

# *iR* Series

## iR-ETN40R/P Specifications



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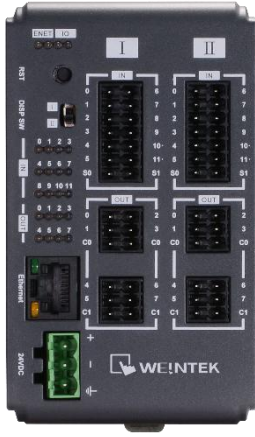
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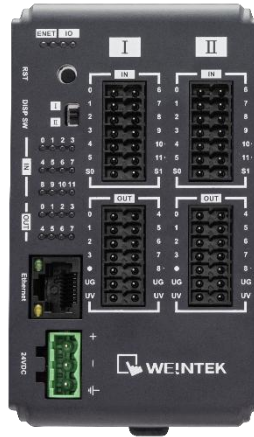
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## 1. Product Overview



iR-ETN40R



iR-ETN40P

## 2. Specifications

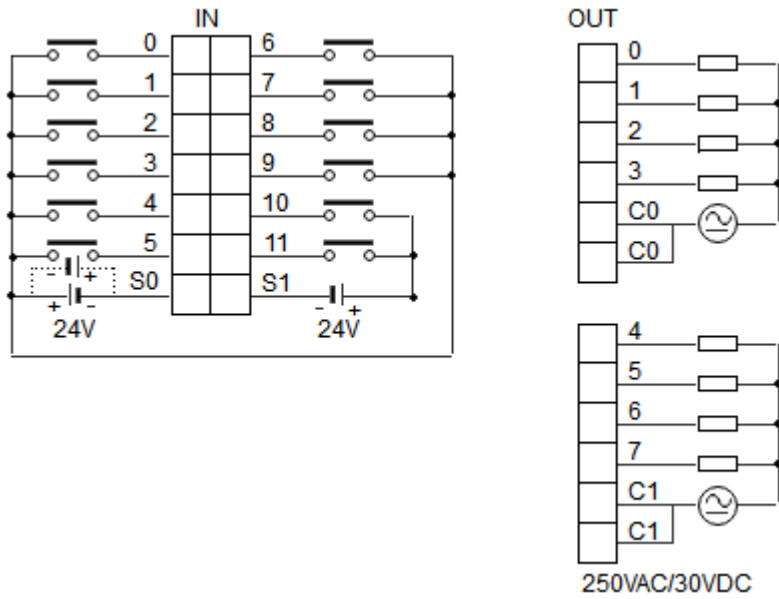
Communication Interface Specifications		
No. of Ports	1	
Data Transfer Rate	10/100 Mbps	
Data Transfer Medium	4 x 2 twisted pair copper cable; category 3 (10 Mbps), category 5 (100 Mbps)	
Distance Between Stations	100 m between hub/switch and Bus Coupler or between Bus Coupler and Bus Coupler	
Protocol	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 $\mu$ s ON->OFF: 600 $\mu$ 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		

<b>Total Number of Inputs</b>		24		
<b>Isolation</b>		Yes, optical isolation		
<b>General Input</b>				
<b>Total Number of Inputs</b>		20		
<b>Input Type</b>		Sink or Source		
<b>Logic 1 Input Voltage</b>		15~28 VDC		
<b>Logic 0 Input Voltage</b>		0~5 VDC		
<b>Response Time</b>		OFF->ON: 5 ms ON->OFF: 1 ms		
<b>High-speed Input</b>				
<b>Total Number of Inputs</b>		4		
<b>Input Type</b>		SINK INPUT (PNP)*		
<b>Logic 1 Input Voltage</b>		15~28 VDC		
<b>Logic 0 Input Voltage</b>		0~5 VDC		
<b>Max. Input Frequency</b>		20KHz		
<b>Expansion I/O Module</b>				
<b>Number of Bus Terminals</b>		Depends on Power Consumption (Please see section 5 in this datasheet) The maximum allowable number of iR modules is 16 modules.		
<b>Digital Input Point</b>		Max. 224 (Including 24 built-in points and the max. allowable number is 248 points.)		
<b>Digital Output Point</b>		Max. 112 (Including 16 built-in points and the max. allowable number is 128 points.)		
<b>Analog Input Channel</b>		Max. 64		
<b>Analog Output Channel</b>		Max. 64		
<b>Indicators</b>				
<b>ENET</b>	<b>Green</b>	Device Status Indicator		
	<b>Red</b>	Device Error Indicator		
<b>IO</b>	<b>Green</b>	Module Status Indicator		
	<b>Red</b>	Module Error Indicator		
<b>General Specification</b>				
<b>Power</b>	<b>Module Name</b>	iR-ETN40R	iR-ETN40P	
	<b>Power Supply</b>	24 VDC (-15%/+20%)		
	<b>Power Dissipation</b>	Nominal 255mA@24VDC, Max. 540mA@24VDC	Nominal 100mA@24VDC, Max. 530mA@24VDC	
	<b>Current for-Internal Bus</b>	Max. 2A@5VDC		
	<b>Current Consumption</b>	520mA@5VDC	350mA@5VDC	
	<b>Electrical Isolation</b>	Logic to Field Power Isolation: Yes		
	<b>Back-up Fuse</b>	≤ 1.6A Self-recovery		
<b>Specification</b>	<b>PCB Coating</b>	Yes		
	<b>Enclosure</b>	Plastic		
	<b>Dimensions WxHxD</b>	64 x 109 x 81 mm		
	<b>Weight</b>	Approx. 0.27 kg		
	<b>Mount</b>	35mm DIN rail mounting		
<b>Environment</b>	<b>Protection Structure</b>	IP20		
	<b>Storage Temperature</b>	-20° ~ 70°C (-4° ~ 158°F)		
	<b>Operating Temperature</b>	-10° ~ 60°C (14° ~ 140°F)		
	<b>Relative Humidity</b>	10% ~ 90% (non-condensing)		
	<b>Altitude (Air Pressure)</b>	Below 3,000 meters (70.1kPa)		
	<b>Vibration Endurance</b>	10 to 25Hz (X, Y, Z direction 2G 30 minutes)		
<b>Certification</b>	<b>CE</b>	CE marked		
	<b>UL</b>	cULus Listed		
	<b>EtherNet/IP</b>	ODVA Conformance Test		

