Available Communication Modules

Network	Cat. No.	Description	Page
EtherNet/IP™	1756-EN2F, 1756-EN2T, 1756-EN2TK, 1756-EN2TP, 1756-EN2TPK, 1756-EN2TR, 1756-EN2TRK, 1756-EN3TR, 1756-EN3TRK, 1756-EN4TR, 1756-EN4TRK, 1756-ENBT	EtherNet/IP bridge	4
	1756-EN2TPXT, 1756-EN2TXT, 1756-EN2TRXT, 1756-EN4TRXT	ControlLogix-XT™ Ethernet/IP bridge	4
DeviceNet®	1756-DNB/E	DeviceNet bridge	14
Data Highway Plus™	1756-DHRIO	Data Highway Plus/Remote I/O module	16
	1756-DHRIOXT	ControlLogix-XT, Data Highway Plus/Remote I/O module	16
Remote I/O	1756-DHRIO	Data Highway Plus/Remote I/O module	16
	1756-RIO/B	Remote I/O module	16
	1756-DHRIOXT	ControlLogix-XT, Data Highway Plus/Remote I/O module	16
DH-485 module	1756-DH485	DH-485 module	21
SynchLink™	1756-SYNCH	SynchLink fiber-optic communication link	23

Communication Connections

A ControlLogix® system uses connections to establish communication links between devices. The types of connections include the following:

- Controller-to-local I/O modules or local communication modules
- Controller-to-remote I/O or remote communication modules
- Controller-to-remote I/O (rack-optimized) modules
- Produced and consumed tags
- Messages
- Controller access with the Studio 5000® environment
- Controller access with RSLinx® software for HMI or other applications

You indirectly determine the number of connections the controller uses by configuring the controller to communicate with other devices in the system. The limit of connections ultimately resides in the communication module you use for the connection. If a message path routes through a communication module, the connection that is related to the message also counts towards the connection limit of that communication module.

EtherNet/IP Network

The Ethernet Industrial (EtherNet/IP) network protocol is an open industrial-networking standard that supports both real-time I/O messaging and message exchange. The EtherNet/IP network 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 1756-ENBT, 1756-ENBTK
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) 1756-EN4TR supports PRP with revision 4.001 and higher firmware.
(2) Redundant adapters require version 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-ENBT	64	128	64 + 64
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 for any combination of connections.
(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		
1756-ENBT		Version 16.03.00 or later	No		Revision 3.3

(1) Includes the K conformal coating catalog numbers and the XT extreme 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-ENBT	Any	8.02.00 or later	2.30 or later	5000	900	No	—
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, -20...70 ºC (-4...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 a1756-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/B 1756-EN2F/C	1756-EN2T/D, 1756-EN2TP/A	1756-EN2TR/C, 1756-EN3TR/B	1756-EN4TR/A	1756-ENBT/A
EtherNet/IP communication rate	100 Mbps, no auto-negotiation	10/100 Mbps		10/100 Mbps 1 Gbps	10/100 Mbps
Current draw @ 5.1V DC	1.2 A	1 A		1.2 A	700 mA
Current draw @ 24V DC	3 mA				
Power dissipation	6.2 W	5.1 W		6.12 W	3.7 W
Thermal dissipation	21.28 BTU/hr	17.4 BTU/hr		20.9BTU/Hr	12.6 BTU/hr
Isolation voltage	30V (continuous), basic insulation type, USB to backplane Type tested at 980V AC for 60 s	30V (continuous), basic insulation type, Ethernet to backplane, USB to Backplane, and USB to Ethernet[2] Type tested at 980V AC for 60 s		30V (continuous), basic insulation type, Ethernet to backplane, USB to backplane, and USB to Ethernet Type tested at 860V AC for 60 s	30V (continuous), basic insulation type, Ethernet network to backplane Type tested @ 707V DC for 60 s
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	1 Ethernet RJ45 Category 5	2 Ethernet RJ45 Category 5	2 Ethernet RJ45 Category 5E	1 Ethernet RJ45 Category 5
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			2 - on Ethernet ports
North American temp code	T4A				
ATEX temp code	T4				
IECEx temp 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/B 1756-EN2F/C	1756-EN2T/D, 1756-EN2TP/A	1756-EN2TR/C, 1756-EN3TR/B	1756-EN4TR/A	1756-ENBT/A
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)	0 °C < Ta < 60 °C (32 °F < Ta < 140 °F)
Temperature, surrounding air, max	60 °C (140 °F)			Series C Chassis: 60 °C (140 °F) Series B Chassis: 50 °C (122 °F)	60 °C (140 °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	50 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			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 1V/m with 1 kHz sine wave 80% AM from 2000...2700 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	±2 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/D 1756-EN2TP/A	1756-EN2F/B 1756-EN2F/C	1756-EN2TR/C, 1756-EN3TR/B	1756-ENBT/A	1756-EN4TR/A
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 2004/108/IEC 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 94/9/EC ATEX Directive, compliant with the following: EN 60079-15; Potentially Explosive Atmospheres, Protection "n" EN 60079-0; General Requirements II 3 G Ex nA IIC T4 Gc X DEMKO13ATEX1325026X (1756-EN2T/C only)				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 DEMKO18ATEX2139X
FM	FM Approved Equipment for use in Class I Division 2 Group A,B,C,D Hazardous Locations				
IECEx	—	IECEx System, compliant with: IEC 60079-15; Potentially Explosive Atmospheres, Protection "n" IEC 60079-0; General Requirements II 3 G Ex nA IIC T4 Gc IECEx UL 14.0008X	—	IECEx System, compliant with: IEC 60079-0; General Requirements IEC 60079-15; Potentially Explosive Atmospheres, Protection "n" IEC 60079-0; General Requirements II 3 G Ex nA IIC T4 Gc IECEx UL 14.0008X	IECEx System, compliant with the Standards IEC 60079-0, Edition 7 General Requirements, and 60079-7, Edition 5.1, Explosive Atmospheres, Protection "e"; II 3 G Ex EC IIC T4 Gc IECExUL 18.0130X
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3				
EAC	Russian Customs Union TR CU 020/2011 EMC Technical Regulation Russian Customs Union TR CU 004/2011 LV Technical Regulation				
EtherNet/IP	ODVA conformance tested to EtherNet/IP specifications				

