

iR Series

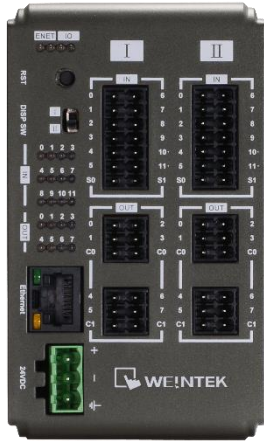
iR-ETN40R/P Specifications



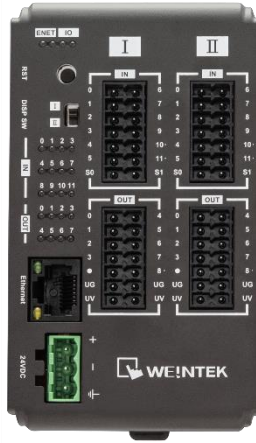
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1. Product Overview



iR-ETN40R



iR-ETN40P

2. Specifications

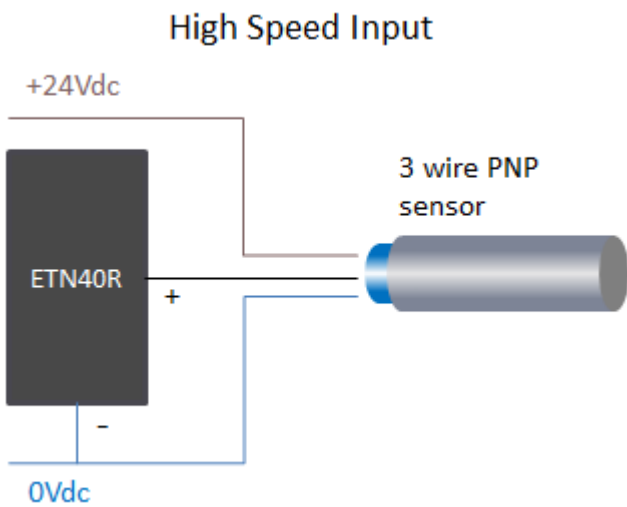
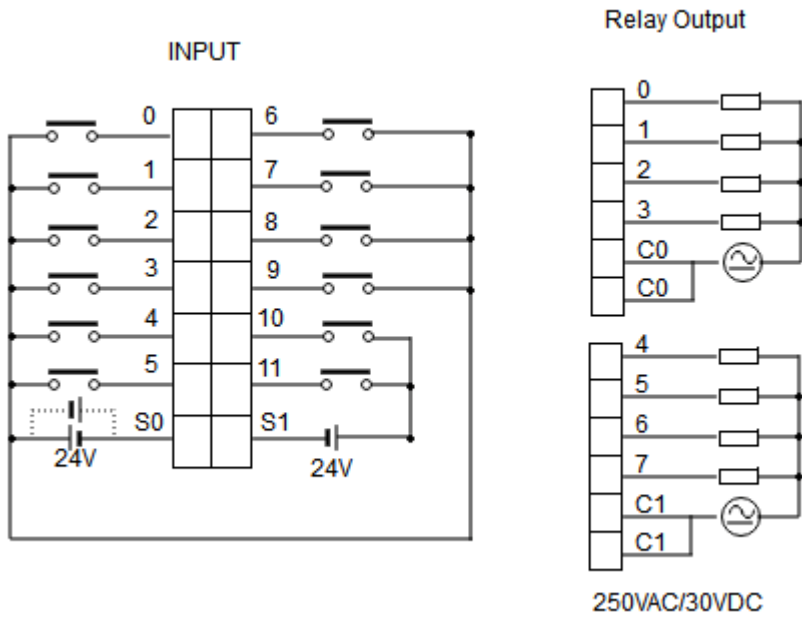
| Communication Interface Specifications | | |
|--|---|--|
| No. of Ports | 1 | |
| Data Transfer Rate | 10/100 Mbps | |
| Data Transfer Medium | 4 x 2 twisted pair copper cable; category 3 (10 Mbps), category 5 (100 Mbps) | |
| Distance Between Stations | 100 m between hub/switch and Bus Coupler or between Bus Coupler and Bus Coupler | |
| Protocol | Modbus TCP Server, EtherNet/IP adapter | |
| Max. Number of TCP/IP Connections | 8 connections | |
| Network to Logic Isolation | Yes | |
| Digital Output | | |
| Module Name | iR-ETN40R | iR-ETN40P |
| Total Number of Outputs | 16 | 16 |
| Output Type | Relay | Source |
| Output Voltage | 250VAC/30VDC | 11~28VDC |
| Output Current | 2A per channel (Max 8A) | 0.5A per channel (Max 4A) |
| Response Time | 10 ms | OFF->ON: 100 μ s ON->OFF: 600 μ s |
| Isolation | Yes, electromagnetic isolation | Yes, optocoupler isolation |
| High-speed Output | | |
| Module Name | iR-ETN40R | iR-ETN40P |
| Total Number of Outputs | 0 | 2 |
| Output Type | N/A | Source |
| Output Voltage | N/A | 5VDC |
| Output Current | N/A | 50mA per channel |
| Max. Output Frequency | N/A | 40KHz |
| Isolation | N/A | Yes, optocoupler isolation |
| Digital Input | | |