\* Refer to wiring diagram - High Speed Input

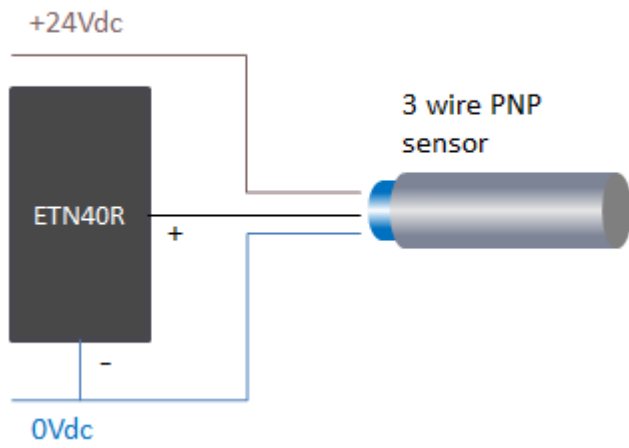
### 3. Wiring

#### 3.1 iR-ETN40R

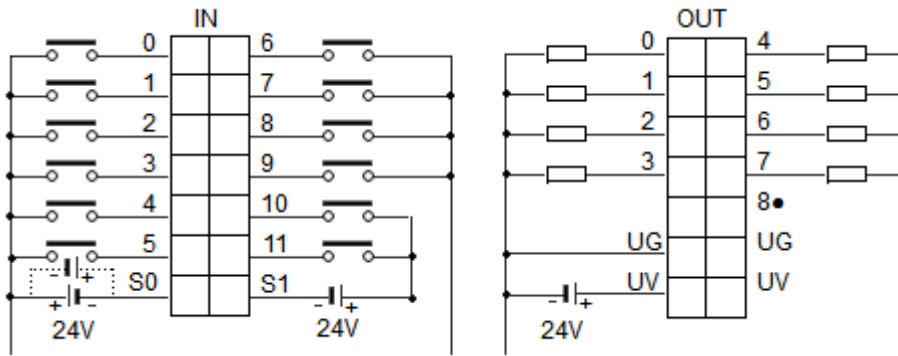


<p>IN 0-9 to Source Output (PNP) Wiring</p>	<p>IN 0-9 to Sink Output (NPN) Wiring</p>
<p style="text-align: center;"><b>Sinking Input</b></p>	<p style="text-align: center;"><b>Sourcing Input</b></p>
<p>IN 10/11 to Source Output (PNP) Wiring</p>	
<p style="text-align: center;"><b>Sinking Input</b></p>	

