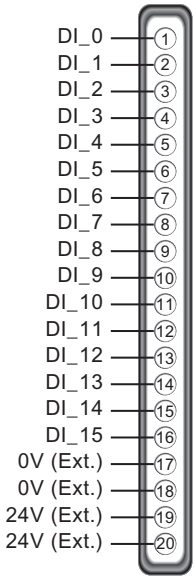
FR-2053S 16DI



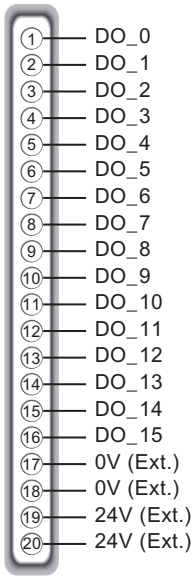
FR-2057S 16DO



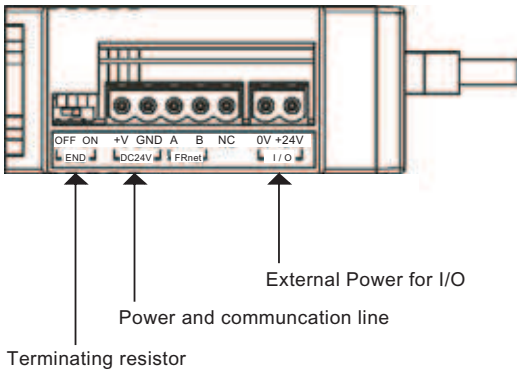
FR-2053T

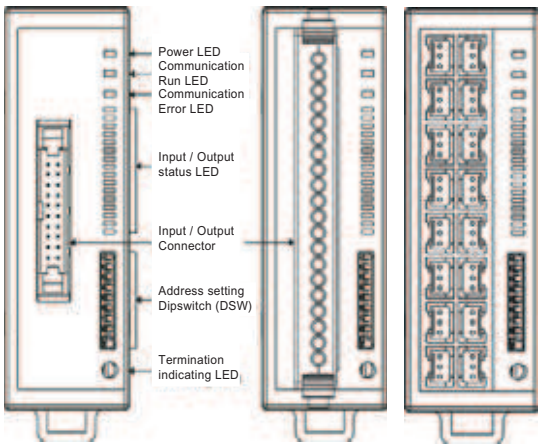


FR-2057T



FR-2053 / 2057 Block Diagram





FR-2053 FR-2057 | FR-2053T FR-2057T | FR-2053S FR-2057S

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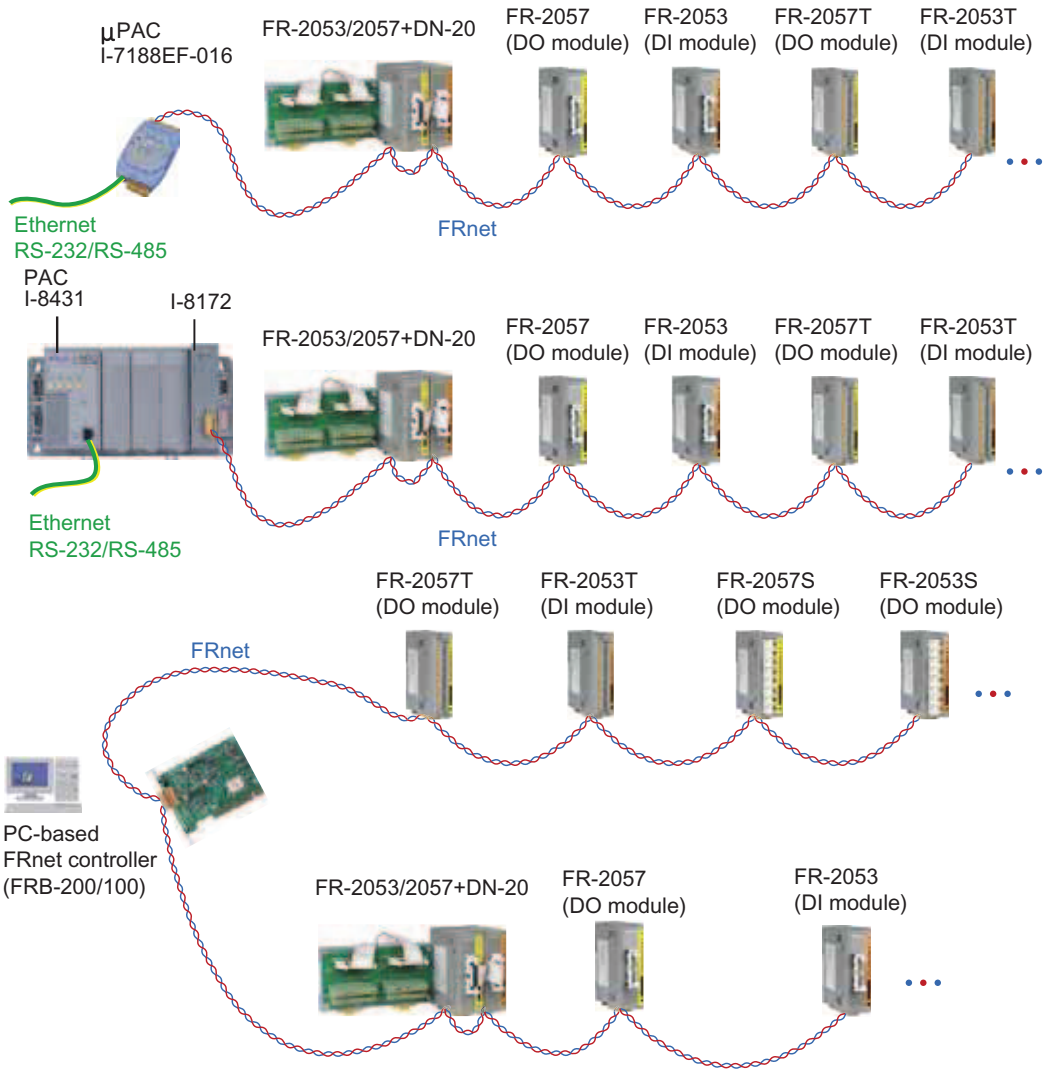
FR-2053 / 2057 Applications



Ordering Information

Standard

FR-2053T:	16-channel isolated digital input module with 20-pin screw terminal connector
FR-2057T:	16-channel isolated digital output module with 20-pin screw terminal connector
FR-2053:	16-channel isolated digital input with 20-pin header
FR-2057:	16-channel isolated digital output with 20-pin header
FR-2053S:	16-channel isolated digital input with 3-pin shroud connector
FR-2057S:	16-channel isolated digital output with 3-pin shroud connector

Optional

DN-20: (Pitch:5.08 mm)	DIN-rail mounting terminal board with two CA-2010 cable, 1m
DN-20-381: (Pitch:3.81 mm)	DIN-rail mounting terminal board with two CA-2010 cable, 1m