



Installation Instructions

ControlLogix Chassis (Catalog Numbers 1756-A4, -A7, -A10)

Use this publication as a guide when installing a ControlLogix™ chassis.

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Prepare for Installation

Make sure you have these items.

- M4 or M5 (#10 or #12) mounting tab screws and washers

For each	You need
top mounting tab	1 phillips screw, 1 flat washer 1 split lock-washer
bottom mounting tab	1 phillips screw and 1 star washer or 1 SEM screw ¹

¹ Phillips screw with attached star washer.

This chassis	Number of mounting tabs	
1756-A4, -A7	2 top	2 bottom
1756-A10	3 top	3 bottom


- phillips screwdriver
- drill
- documentation for your ControlLogix modules that will be placed in the chassis



ATTENTION: Electrostatic discharge can damage integrated circuits or semiconductors if you touch backplane connector pins. Follow these guidelines when you handle the 1756-PA72 or 1756-PB72.

- Touch a grounded object to discharge static potential.
 - Do not touch the backplane connector or connector pins.
 - Do not touch circuit components inside the power supply.
 - If available, use a static-safe work station.
 - When not in use, keep the power supply in its static-shield packaging.
-

Compliance to European Union Directives

If this product bears the  marking it is approved for installation within the European Union and EEA regions. It has been designed and tested to meet the following directives.

EMC Directive

This apparatus is tested to meet Council Directive 89/336/EEC Electromagnetic Compatibility (EMC) using a technical construction file and the following standards, in whole or in part:

- EN 50081-2 EMC – Generic Emission Standard, Part 2 – Industrial Environment
- EN 50082-2 EMC – Generic Immunity Standard, Part 2 – Industrial Environment

The product described in this document is intended for use in an industrial environment.

Low Voltage Directive

This product is also designed to meet Council Directive 73/23/EEC Low Voltage, by applying the safety requirements of EN 61131–2 Programmable Controllers, Part 2 – Equipment Requirements and Tests.

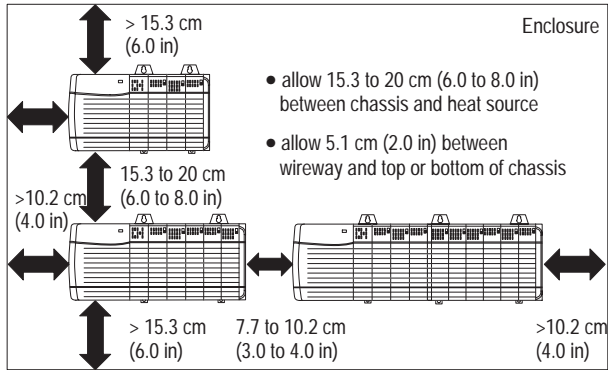
For specific information required by EN 61131-2, see the appropriate sections in this publication, as well as the following Allen-Bradley publications:

- *Industrial Automation Wiring and Grounding Guidelines*, publication 1770-4.1
- *Guidelines for Handling Lithium Batteries*, publication AG-5.4
- *Automation Systems Catalog*, publication B111

This equipment is classified as open equipment and must be installed (mounted) in an enclosure during operation as a means of providing safety protection.

Allow Sufficient Mounting Space

Important: Make sure you meet these **minimum** spacing requirements.



Minimum Cabinet Size

Important: To meet the UL/CSA standards, do not exceed these **minimum** cabinet size requirements.

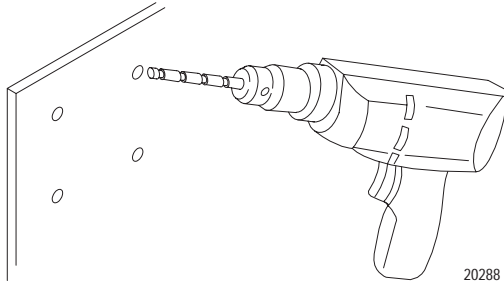
Chassis	Minimum Cabinet Size (W x H x D)
1756-A4	50.7 x 50.7 x 20.3 cm 20 x 20 x 8 in
1756-A7	50.7 x 70 x 20.3 cm 20 x 24 x 8 in
1756-A10	76.1 x 50.7 x 20.3 cm 30 x 20 x 8 in