| | | | |
|--------------------------------|---------------------------------|--|--|
| Total Number of Inputs | | 24 | |
| Isolation | | Yes, optical isolation | |
| General Input | | | |
| Total Number of Inputs | | 20 | |
| Input Type | | Sink or Source | |
| Logic 1 Input Voltage | | 15~28 VDC | |
| Logic 0 Input Voltage | | 0~5 VDC | |
| Response Time | | OFF->ON: 5 ms ON->OFF: 1 ms | |
| High-speed Input | | | |
| Total Number of Inputs | | 4 | |
| Input Type | | SINK INPUT (PNP)* | |
| Logic 1 Input Voltage | | 15~28 VDC | |
| Logic 0 Input Voltage | | 0~5 VDC | |
| Max. Input Frequency | | 20KHz | |
| Expansion I/O Module | | | |
| Number of Bus Terminals | | Depends on Power Consumption (Please see section 5 in this datasheet) The maximum allowable number of iR modules is 16 modules. | |
| Digital Input Point | | Max. 224 (Including 24 built-in points and the max. allowable number is 248 points.) | |
| Digital Output Point | | Max. 112 (Including 16 built-in points and the max. allowable number is 128 points.) | |
| Analog Input Channel | | Max. 64 | |
| Analog Output Channel | | Max. 64 | |
| Indicators | | | |
| ENET | Green | Device Status Indicator | |
| | Red | Device Error Indicator | |
| IO | Green | Module Status Indicator | |
| | Red | Module Error Indicator | |
| General Specification | | | |
| Power | Module Name | iR-ETN40R | iR-ETN40P |
| | Power Supply | 24 VDC (-15%/+20%) | |
| | Power Dissipation | Nominal 255mA@24VDC, Max. 540mA@24VDC | Nominal 100mA@24VDC, Max. 530mA@24VDC |
| | Current for-Internal Bus | Max. 2A@5VDC | |
| | Current Consumption | 520mA@5VDC | 350mA@5VDC |
| | Electrical Isolation | Logic to Field Power Isolation: Yes | |
| | Back-up Fuse | ≤ 1.6A Self-recovery | |
| Specification | PCB Coating | Yes | |
| | Enclosure | Plastic | |
| | Dimensions WxHxD | 64 x 109 x 81 mm | |
| | Weight | Approx. 0.27 kg | |
| | Mount | 35mm DIN rail mounting | |
| Environment | Protection Structure | IP20 | |
| | Storage Temperature | -20° ~ 70°C (-4° ~ 158°F) | |
| | Operating Temperature | -10° ~ 60°C (14° ~ 140°F) | |
| | Relative Humidity | 10% ~ 90% (non-condensing) | |
| Certification | CE | CE marked | |

