Installation Instructions

ControlLogix Controller and Memory Board

Catalog Numbers 1756-L1, 1756-L1M1, 1756-L1M2, 1756-L1M3, 1756-L55, 1756-L55M12, 1756-L55M13, 1756-L55M14, 1756-L55M16, 1756-L55M22, 1756-L55M23, 1756-L55M24, 1756-L61, 1756-L62, 1756-L63, 1756-L64, 1756-L65, 1756-M1, 1756-M2, 1756-M3, 1756-M12, 1756-M13, 1756-M14, 1756-M16, 1756-M22, 1756-M23, 1756-M24, 1784-CF64, 1784-CF128

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Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (Publication SGI-1.1 available from your local Rockwell Automation sales office or online at http://literature.rockwellautomation.com) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

WARNING 	Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.
ATTENTION 	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard and recognize the consequences.
SHOCK HAZARD 	Labels may be on or inside the equipment (for example, a drive or motor) to alert people that dangerous voltage may be present.
BURN HAZARD 	Labels may be on or inside the equipment (for example, a drive or motor) to alert people that surfaces may reach dangerous temperatures.

Explosion Hazards

WARNING

An electrical arc can occur if you:

- insert or remove the CompactFlash card.
- insert or remove the controller while backplane power is on.
- connect or disconnect the battery.
- connect or disconnect the serial cable with power applied to this module or the serial device on the other end of the cable.

This could cause an explosion in hazardous location installations. Make sure that power is removed or the area is nonhazardous before proceeding

Preventing Electrostatic Discharge

ATTENTION

This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment.

- Touch a grounded object to discharge potential static.
- Wear an approved grounding wriststrap.
- Do not touch connectors or pins on component boards.
- Do not touch circuit components inside the equipment.
- Use a static-safe workstation, if available.
- Store the equipment in appropriate static-safe packaging when not in use.

Removing Module While Under Power (RIUP)

WARNING

When you insert or remove the module while backplane power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations.

Be sure that power is removed or the area is nonhazardous before proceeding. Repeated electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance that can affect module operation.

Environment and Enclosure

ATTENTION

This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in IEC publication 60664-1), at altitudes up to 2000 m (6561 ft) without derating.

This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR Publication 11. Without appropriate precautions, there may be potential difficulties ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbance.

This equipment is supplied as open-type equipment. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present and appropriately designed to prevent personal injury resulting from accessibility to live parts. The enclosure must have suitable flame-retardant properties to prevent or minimize the spread of flame, complying with a flame spread rating of 5VA, V2, V1, V0 (or equivalent) if non-metallic. The interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.

In addition to this publication, see:

- Industrial Automation Wiring and Grounding Guidelines, for additional installation requirements, Allen-Bradley publication 1770-4.1.
- NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure.

North American Hazardous Location Approval

The following information applies when operating this equipment in hazardous locations.	**Informations sur l'utilisation de cet équipement en environnements dangereux.**
Products marked "CL I, DIV 2, GP A, B, C, D" are suitable for use in Class I Division 2 Groups A, B, C, D, Hazardous Locations and nonhazardous locations only. Each product is supplied with markings on the rating nameplate indicating the hazardous location temperature code. When combining products within a system, the most adverse temperature code (lowest "T" number) may be used to help determine the overall temperature code of the system. Combinations of equipment in your system are subject to investigation by the local Authority Having Jurisdiction at the time of installation.	Les produits marqués "CL I, DIV 2, GP A, B, C, D" ne conviennent qu'à une utilisation en environnements de Classe I Division 2 Groupes A, B, C, D dangereux et non dangereux. Chaque produit est livré avec des marquages sur sa plaque d'identification qui indiquent le code de température pour les environnements dangereux. Lorsque plusieurs produits sont combinés dans un système, le code de température le plus défavorable (code de température le plus faible) peut être utilisé pour déterminer le code de température global du système. Les combinaisons d'équipements dans le système sont sujettes à inspection par les autorités locales qualifiées au moment de l'installation.

WARNING

EXPLOSION HAZARD -

- Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous.
- Do not disconnect connections to this equipment unless power has been removed or the area is known to be nonhazardous. Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product.
- Substitution of components may impair suitability for Class I, Division 2.
- If this product contains batteries, they must only be changed in an area known to be nonhazardous.

AVERTISSEMENT

RISQUE D'EXPLOSION –

- Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher l'équipement.
- Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher les connecteurs. Fixer tous les connecteurs externes reliés à cet équipement à l'aide de vis, loquets coulissants, connecteurs filetés ou autres moyens fournis avec ce produit.
- La substitution de composants peut rendre cet équipement inadapté à une utilisation en environnement de Classe I, Division 2.
- S'assurer que l'environnement est classé non dangereux avant de changer les piles.

European Hazardous Location Approval

European Zone 2 Certification (The following applies when the product bears the Ex or EEx Marking)

This equipment is intended for use in potentially explosive atmospheres as defined by European Union Directive 94/9/EC.

The LCIE (Laboratoire Central des Industries Electriques) certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of Category 3 equipment intended for use in potentially explosive atmospheres, given in Annex II to this Directive.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 60079-15.

ATTENTION

This equipment is not resistant to sunlight or other sources of UV radiation.