Install Your Chassis

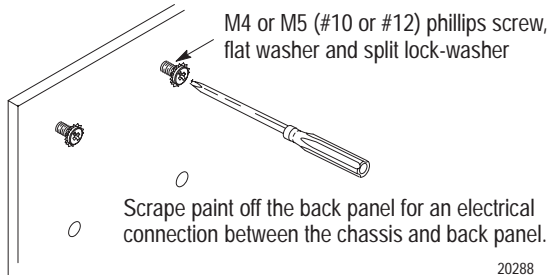


ATTENTION: Do not drill holes for a chassis above an installed chassis. Metal chips from drilling can damage the backplane and cause intermittent operation.

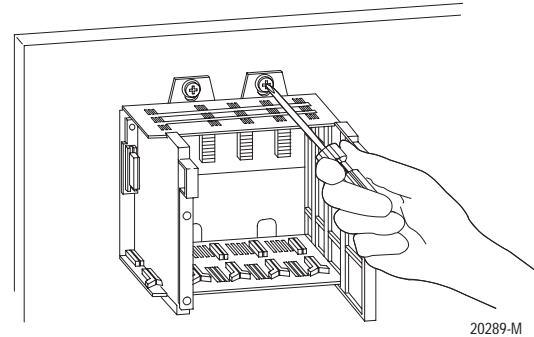
1. Drill holes in the back panel of the enclosure for chassis mounting tabs. See *Mounting Dimensions*, on page 11, for assistance in hole placement.



2. Install the hardware for the top mounting tabs.



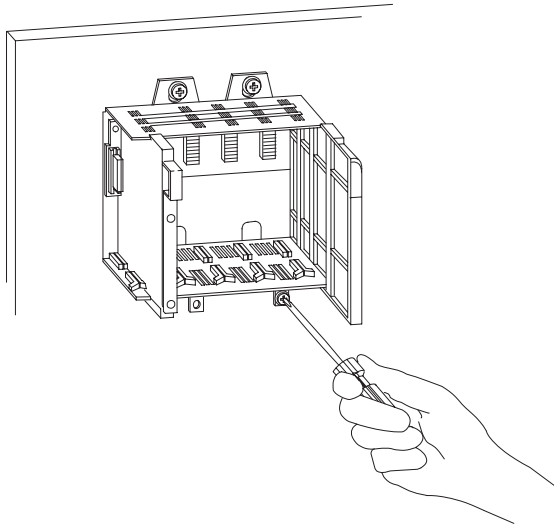
3. Slide the chassis over the installed screws and tighten them.



ATTENTION: If the chassis mounting tabs do not lay flat before the screws are tightened, use additional washers as shims so the chassis is not warped by tightening the screws.

Warping a chassis could damage the backplane and cause intermittent operation.

4. Leaving the far-left bottom tab open for functional ground, install the remaining tab screw(s).



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Ground Your Chassis

To properly ground your I/O chassis	See page
verify grounding configuration	7
install a central ground bus	8
connect functional ground	8
connect safety ground	9
connect equipment grounding conductor to ground bus	10
connect ground bus to grounding-electrode system	11