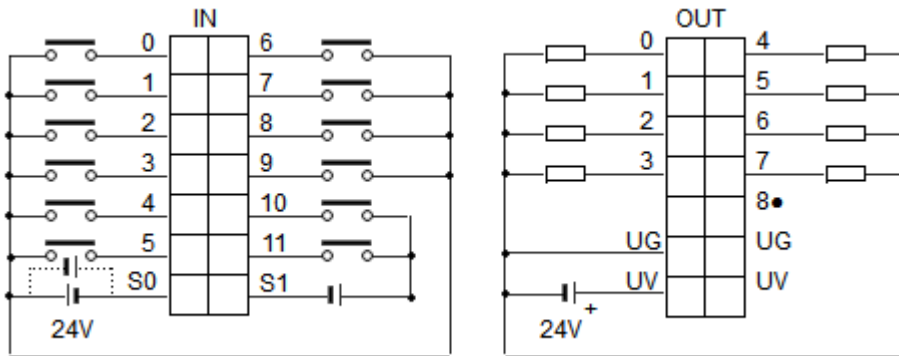
* Refer to wiring diagram - High Speed Input

3. Wiring

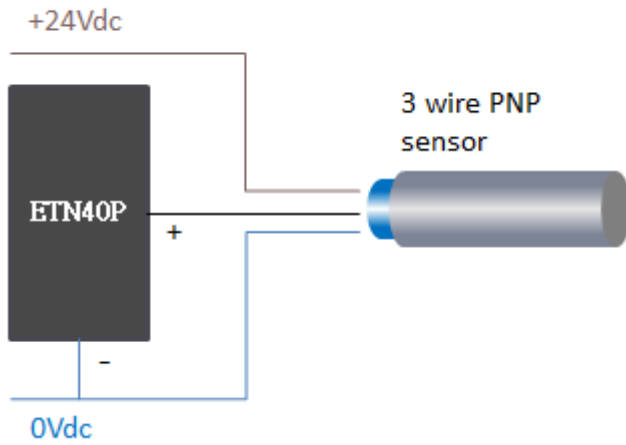
3.1 iR-ETN40R



3.2 iR-ETN40P

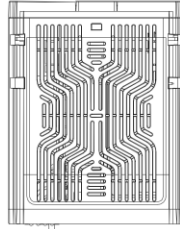


High Speed Input

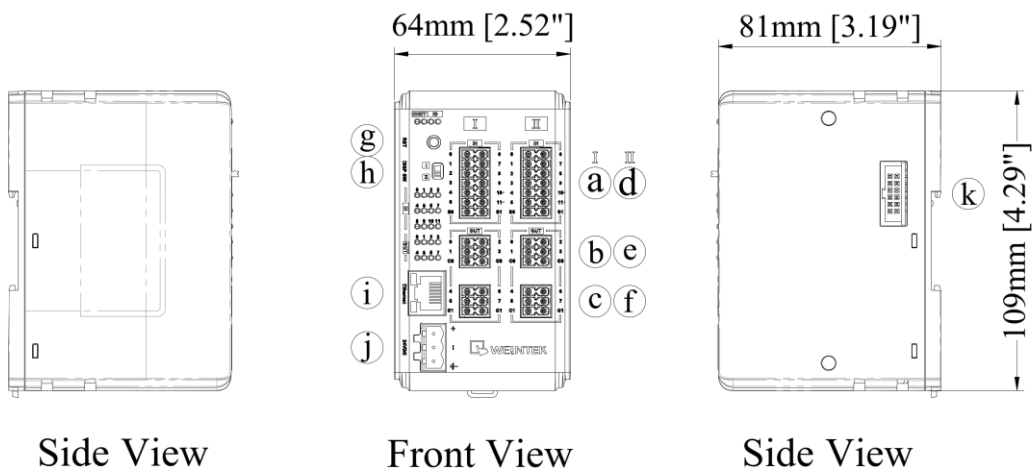


4. Dimensions

4.1 iR-ETN40R



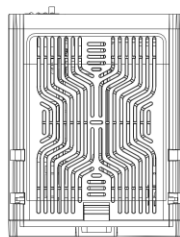
Top View



Side View

Front View

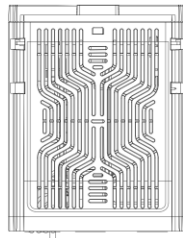
Side View



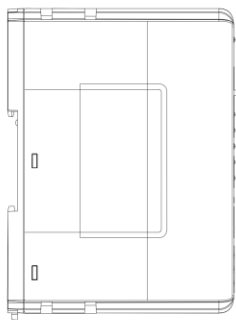
Bottom View

| | | | |
|------------|---------------------|----------------|--------------------|
| <i>a.d</i> | Input Terminal | <i>b.c.e.f</i> | Output Terminal |
| <i>g</i> | Reset Button | <i>h</i> | I/O Display Switch |
| <i>i</i> | Ethernet Port | <i>j</i> | Power Connector |
| <i>k</i> | Expansion Connector | | |