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

Table 7 - Technical Specifications - 1756 EtherNet/IP-XT Modules

Attribute	1756-EN2TXT/D, 1756-EN2TRXT/C, 1756-EN2TPXT/A	1756-EN4TRXT/A
EtherNet/IP communication rate	10/100 Mbps	10/100 Mbps 1 Gbps
Logix communication connections	256	1000 I/O 528 [1]
TCP communication connections	128	512
Current draw @ 5.1V DC	1 A	1.2 A
Power dissipation	5.1 W	6.12 W
Thermal dissipation	17.4 BTU/hr	20.9BTU/Hr
Isolation voltage	30V (continuous), Basic Insulation Type, Ethernet to Backplane, USB to Backplane, and USB to Ethernet	
Slot width	1	
Module location	Chassis-based, any slot	
Chassis	1756-A4LXT, 1756-A5XT, 1756-A7XT, 1756-A7LXT	1756-A4LXT/C, 1756-A5XT/C, 1756-A7XT/C, 1756-A7LXT/C
Power supply, standard	1756-PAXT, 1756-PBXT	
Power supply, redundant	1756-PAXTR, 1756-PBXTR	
Ethernet port	2 Ethernet RJ45 Category 5	
Ethernet cable	802.3 compliant shielded or unshielded twisted-pair	
USB port[2]	USB full speed (12 Mbps)	
Wiring category [3]	2 - on Ethernet ports 3 - on USB ports	
North American temperature code	T4A	
ATEX temperature code	T4	
IECEx temperature code	T4	
Enclosure type rating	None (open-style)	

(1)   There are 1000 CIP I/O connections and 528 CIP messaging connections.
(2)   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.
(3)   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 8 - Environmental Specifications - 1756 EtherNet/IP-XT Module

Attribute	1756-EN2TXT/D, 1756-EN2TRXT/C, 1756-EN4TRXT/A
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)	-25 ≤Ta ≤ +70 °C (-13 ≤ Ta ≤ +158 °F)
Temperature, surrounding air, max	70 °C (158 °F)
Temperature, nonoperating 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…85 °C (-40…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
Emissions 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…6000 MHz

Table 8 - Environmental Specifications - 1756 EtherNet/IP-XT Module (Continued)

Attribute	1756-EN2TXT/D, 1756-EN2TRXT/C, 1756-EN4TRXT/A
EFT/B immunity IEC 61000-4-4	±3 kV at 5 kHz on Ethernet ports[1]
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)   Applies only to these modules/series: 1756-EN2TXT/D, 1756-EN2TRXT/C 1756-EN4TXT.

Table 9 - Certifications - 1756 EtherNet/IP-XT Module

Certification[1]	1756-EN2TXT/D, 1756-EN2TRXT/C	1756-EN4TRXT/A
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.	
CE	European Union 2004/108/IEC EMC Directive, compliant with the following: 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	
Ex	European Union 94/9/EC ATEX Directive, compliant with the following: EN 60079-15; Potentially Explosive Atmospheres, Protection "n" EN 60079-0; General Requirements II 3 G Ex nA IIC T4 Gc X	European Union 2014/34/EU ATEX Directive, compliant with the following: EN 60079-7; Explosive Atmospheres, Protection "e" EN 60079-0; General Requirements II 3 G Ex EC IIC T4 Gc
FM	—	FM Approved Equipment for use in Class I Division 2 Group A,B,C,D Hazardous Locations
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	

(1)   When product is marked. See the Product Certification link at http://www.ab.com for Declarations of Conformity, Certificates, and other certification details.