

iR Series

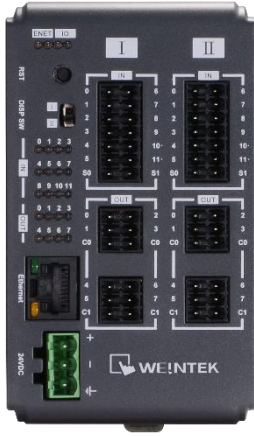
iR-ETN40R/P Specifications



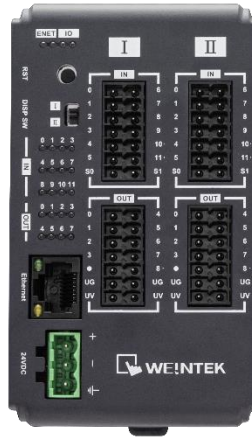
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1. Product Overview



iR-ETN40R



iR-ETN40P

2. Specifications

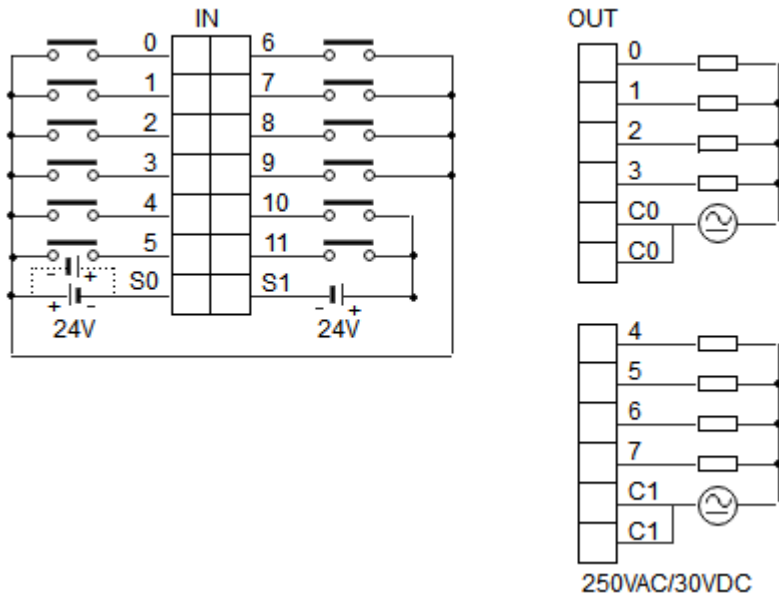
Communication Interface Specifications		
No. of Ports	1	
Data Transfer Rate	10/100 Mbps	
Data Transfer Medium	4 x 2 twisted pair copper cable; category 3 (10 Mbps), category 5 (100 Mbps)	
Distance Between Stations	100 m between hub/switch and Bus Coupler or between Bus Coupler and Bus Coupler	
Protocol	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)	
	Vibration Endurance	10 to 25Hz (X, Y, Z direction 2G 30 minutes)	
Certification	CE	CE marked	
	UL	Pending Approval	cULus Listed
	EtherNet/IP	ODVA Conformance Test	

* Refer to wiring diagram - High Speed Input

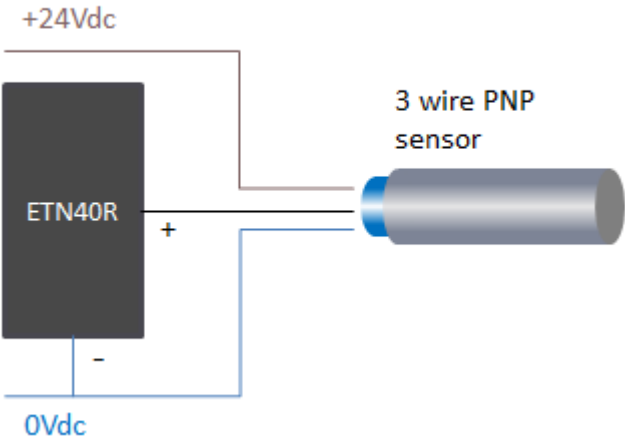
3. Wiring

3.1 iR-ETN40R

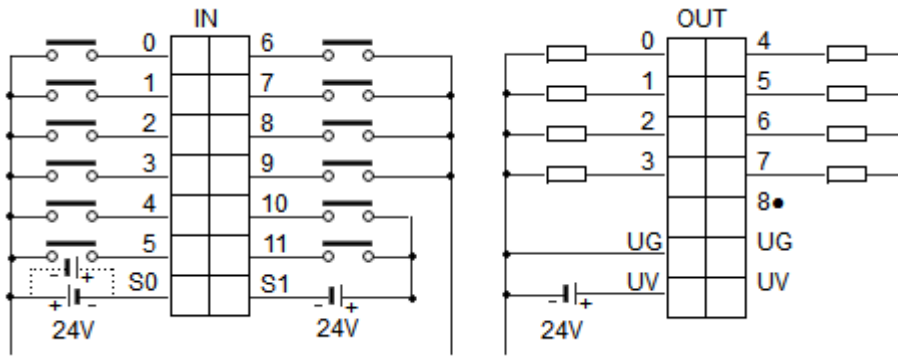


<p>IN 0-9 to Source Output (PNP) Wiring</p>	<p>IN 0-9 to Sink Output (NPN) Wiring</p>
<p style="text-align: center;">Sinking Input</p>	<p style="text-align: center;">Sourcing Input</p>
<p style="text-align: center;">IN 10/11 to Source Output (PNP) Wiring</p>	
<p style="text-align: center;">Sinking Input</p>	