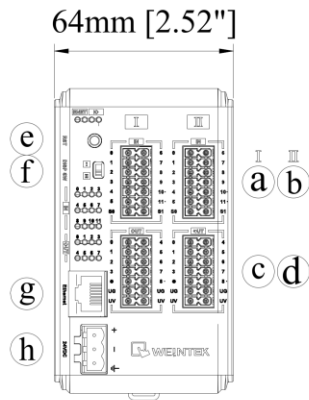
4.2 iR-ETN40P



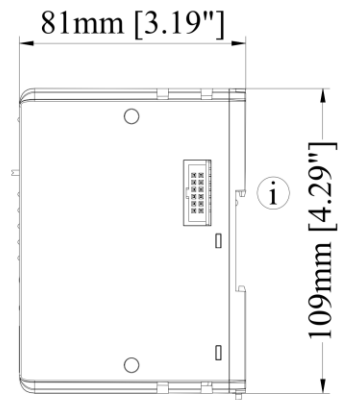
Top View



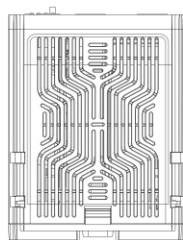
Side View



Front View



Side View



Bottom View

| | | | |
|------------|---------------------|------------|--------------------|
| <i>a.b</i> | Input Terminal | <i>c.d</i> | Output Terminal |
| <i>e</i> | Reset Button | <i>f</i> | I/O Display Switch |
| <i>g</i> | Ethernet Port | <i>h</i> | Power Connector |
| <i>i</i> | Expansion Connector | | |

5. Power Consumption

| Type | Device | Consumption(5V) | Power Supply(5V) | Power Consumption(24V) |
|-------------|------------|-----------------|------------------|------------------------|
| Coupler | iR-ETN40R | 520mA/2.6W | 2A/10W | 255mA/6.12W |
| | iR-ETN40P | 350mA/1.75W | 2A/10W | 100mA/2.4W |
| Digital I/O | iR-DM16-P | 130mA/0.65W | -- | 53mA/1.27W |
| | iR-DM16-N | 130mA/0.65W | -- | 56mA/1.34W |
| | iR-DQ08-R | 220mA/1.1W | -- | 84mA/2.02W |
| | iR-DQ16-N | 205mA/1.02W | -- | 78mA/1.87W |
| | iR-DQ16-P | 196mA/0.984W | -- | 75mA/1.80W |
| | iR-DI16-K | 83mA/0.418W | -- | 31mA/0.74W |
| Analog I/O | iR-AQ04-VI | 65mA/0.325W | -- | 25mA/0.60W |
| | iR-AI04-VI | 70mA/0.35W | -- | 27mA/0.65W |
| | iR-AM06-VI | 70mA/0.35W | -- | 27mA/0.65W |
| | iR-AI04-TR | 65mA/0.325W | -- | 25mA/0.60W |
| Motion | iR-PU01-P | 108mA/0.54W | -- | 85mA/2.04W |

Note:

The coupler is the only power supply for the modules in this system. Please consider power requirements when connecting multiple modules.

ex.1 Connecting six iR-DQ08-R, total number of points: 48+16(built-in) = 64 points, output type: relay

| Device | Name | Consumption (2A/5V) |
|---------|---|---------------------|
| Coupler | iR-ETN40R | 520mA |
| Module | iR-DQ08-R *6 | 220mA*6=1.32A |
| System | Power consumption : 0.520A + 1.32A = 1.840 A Power supply: 2A > 1.840A | |

ex.2 Connecting five iR-DI16-K and five iR-DQ16-P

Total number of Input points: 80+24(built-in) = 104 points

Total number of Output points: 80+16(built-in) = 96 points

| Device | Name | Consumption (2A/5V) |
|---------|---|---------------------|
| Coupler | iR-ETN40R | 520mA |
| Module | iR-DI16-K *5 | 83mA*5=415mA |
| | iR-DQ16-P *5 | 196mA*5= 980mA |
| System | Power consumption : 520 + 415 + 980 = 1915mA Power supply: 2A > 1.915A | |