EtherNet/IP Network

The Ethernet Industrial (EtherNet/IP) network protocol is an open industrial-networking standard that supports real-time I/O messaging and message exchange. It uses off-the-shelf Ethernet communication chips and physical media.

For these requirements	Select this interface
Control I/O modules and drives Act as an adapter for I/O on remote EtherNet/IP links Communicate with other EtherNet/IP devices (messages and HMI) Bridge EtherNet/IP links to route messages to devices on other networks	1756-EN2F, 1756-EN2FK 1756-EN2T, 1756-EN2TK, 1756-EN2TXT 1756-EN2TP, 1756-EN2TPK, 1756-EN2TPXT 1756-EN2TR, 1756-EN2TRK, 1756-EN2TRXT 1756-EN4TR, 1756-EN4TRK, 1756-EN4TRXT
Support Device Level Ring (DLR) and linear topologies	1756-EN2TR, 1756-EN2TRK, 1756-EN2TRXT 1756-EN3TR, 1756-EN3TRK 1756-EN4TR, 1756-EN4TRK, 1756-EN4TRXT
Support Parallel Redundancy Protocol (PRP)	1756-EN2TP, 1756-EN2TPK, 1756-EN2TPXT 1756-EN4TR(1), 1756-EN4TRK(1), 1756-EN4TRXT(1)
Support redundant adapters(2)	1756-EN4TR, 1756-EN4TRK, 1756-EN4TRXT
Provide control in environments where temperatures range from -25...+70 °C (-13...+158 °F)	1756-EN2TPXT, 1756-EN2TRXT, 1756-EN2TXT, 1756-EN4TRXT
Secure access to a control system from within the plant network	1756-EN4TR, 1756-EN4TRK, 1756-EN4TRXT

(1) These modules support PRP with revision 4.001 and higher firmware.
(2) Redundant adapters require revision 3.x and higher firmware.

For more information on redundant adapters and Ethernet, see the ControlLogix EtherNet/IP Network User Manual, publication 1756-UM004.

EtherNet/IP Network Specifications

Table 1 - ControlLogix EtherNet/IP Connections Specifications(1)

Cat. No.	Connections		CIP Unconnected Messages (backplane + Ethernet)
	TCP	CIP(2)	
1756-EN2F	128	256	128 + 128
1756-EN2T	128	256	128 + 128
1756-EN2TP	128	256	128 + 128
1756-EN2TR	128	256	128 + 128
1756-EN3TR	128	256	128 + 128
1756-EN4TR	512	1000 I/O 528 (3)	256+256

(1) There are 1000 CIP™ I/O connections and 528 CIP messaging connections.
(2) CIP connections can be used for all explicit or all implicit applications. For example, a 1756-ENBT module has a total of 128 CIP connections that can be used in any combination.
(3) There are 1000 explicit connections and 528 implicit connections.

Table 2 - ControlLogix EtherNet/IP Data Specifications(1)

Cat. No.	Produced/Consumed Tags		Socket Services	SNMP Support (password required)	Duplicate IP Detection (starting revision)
	Number of Multicast Tags, Max(2)	Unicast Available in RSLogix 5000 Software			
1756-EN2F	32	Version 16.03.00 or later	Yes	Yes	All Revisions
1756-EN2T		Version 16.03.00 or later	Yes		
1756-EN2TP		Version 24.00.00 or later	Yes		
1756-EN2TR		Version 17.01.02 or later	Yes		
1756-EN3TR		Version 18.02.00 or later	Yes		
1756-EN4TR		Version 24.00.00 or later	Yes		

(1) Includes the K and XT harsh environment catalog numbers.
(2) Each controller can send a maximum of 32 multicast produced tags to one single consuming controller. If these same tags are sent to multiple consumers, the maximum number is 31.

Table 3 - ControlLogix EtherNet/IP Specifications[1]

Cat. No.	Firmware Revision	RSLogix 5000® Software Version	RSLinx® Software Version	Packet Rate Capacity (packets/ second)[2]		Support for Extended Environment[3]	Integrated Motion on the EtherNet/IP Network Axes
				I/O	HMI/MSG		
1756-EN2F	2.x	15.02.00 or later	2.51 or later	10,000	2000	No	–
	3.6 or later	18.02.00 or later[4]		25,000[5]			Up to 8 axes supported[5]
1756-EN2T	2.x or earlier	15.02.00 or later	2.51 or later	10,000		No	–
	3.6 or later	18.02.00 or later[4]		25,000[5]			Up to 8 axes supported[5]
1756-EN2TXT	2.x	15.02.00 or later	2.51 or later	10,000		Yes	–
	3.6 or later	18.02.00 or later[4]		25,000[5]			Up to 8 axes supported[5]
1756-EN2TP	Any	24.00.00 or later[4]	4.10 or later	25,000[5]		No	Up to 8 axes supported[5]
1756-EN2TPXT	10.x or later	24.00.00 or later	4.10 or later	25,000[5]		Yes	Up to 8 axes supported[5]
1756-EN2TR	2.x	17.01.02 or later	2.55 or later	10,000		No	–
	5.x or later	18.02.00 or later[4]	2.56 or later	25,000[5]			Up to 8 axes supported[5]
1756-EN2TRXT	5.028 or later	20.01.00 or later	2.56 or later	25,000[5]		Yes	Up to 8 axes supported[5]
1756-EN3TR	3.6 or later	18.02.00 or later[4]	2.56 or later	25,000[5]		No	Up to 128 axes supported[5]
1756-EN4TR	Any	24.00.00 or later[6]	4.10 or later	50,000 without CIP Security™ 25,000 with integrity 15,000 with integrity and confidentiality	3700 without CIP Security 2700 with integrity 1700 with integrity and confidentiality	No	Up to 256 axes supported[5]
1756-EN4TRXT	Any	24.00.00 or later[6]	4.10 or later	50,000 without CIP Security 25,000 with integrity 15,000 with integrity and confidentiality	3700 without CIP Security 2700 with integrity 1700 with integrity and confidentiality	Yes	Up to 256 axes supported[5]