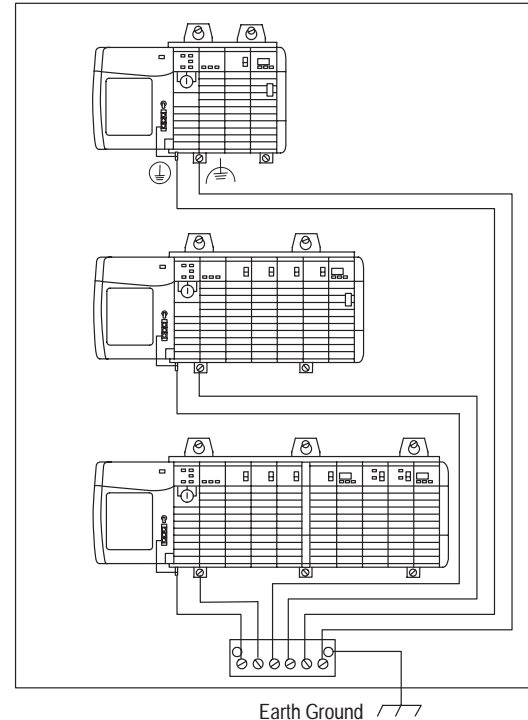
Verify Grounding Configuration

This figure shows you how to run functional and safety ground connections from the chassis and power supply to the ground bus. We recommend using a ground bus because it reduces the electrical resistance at the connection.



For more information on installing and connecting safety ground to the ControlLogix power supply, refer to the ControlLogix Power Supplies Installation Instructions, publication 1756-5.1.

Keep wire lengths as short as possible.



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Install a Central Ground Bus

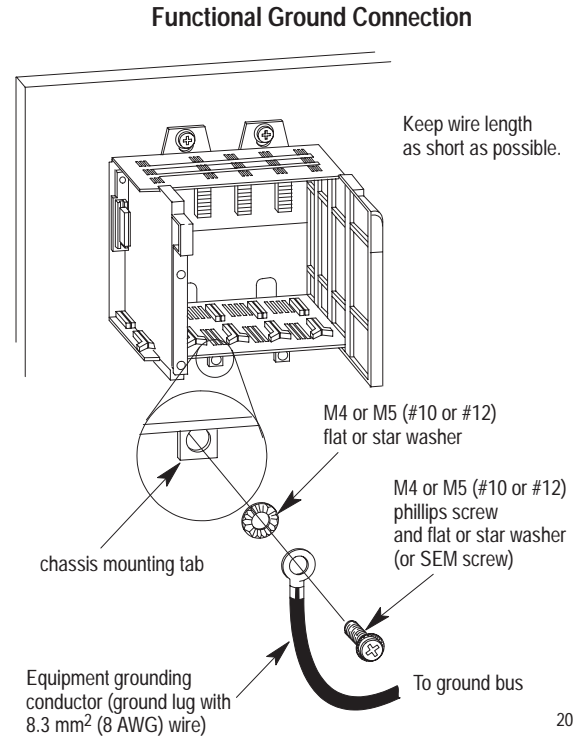
Each enclosure must contain a central ground bus. The ground bus is the common connection for each chassis within the enclosure and the enclosure itself.



For more information on installing a central ground bus, refer to the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

Connect Functional Ground

Use the following figure to connect functional ground to the chassis.

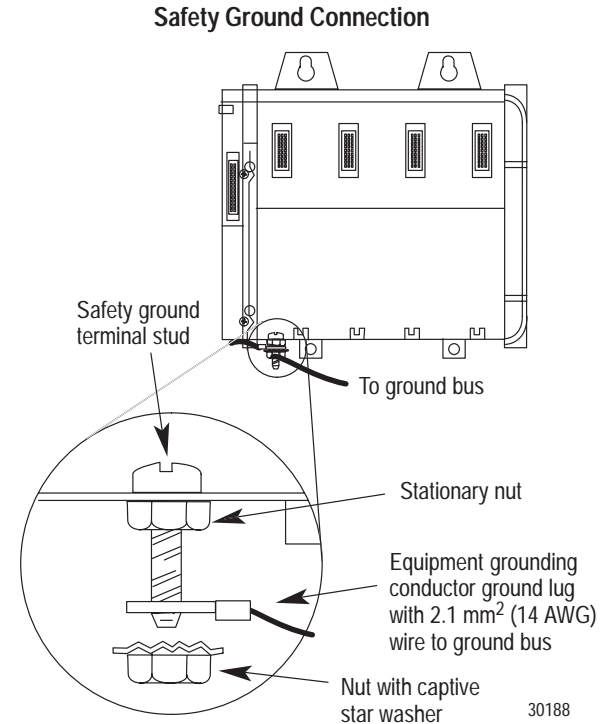


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Connect Safety Ground

Use the following figure to connect safety ground to the chassis.