WARNING

- This equipment must be used only with ATEX certified backplanes.
- Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product.
- Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous.
- Equipment must be installed in an enclosure providing at least IP54 protection when applied in Class I, Zone 2 environments.
- This equipment shall be used within its specified ratings defined by Allen-Bradley.

Before You Begin

Read this section for important information about using these products, noting that this publication covers the products shown in the table.

Product	Cat. No.	Series
ControlLogix5550 controller	1756-L1, 1756-L1M1, 1756-L1M2, 1756-L1M3	A
ControlLogix5555 controller	1756-L55, 1756-L55M12, 1756-L55M13, 1756-L55M14, 1756-L55M16, 1756-L55M22, 1756-L55M23, 1756-L55M24	A
ControlLogix5561 controller	1756-L61	A, B
ControlLogix5562 controller	1756-L62	A, B
ControlLogix5563 controller	1756-L63	A, B
ControlLogix5564 controller	1756-L64	B
ControlLogix5565 controller	1756-L65	B
ControlLogix5550 memory board	1756-M1, 1756-M2, 1756-M3	A
ControlLogix5555 memory board	1756-M12, 1756-M13, 1756-M14, 1756-M16, 1756-M22, 1756-M23, 1756-M24	A
Industrial CompactFlash card	1784-CF64, 1784-CF128	A

Use the following table to determine which firmware revisions to use with your controller and memory board combination.

Controller and Memory Board Combinations

Controller and Memory Board	Series	Use this revision or later	
1756-L1	None	Any.	
1756-L1M1			
1756-L1M2			
1756-L1M3			
1756-L55M12		10.*x* or later.	
1756-L55M13		6.*x* or later.	
1756-L55M14			
1756-L55M16			
1756-L55M22		10.*x* or later.	
1756-L55M23		8.*x* or later.	
1756-L55M24			
1756-L61	A	12.*x* or later.	
	B	13.40 or later.	
1756-L62	A	12.*x* or later.	
	B	13.40 or later.	
1756-L63	A	**No** CompactFlash card	10.*x* or later.
		CompactFlash card	11.*x* or later.
	B	13.40 or later.	
1756-L64	B	16 or later.	
1756-L65	B	17 or later.	

Make sure that the firmware revision is compatible with your version of RSLogix 5000 software.

ControlLogix Controller Common Specifications - 1756-L1, 1756-L1M1, 1756-L1M2, 1756-L1M3, 1756-L55, 1756-L55M12, 1756-L55M13, 1756-L55M14, 1756-L55M16, 1756-L55M22, 1756-L55M23, 1756-L55M24, 1756-L61, 1756-L62, 1756-L63, 1756-L64, and 1756-L65

Attribute	Value
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 … 60 °C (32…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… 85 °C (-40…185 °F)
Relative humidity	IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): • 5…95% noncondensing
Vibration	IEC60068-2-6 (Test Fc, Operating): • 2 g @ 10…500 Hz
Shock, operating	IEC60068-2-27 (Test Ea, Unpackaged Shock): • 30 g
Shock, nonoperating	IEC60068-2-27 (Test Ea, Unpackaged Shock): • 50 g
Emissions	CISPR 11: • Group 1, 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 at 900 Mhz • 10V/M with 200 Hz 50% Pulse 100% AM at 1890 Mhz • 1V/m with 1 kHz line-wave 80% AM from 2.0…2.7 GHz
EFT/B immunity	IEC 61000-4-4: • ±4 kV at 5 kHz on communications ports
Surge transient immunity	IEC 61000-4-5: • ±2 kV line earth (CM) on communications ports

ControlLogix Controller Common Specifications - 1756-L1, 1756-L1M1, 1756-L1M2, 1756-L1M3, 1756-L55, 1756-L55M12, 1756-L55M13, 1756-L55M14, 1756-L55M16, 1756-L55M22, 1756-L55M23, 1756-L55M24, 1756-L61, 1756-L62, 1756-L63, 1756-L64, and 1756-L65

Attribute	Value
Conducted RF immunity	IEC 61000-4-6: • 10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz
Enclosure type rating	None, open style
Isolation voltage	30V (continuous), Basic Insulation Type, RS232 to system • Controllers type tested to withstand 707V DC for 60 s
Wiring category[1]	2 - on communications ports
Programming cable	1756-CP3 or 1747-CP3 serial cable
North American temperature code	T4A
IEC temperature code	T4
Intrinsically safe	No
Replacement battery	1756-L1, 1756-L1M1, 1756-L1M2, 1756-L1M3: 1756-BA1 (0.59 g lithium) 1756-L55, 1756-L55M12, 1756-L55M13, 1756-L55M14, 1756-L55M16, 1756-L55M22, 1756-L55M23, 1756-L55M24: 1756-BA1 (0.59 g lithium) 1756-L61/A, 1756-L62/A, 1756-L63/A: 1756-BA1 (0.59 g lithium) 1756-L61/B, 1756-L62/B, 1756-L63/B, 1756-L64/B, 1756-L65/B: 1756-BA2(0.50 g lithium) 1756-BATM battery module: 1756-BATA (10 g lithium)

[1] Use this Conductor Category information for planning conductor routing. Refer to Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.