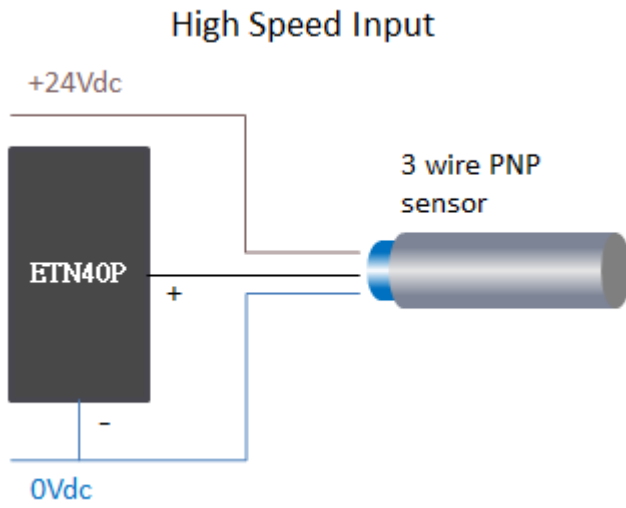
High Speed Input



3.2 iR-ETN40P

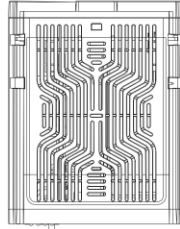


<p>IN 0-9 to Source Output (PNP) Wiring</p>	<p>IN 0-9 to Sink Output (NPN) Wiring</p>
<p style="text-align: center;">Sinking Input</p>	<p style="text-align: center;">Sourcing Input</p>
<p>IN 10/11 to Source Output (PNP) Wiring</p>	
<p style="text-align: center;">Sinking Input</p>	
<p>Source Output Wiring</p>	<p>Source High-speed Output Wiring</p>
<p style="text-align: center;">Sourcing Output</p>	<p style="text-align: center;">Sourcing Output</p>

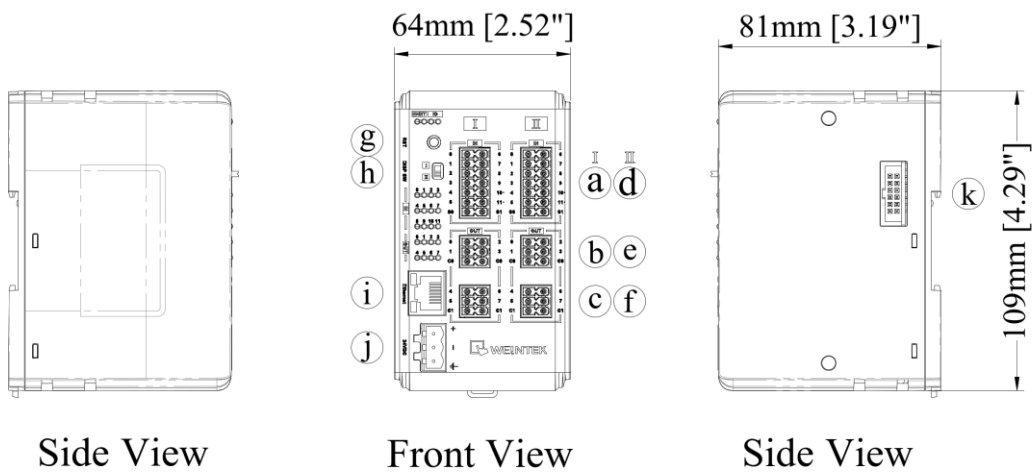


4. Dimensions

4.1 iR-ETN40R



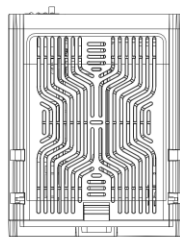
Top View



Side View

Front View

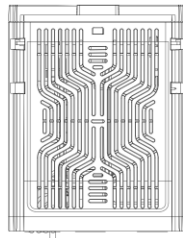
Side View



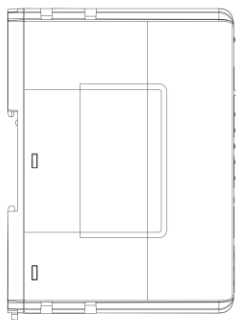
Bottom View

<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		

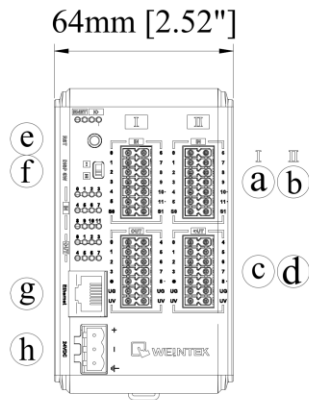
4.2 iR-ETN40P



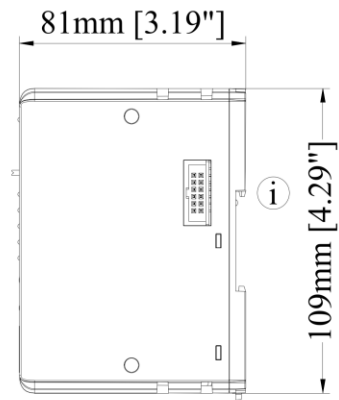
Top View



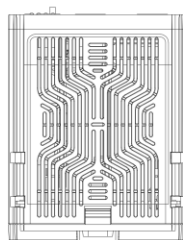
Side View



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	