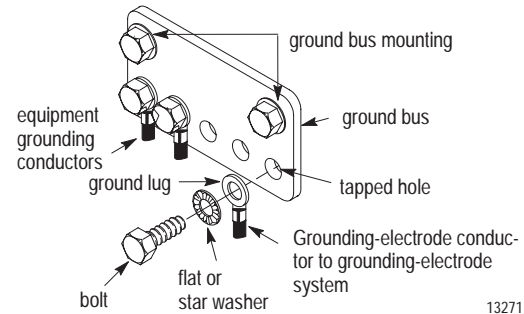
Important: Tighten the nut on the safety ground terminal stud to a torque of 12 inch-pounds.



Connect the Equipment Grounding Conductors to the Ground Bus

Connect the equipment grounding conductors (functional and safety ground) directly from each chassis to an individual bolt on the ground bus.

Important: Do not lay one ground lug directly on top of the other; this connection can become loose **due to compression** of the metal lugs. Place the first lug between a star washer and a nut with a captive star washer. After tightening the nut, place the second lug between the first nut and a second nut with a captive star washer.



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Functional Ground

- use 2.54 cm (1 in) thick copper braid or **8.3 mm² (8 AWG)** copper wire to connect equipment grounding conductor for each chassis, the enclosure, and a central ground bus mounted on the back-panel

Safety Ground

- use a 2.1 mm² (14 AWG) copper wire for the equipment grounding conductors
- use a steel enclosure to guard against electromagnetic interference (EMI)
- make sure the enclosure door viewing window is a laminated screen or a conductive optical substrate (to block EMI)
- install a bonding wire for electrical contact between the door and the enclosure; do not rely on the hinge

Connect Ground Bus to Grounding-Electrode System

The grounding-electrode system is at earth-ground potential and is the central ground for all electrical equipment and ac power within any facility. Use a grounding-electrode conductor to connect the ground bus to the grounding-electrode system. Use at **minimum 8.3 mm² (8 AWG)** copper wire for the grounding-electrode conductor to guard against EMI. The National Electrical Code specifies safety requirements for the grounding-electrode conductor.

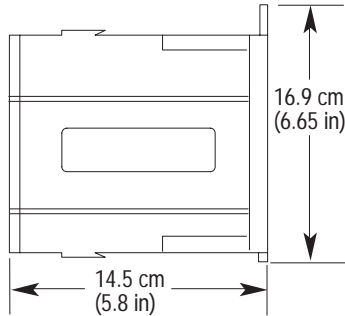
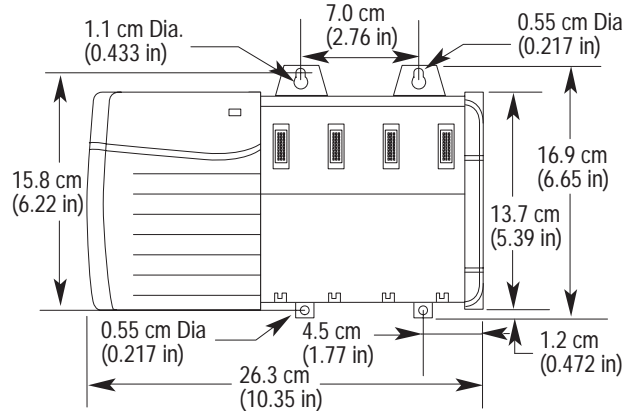
Install Your Modules and Attach Your Power Supply

Use the installation instructions/user manuals for your modules to install them in the chassis.

