*Installation Instructions*

# FLEX I/O Remote I/O Adapter Modules

## Cat. No. 1794-ASB and 1794-ASBK Series E; 1794-ASB2, Series D

(Modules with a K in the last position of the catalog number are conformally coated to meet noxious gas requirements of ISA/ANSI-71.040 1985 Class G3 Environment.)

**IMPORTANT** Do not use these adapters (1794-ASB and 1794-ASBK Series E; 1794-ASB2, Series D) with the Classic PLC-5/15 or PLC-5/25 processors. Improper operation of the remote I/O can result.

### 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://www.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.
Reproduction of the contents of this manual, in whole or in part, without written permission of Rockwell Automation, Inc., is prohibited.
Throughout this manual 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:<br>• identify a hazard<br>• avoid a hazard<br>• recognize the consequence |

**ATTENTION**

**Environment and Enclosure**

This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in IEC 60664-1), at altitudes up to 2000 m (6562 ft) without derating.

This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR 11. Without appropriate precautions, there may be difficulties with electromagnetic compatibility in residential and other environments due to conducted and radiated disturbances.

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, Rockwell Automation publication 1770-4.1, or additional installation requirements.
- NEMA Standard 250 and IEC 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure.

**ATTENTION**

**Preventing Electrostatic Discharge**

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.

**ATTENTION** Power wiring must be less than 10 m (33 ft) in length.

**ATTENTION** FLEX I/O is grounded through the DIN rail to chassis ground. Use zinc plated yellow-chromate steel DIN rail to assure proper grounding. The use of other DIN rail materials (for example, aluminum or plastic) that can corrode, oxidize, or are poor conductors, can result in improper or intermittent grounding. Secure DIN rail to mounting surface approximately every 200 mm (7.8 in.) and use end-anchors appropriately.

**ATTENTION** Do not remove or replace an adapter module while power is applied. Interruption of the backplane can result in unintentional operation or machine motion.

**ATTENTION** To reduce susceptibility to noise, power analog modules and digital modules from separate power supplies.

### European Hazardous Location Approval

The following modules are European Zone 2 approved: 1794-ASB and 1794-ASBK Series E; 1794-ASB2, Series D

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

This equipment is intended for use in potentially explosive atmospheres as defined by European Union Directive 94/9/EC and 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 Zone 2 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 and EN 60079-0.

**WARNING** Observe the following additional Zone 2 certification requirements:

- This equipment is not resistant to sunlight or other sources of UV radiation.
- This equipment must be installed in an enclosure providing at least IP54 protection when applied in Zone 2 environments.
- This equipment shall be used within its specified ratings defined by Rockwell Automation.
- Provision shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 40% when applied in Zone 2 environments.
- 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.

## North American Hazardous Location Approval

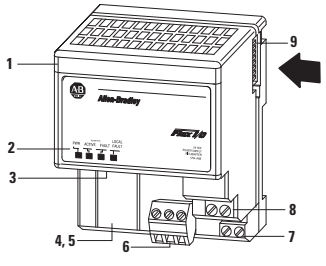
The following modules are North American Hazardous Location approved: 1794-ASB and 1794-ASBK Series E; 1794-ASB2, Series D.

| 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 | AVERTISSEMENT | RISQUE D'EXPLOSION |
|---|---|---|---|
| | • Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous.<br>• 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.<br>• Substitution of components may impair suitability for Class I, Division 2.<br>• If this product contains batteries, they must only be changed in an area known to be nonhazardous. | | • Couper le courant ou s'assurer que l'environnemen t est classé non dangereux avant de débrancher l'équipement.<br>• 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.<br>• La substitution de composants peut rendre cet équipement inadapté à une utilisation en environnement de Classe I, Division 2.<br>• S'assurer que l'environnement est classé non dangereux avant de changer les piles. |

## Remote I/O Adapter 1794-ASB/E, 1794-ASBK/E, 1794-ASB2/D

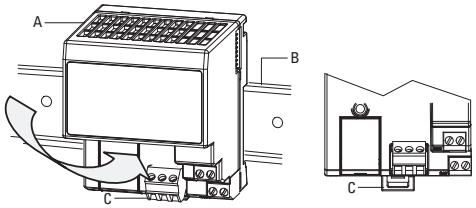
These adapters are shipped configured for standard addressing mode. In Standard Addressing Mode, the 1794-ASB(K) series E adapter can be used as a replacement for 1794-ASB series A and B remote I/O adapters, and the 1794-ASB2 series D can be used for a replacement for 1794-ASB2 series A 2-slot remote I/O adapters.




| Component Identification | | | |
|---|---|---|---|
| 1 | Remote I/O Adapter Module | 6 | Remote I/O cable connector |
| 2 | Indicators | 7 | +V DC connections |
| 3 | Communication reset button (PRL) | 8 | -V common connections |
| 4 | Access door to switches S1 and S2 | 9 | FlexBus connector |
| 5 | Switches S1 and S2 (behind door) | | |

**WARNING** If 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.

## Installing Your Adapter Module




**WARNING** If you connect or disconnect the communications cable with power applied to this module or any device on the network, 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.