(1) Includes the K conformal coating catalog numbers.
(2) I/O numbers are maximums; they assume no HMI/MSG. HMI/MSG numbers are maximums, they assume no I/O. Packet rates vary depending on packet size. For more details, see Troubleshoot EtherNet/IP Application Technique, publication ENET-AT003, and the EDS file for a specific catalog number.
(3) Module operates in a broad temperature spectrum, -25…+70 ºC (-13…+158 ºF), and meets ANSI/ISA-S71.04-1985 Class G1, G2 and G3, as well as cULus, Class 1 Div 2, C-Tick, CE, ATEX Zone 2 and SIL 2 requirements for increased protection against salts, corrosives, moisture/condensation, humidity, and fungal growth.
(4) This version is required to use CIP Sync™ technology, Integrated Motion on the EtherNet/IP Network, or Exact Match keying.
(5) This value assumes the use of a 1756-L8x or 1756-L7x ControlLogix controller. For a 1756-L6x ControlLogix controller, see ControlLogix Controllers User Manual, publication 1756-UM001.
(6) CIP Security requires FactoryTalk® Linx version 6.11.00 or later.

Table 4 - Technical Specifications - 1756 EtherNet/IP Modules[1]

Attribute	1756-EN2F	1756-EN2T, 1756-EN2TP	1756-EN2TR, 1756-EN3TR	1756-EN4TR
EtherNet/IP communication rate	100 Mbps, no auto-negotiation	10/100 Mbps		10/100 Mbps 1 Gbps
Current draw @ 5.1V DC	1.2 A	1 A		1.2 A
Current draw @ 24V DC	3 mA			
Power dissipation	6.2 W	5.1 W		6.12 W
Thermal dissipation	21.28 BTU/hr	17.4 BTU/hr		20.9BTU/Hr
Isolation voltage	30V (continuous), basicinsulation type, USB to backplane Type tested at 980V AC for 60 s Compliant and tested according to IEC/UL 61010-1	30V (continuous), basic insulation type, Ethernet to backplane, USB to Backplane, and USB to Ethernet[2] Type tested at 980V AC for 60 s Compliant and tested according to IEC/UL 61010-1		30V (continuous), basic insulation type, Ethernet to backplane, USB to backplane, and USB to Ethernet Type tested at 860V AC for 60 s Compliant and tested according to IEC/UL 61010-1
Slot width	1			
Module location	Chassis-based, any slot			
Chassis	1756-A4, 1756-A7, 1756-A10, 1756-A13, 1756-A17			
Power supply, standard	1756-PA72, 1756-PA75, 1756-PB72, 1756-PB75, 1756-PC75, 1756-PH75			
Power supply, redundant	1756-PA75R, 1756-PB75R, 1756-PSCA2			
Ethernet port	1 Ethernet fiber	2 Ethernet RJ45 Category 5		2 Ethernet RJ45 Category 5E
Ethernet cable	Multimode fiber, LC connector	802.3 compliant shielded or unshielded twisted-pair		
USB port[3]	USB full speed (12 Mbps)			
Wiring category[4]	3 - on USB ports	2 - on Ethernet ports 3 - on USB ports		
Temperature code	T4			
Enclosure type rating	None (open-style)			
Transmitter launch power at Beginning of Life (BOL), min Allow -1 dB at End of Life (EOL)	-19 dBm into 62.5/125 µm fiber, — = 0.275 -22.5 dBm into 50/125 µm fiber, — = 0.20	—		

(1) Includes the K conformal coating catalog numbers.
(2) Applies only to these modules/series: 1756-EN2T/D, 1756-EN2TR/C, 1756-EN3TR/B.
(3) The USB port is intended for temporary local programming purposes only and not intended for permanent connection. Do not use the USB port in hazardous locations.
(4) Use this conductor category information for planning conductor routing as described in the system level installation manual. See the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

Table 5 - Environmental Specifications - 1756 EtherNet/IP Modules[1]