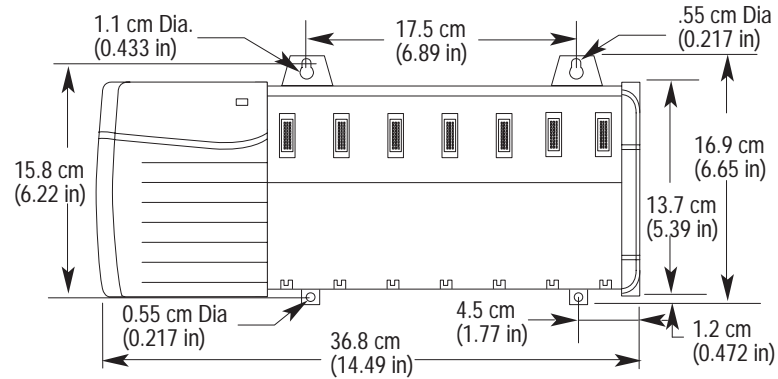
Use the installation instructions for your power supply to attach it to your chassis.

Mounting Dimensions

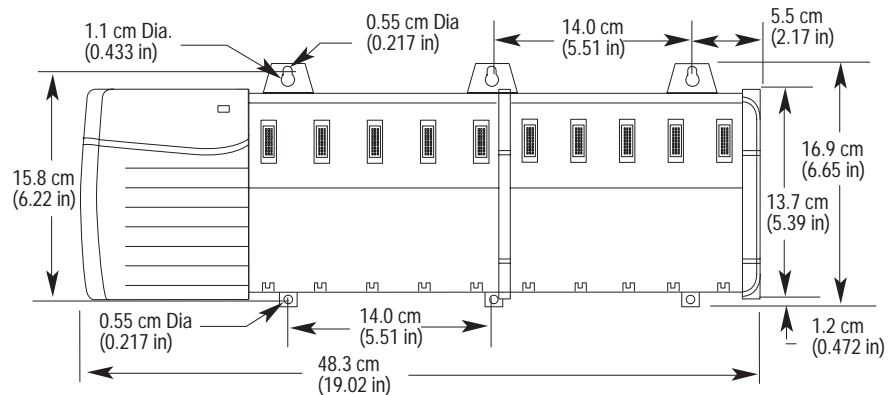
For dimensions of	See page
right side of all chassis	12
1756-A4,	12
1756-A7, -A10	13

right-side view of all chassis**1756-A4 with power supply installed (1756-PA72 or -PB72)**

1756-A7 with power supply installed (1756-PA72 or -PB72)



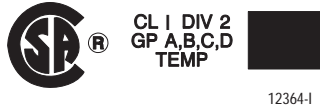
1756-A10 with power supply installed (1756-PA72 or -PB72)



CSA Hazardous Location Approval

CSA certifies products for general use as well as for use in hazardous locations.

Example CSA certification product label



Actual CSA certification is indicated by the product label and not by statements in any user documentation.

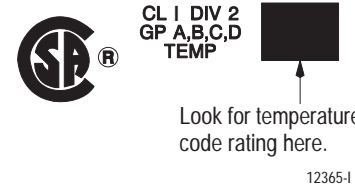
To comply with CSA certification for use in hazardous locations, the following information becomes a part of the product literature for CSA-certified Allen-Bradley industrial control products.

- This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D, or non-hazardous locations only.
- The products having the appropriate CSA markings (i.e., Class I Division 2, Groups A, B, C, D), are certified for use in other equipment where the suitability of combination (i.e., application or use) is determined by the CSA or the local inspection office having jurisdiction.

Important:

Due to the modular nature of a PLC® control system, the product with the highest temperature rating determines the overall temperature code rating of a PLC control system in a Class I, Division 2 location. The temperature code rating is marked on the product label (shown below).

Temperature Code Rating



The following warnings apply to products having CSA certification for use in hazardous locations.



ATTENTION: Explosion hazard—

- Substitution of components may impair suitability for Class I, Division 2.
- Do not replace components unless power has been switched off or the area is known to be non-hazardous.
- Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
- Do not disconnect connectors unless power has been switched off or the area is known to be non-hazardous. Secure any user-supplied connectors that mate to external circuits on an Allen-Bradley product using screws, sliding latches, threaded connectors, or other means such that any connection can withstand a 15 Newton (3.4 lb.) separating force applied for a minimum of one minute.

Approbation d'utilisation dans des emplacements dangereux par la CSA

La CSA certifie les produits d'utilisation générale aussi bien que ceux qui s'utilisent dans des emplacements dangereux.