**WARNING** For Class I Division 2 applications, use only Class I Division 2 listed or recognized accessories and modules approved for used within the 1794 platform.

**ATTENTION** During mounting of all devices, be sure that all debris (metal chips, wire strands, etc.) is kept from falling into the module. Debris that falls into the module could cause damage on power up.

### Mount on a DIN rail before installing the Terminal Base Units

1. Hook the lip on the rear of the adapter onto the top of the DIN rail, and rotate the adapter module onto the rail.
2. Press the adapter module down onto the DIN rail until flush. Locking tab C will snap into position and lock the adapter module to the DIN rail.
3. If the adapter module does not lock in place, use a screwdriver or similar device to move the locking tab down while pressing the adapter module flush onto the DIN rail, and release the locking tab to lock the adapter module in place. If necessary, push up on the locking tab to lock.
4. Connect the adapter wiring as shown under "Wiring" later in this document.

### Mount or Replace the Adapter on an Existing System

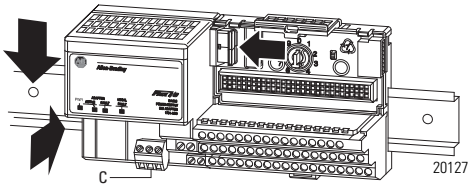
1. Remove the RIO plug-in connector from the front of the adapter.
2. Disconnect any wiring jumpered to the adjacent terminal base.
3. Open the module latching mechanism and remove the module from the base unit to which the adapter will be attached.
4. Push the FlexBus connector toward the right side of the terminal base to unplug the backplane connection. (When fully retracted, you will see a raised dot on the connector).
5. Release the adapter locking tab and remove the adapter module.

6. Before installing the new adapter, notice the notch on the right rear of the adapter. This notch accepts the hook on the terminal base unit. The notch is open at the bottom. The hook and adjacent connection point keep the terminal base and the adapter tight together, reducing the possibility of a break in communication over the backplane.

7. Complete the adapter mounting as shown below.

Push down and in at the same time to lock the adapter to the DIN rail.

When the adapter is locked onto the DIN rail, gently push the FlexBus connector into the adapter to complete the backplane



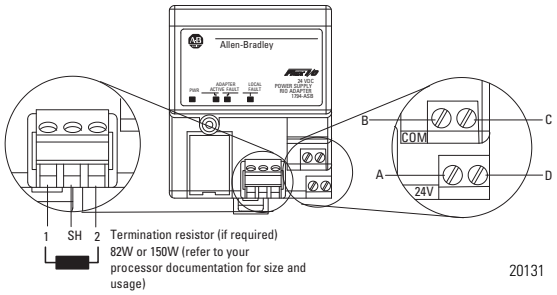

8. If the adapter module does not lock in place, use a screwdriver or similar device to move the locking tab down while pressing the adapter module flush onto the DIN rail, and release the locking tab to lock the adapter module in place. If necessary, push up on the locking tab to lock.
9. Reinstall the module in the adjacent terminal base unit.

**ATTENTION** Do not wire more than 2 conductors on any single terminal.

## Connect the Wiring

1. Connect the remote I/O cable to the removable remote I/O connector.

| Connect | To terminal |
|---|---|
| Blue Wire - RIO | 1 |
| Shield Wire - RIO | SH |
| Clear Wire - RIO | 2 |

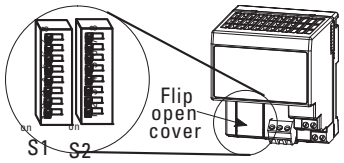



**WARNING** If you connect or disconnect wiring while the field-side power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

2. Connect +V DC power to the left side of the lower connector, terminal **A**.
3. Connect -V common to the left side of the upper connector, terminal **B**.
4. Connections C and D are used to pass +V DC power (D) and -V common (C) to the next module in the series (if required).

**ATTENTION** If this is the last adapter, you must terminate the remote I/O link here. Use a terminating resistor connected across terminals 1 and 2. Refer to your processor manual for information on the size of the resistor.

## Set the Addressing Mode Switches




**WARNING** When you change switch settings while 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.

**ATTENTION** Some switches on this adapter differ from the switches on previous versions. Make certain that you identify each switch before setting.

1. Lift the hinged switch cover on the front of the adapter to expose the switches.
2. Set the switches as shown below.
3. Cycle power to the adapter after setting the switches.

### 8 and 16-point Mode Switch Settings

| When using this addressing mode | And | Mode Switch 2 S1-1 | Mode Switch 1 S2-5 | Mode Switch 0 S2-8 |
|---|---|---|---|---|
| Standard (as shipped) | 8 and/or 16-point modules | See note 1 | ON | ON |
| Compact | 8-point modules | OFF | ON | OFF |
| | 16-point modules | ON | ON | OFF |
| Complementary | See complementary table below. | | | |
| Primary Chassis | 8-point modules | OFF | OFF | ON |
| Complementary Chassis | | ON | OFF | ON |
| Complementary | See complementary table below. | | | |
| Primary Chassis | 16-point modules | OFF | OFF | OFF |
| Complementary Chassis | | ON | OFF | OFF |

1 In Standard mode, this switch retains its function as switch position 1 of rack addressing. In standard mode, the module is functionally interchangeable with 1794-ASB series A or B adapters.