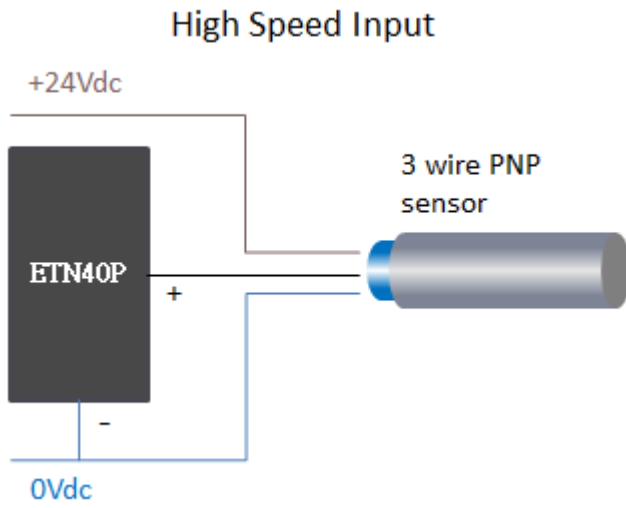
### High Speed Input



### 3.2 iR-ETN40P

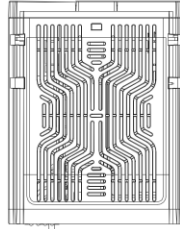


<p><b>IN 0-9 to Source Output (PNP) Wiring</b></p> <p style="text-align: center;"><b>Sinking Input</b></p>	<p><b>IN 0-9 to Sink Output (NPN) Wiring</b></p> <p style="text-align: center;"><b>Sourcing Input</b></p>
<p style="text-align: center;"><b>IN 10/11 to Source Output (PNP) Wiring</b></p> <p style="text-align: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

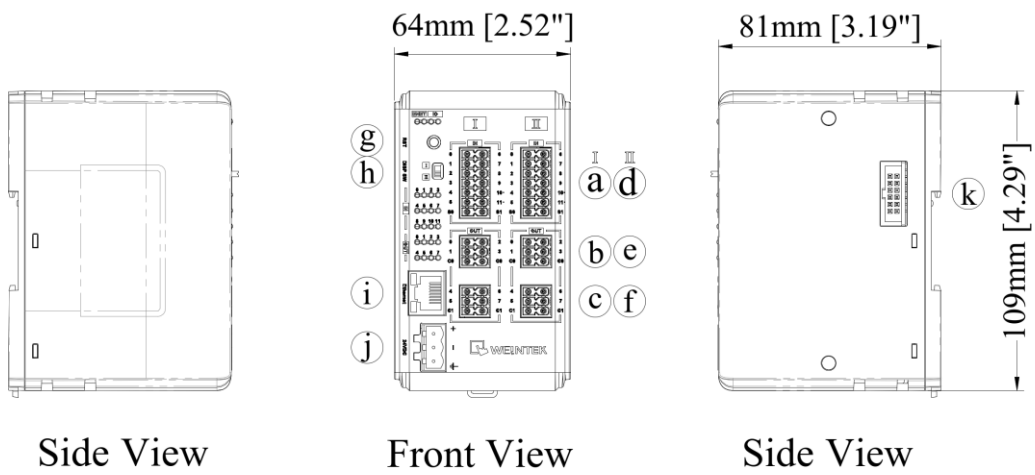


## 4. Dimensions

### 4.1 iR-ETN40R



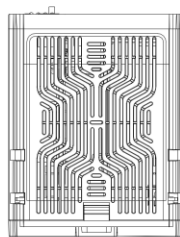
Top View



Side View

Front View

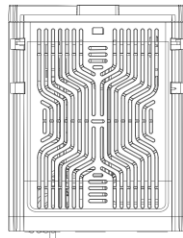
Side View



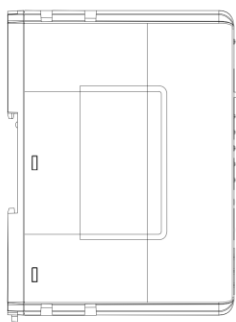
Bottom View

<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		

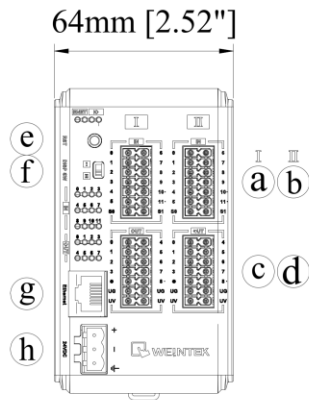
### 4.2 iR-ETN40P



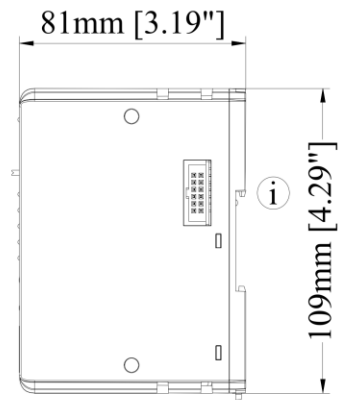
Top View



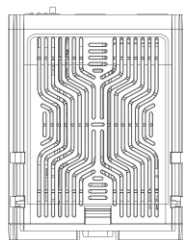
Side View



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	