Exemple d'étiquette de certification d'un produit par la CSA



CL 1 DIV 2
GP A,B,C,D
TEMP



La certification CSA en vigueur est indiquée par l'étiquette du ^{j2364-1} produit et non par des affirmations dans la documentation à l'usage des utilisateurs.

Pour satisfaire à la certification de la CSA dans des endroits dangereux, les informations suivantes font partie intégrante de la documentation des produits industriels de contrôle Allen-Bradley certifiés par la CSA.

- Cet équipement convient à l'utilisation dans des emplacements de Classe I, Division 2, Groupes A, B, C, D, ou ne convient qu'à l'utilisation dans des endroits non dangereux.
- Les produits portant le marquage approprié de la CSA (c'est à dire, Classe I, Division 2, Groupes A, B, C, D) sont certifiés à l'utilisation pour d'autres équipements où la convenance de combinaison (application ou utilisation) est déterminée par la CSA ou le bureau local d'inspection qualifié.

Important: Par suite de la nature modulaire du système de contrôle PLC®, le produit ayant le taux le plus élevé de température détermine le taux d'ensemble du code de température du système de contrôle d'un PLC dans un emplacement de Classe I, Division 2. Le taux du code de température est indiqué sur l'étiquette du produit.

Taux du code de température



CL I DIV 2
GP A,B,C,D
TEMP



Le taux du code de température est indiqué ici

12365-1

Les avertissements suivants s'appliquent aux produits ayant la certification CSA pour leur utilisation dans des emplacements dangereux.







AVERTISSEMENT: Risque d'explosion —

- La substitution de composants peut rendre ce matériel inacceptable pour les emplacements de Classe I, Division 2.
- Couper le courant ou s'assurer que l'emplacement est désigné non dangereux avant de remplacer les composants.
- Avant de débrancher l'équipement, couper le courant ou s'assurer que l'emplacement est désigné non dangereux.
- Avant de débrancher les connecteurs, couper le courant ou s'assurer que l'emplacement est reconnu non dangereux. Attacher tous connecteurs fournis par l'utilisateur et reliés aux circuits externes d'un appareil Allen-Bradley à l'aide de vis, loquets coulissants, connecteurs filetés ou autres moyens permettant aux connexions de résister à une force de séparation de 15 newtons (3,4 lb. - 1,5 kg) appliquée pendant au moins une minute.

Specifications

	1756-A4	1756-A7	1756-A10
<i>dimensions (with tabs)</i> W x H x D	17.7 x 16.9 x 14.5 cm (7.1 x 6.65 x 5.8 in)	28.2 x 16.9 x 14.5 cm (11.3 x 6.65 x 5.8 in)	39.7 x 16.9 x 14.5 cm (15.9 x 6.65 x 5.8 in)
<i>minimum cabinet size</i> W x H x D	50.7 x 50.7 x 20.3 cm 20 x 20 x 8 in	50.7 x 70 x 20.3 cm 20 x 24 x 8 in	76.1 x 50.7 x 20.3 cm 30 x 20 x 8 in
<i>approximate weight</i> <i>(without modules)</i>	0.75 kg (1.7 lbs)	1.1 kg (2.4 lbs)	1.45 kg (3.2 lbs)
<i>module slots</i>	4	7	10

all chassis

<i>maximum backplane current</i>	3.3 V dc @ 4.0 A 5.1 V dc @ 10.0 A; 24 V dc @ 2.5 A
<i>type of mount</i>	panel mount
<i>operating condition</i>	operating temperature: 0° to 60°C (32° to 140°F) storage temperature: -40° to 85°C (-40° to 185°F) relative humidity: 5 to 95% (without condensation)
<i>agency certification</i> <i>(when product or packaging is marked)</i>	  Class I Div 2 hazardous ¹  Class I Div 2 hazardous ¹  marked for all applicable directives

¹ CSA certification – Class I, Division 2, Group A, B, C, D or nonhazardous locations.
FM approved – Class I, Division 2, Group A, B, C, D or nonhazardous locations.

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