Attribute	1756-EN2F	1756-EN2T, 1756-EN2TP	1756-EN2TR, 1756-EN3TR	1756-EN4TR
Temperature, operating IEC 60068-2-1 (Test Ad, Operating Cold) IEC 60068-2-2 (Test Bd, Operating Dry Heat) IEC 60068-2-14 (Test Nb, Operating Thermal Shock)	0 °C < Ta < 60 °C (32 °F < Ta < 140 °F)			Series C Chassis: 0 ≤ Ta ≤ +60 °C (+32 ≤ Ta ≤ +140 °F) Series B Chassis: 0 ≤ Ta ≤ +50 °C (+32 ≤ Ta ≤ +122 °F)
Temperature, storage IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold) IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat) IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock)	-40 °C< Ta < 85 °C (-40 °F < Ta < 185 °F)			
Relative humidity IEC 60068-2-30 (Test Db, Unpackaged Damp Heat)	5...95% noncondensing			
Vibration IEC 60068-2-6 (Test Fc, Operating)	2 g @ 10...500 Hz			
Shock, operating IEC 60068-2-27 (Test Ea, Unpackaged Shock)	30 g			
Shock, nonoperating IEC 60068-2-27 (Test Ea, Unpackaged Shock)	30 g	30 g[2]	30 g[2]	30 g
Emission CISPR 11 (IEC 61000-6-4)	Class A			
ESD immunity IEC 61000-4-2	6 kV contact discharges 8 kV air discharges			
Radiated RF immunity IEC 61000-4-3	10V/m with 1 kHz sine wave 80% AM from 80...2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 3V/m with 1 kHz sine wave 80% AM from 2000...2700 MHz	10V/m with 1 kHz sine wave 80% AM from 80...2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 3V/m with 1 kHz sine wave 80% AM from 2000...6000 MHz		
EFT/B immunity IEC 61000-4-4	—	±3 kV at 5 kHz on Ethernet ports[2]		±3 kV at 5 kHz on Ethernet ports
Surge transient immunity IEC 61000-4-5	—	±2 kV line-earth (CM) on Ethernet ports		
Conducted RF immunity IEC 61000-4-6	10V rms with 1 kHz sine wave 80% AM from 150 kHz...80 MHz			

(1) Includes the K conformal coating catalog numbers.
(2) Applies only to these modules/series: 1756-EN2T/D, 1756-EN2TR/C,1756-EN3TR/B.

Table 6 - Certifications - 1756 EtherNet/IP Modules[1]

Certification[2]	1756-EN2T 1756-EN2TP	1756-EN2TR, 1756-EN3TR	1756-EN2F	1756-EN4TR
c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584. UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E194810.			UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E194810.
CSA	CSA Certified Process Control Equipment. See CSA File LR54689C. CSA Certified Process Control Equipment for Class I, Division 2 Group A,B,C,D Hazardous Locations. See CSA File LR69960C.			–
CE	European Union 2014/30/EU EMC Directive, compliant with: • EN 61326-1; Meas./Control/Lab., Industrial Requirements • EN 61000-6-2; Industrial Immunity • EN 61000-6-4; Industrial Emissions • EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)			
RCM	Australian Radiocommunications Act, compliant with EN 61000-6-4; Industrial Emissions			
ATEX	European Union 2014/34/EU ATEX Directive, compliant with the following: • EN IEC 60079-0 General Requirements; EN 60079-7 Explosive Atmospheres, Protection “e”; II 3 G Ex EC IIC T4 Gc • UL 22 ATEX 2818X			
UKEX	In conformity with the following UKEX Statutory Instruments and their amendments: • Schedule 1 of the UKEX Regulation 2016 No. 1107 • Equipment protection by increased safety "e", reference certificate number UL22UKEX2604X • Zone 2 classification according to UKEX Regulation 2016 No. 1107			
UKCA	In conformity with the following UK Statutory Instruments and their amendments: • 2016 No. 1091, Electromagnetic Compatibility Regulations • 2016 No. 1107, Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations • 2012 No. 3032, Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment			
FM	FM Approved Equipment for use in Class I Division 2 Group A,B,C,D Hazardous Locations			
IECEx	–		IECEx System, compliant with the Standards IEC 60079-0, General Requirements, and IEC 60079-7, Explosive Atmospheres, Protection “e”; II 3 G Ex EC IIC T4 Gc IECEx UL 22.0063X	
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3			
EtherNet/IP	ODVA conformance tested to EtherNet/IP specifications			
Morocco	In conformity with the following regulations: • Arrêté ministériel n° 6404-15 du 1 er muharram 1437 (15 octobre 2015) Équipements électriques destinés à être utilisés sous certaines limites de tension • Arrêté ministériel n° 6404-15 du 29 ramadan 1436 (16 juillet 2015) Compatibilité électromagnétique des équipements			
CCC	CCC 2020122309111998 CNCA-C23-01 强制性产品认证实施规则 防爆电气 CNCA-C23-01 CCC Implementation Rule Explosion-Proof Electrical Products			

(1) Includes the K conformal coating catalog numbers.
(2) When product is marked. See the Product Certification link at rok.auto/certifications for Declarations of Conformity, Certificates, and other certification details.