2 In compact mode, 32-point modules appear as 8 or 16-point modules.

3 When programming block transfers, address analog modules as module 0 if switch S1-1 is on; module 1 if switch S1-1 is off.

### 32-point Mode Switch Settings

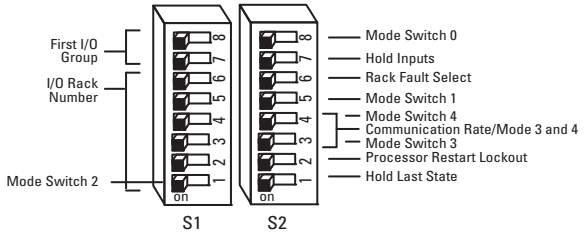
| When using this addressing mode | And | Mode Switch 0 S2-8 | Mode Switch 1 S2-5 | Mode Switch 2 S1-1 | Mode Switch 3 S2-3 | Mode Switch 4 S2-4 |
|---|---|---|---|---|---|---|
| Standard – 32 | 8, 16 and/or 32-point modules | ON | ON | See note 1 | OFF | OFF |
| Complementary – 32 | | | | | | |

### 32-point Mode Switch Settings

| When using this addressing mode | And | Mode Switch 0 S2-8 | Mode Switch 1 S2-5 | Mode Switch 2 S1-1 | Mode Switch 3 S2-3 | Mode Switch 4 S2-4 |
|---|---|---|---|---|---|---|
| Primary Chassis | 8, 16 and/or 32-point modules | OFF | OFF | OFF | OFF | OFF |
| Complementary Chassis | | OFF | OFF | ON | OFF | OFF |

1 In Standard – 32 mode, any module in the chassis occupies 32 input points and 32 output points in the input/output data table.

2 In Complementary – 32 mode, any module in the chassis occupies 32 input points or 32 output points in the input/output data table. If using 8 or 16-point modules,unused points in the data table are zeroed out.




| First I/O Group[1] (see Important) | | | I/O Rack Number |
|---|---|---|---|
| S1-8 | S1-7 | I/O Group | S1-6…S1-1 |
| ON | ON | 0 (1st) | Refer to addressing mode tables. |
| OFF | ON | 2 (2nd) | |
| ON | OFF | 4 (3rd) | |
| OFF | OFF | 6 (4th) | |
| **IMPORTANT** | [1] In 32-point mode, starting quarter must be 0 (S1-8 and S1-7 on). | | |

| S2-8 | Mode Switch 0 |
|---|---|
| Refer to mode selection switches, above. | |

| S2-7 | Hold Inputs | S2-6 | Rack Fault Select |
|---|---|---|---|
| ON | Hold inputs | ON | Disabled (default) |
| OFF | Reset inputs | OFF | Enabled |

| S2-5 | Mode Switch 1 |
|---|---|
| Refer to mode selection switches, above. | |

| Communication Rate (32-point Mode Select) | | | Processor Restart Lockout | | Hold Last State | |
|---|---|---|---|---|---|---|
| S2-4 | S2-3 | Bits/s | S2-2 | | S2-1 | |
| ON | ON | 57.6k | ON | Restart | ON | Reset Outputs |
| OFF | ON | 115.2k | OFF | Locked out | OFF | Hold Last State |
| ON | OFF | 230.4k | | | | |
| OFF | OFF | Auto Baud | Use only with 32-point modules.[1] These switches used to put the adapter in 32-point mode and perform autobaud. | | | |

[1] Cycle power to the adapter or push the RESET button when the baud rate is changed in the scanner.

### I/O Rack Number Switch Settings

| Rack Number | | | | S1 Switch Position | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1747-SN | PLC-5 | PLC-5/25 | PLC-3 | 6 | 5 | 4 | 3 | 2 | 1 |
| Rack 0 | Not Valid | Rack 0 | Rack 0 | ON | ON | ON | ON | ON | ON |
| Rack 1 | Rack 1 | Rack 1 | Rack 1 | OFF | ON | ON | ON | ON | ON |
| Rack 2 | Rack 2 | Rack 2 | Rack 2 | ON | OFF | ON | ON | ON | ON |
| Rack 3 | Rack 3 | Rack 3 | Rack 3 | OFF | OFF | ON | ON | ON | ON |
| | Rack 4 | Rack 4 | Rack 4 | ON | ON | OFF | ON | ON | ON |
| | Rack 5 | Rack 5 | Rack 5 | OFF | ON | OFF | ON | ON | ON |
| | Rack 6 | Rack 6 | Rack 6 | ON | OFF | OFF | ON | ON | ON |
| | Rack 7 | Rack 7 | Rack 7 | OFF | OFF | OFF | ON | ON | ON |
| | Rack 10 | Rack 10 | Rack 10 | ON | ON | ON | OFF | ON | ON |
| | Rack 11 | Rack 11 | Rack 11 | OFF | ON | ON | OFF | ON | ON |
| | Rack 12 | Rack 12 | Rack 12 | ON | OFF | ON | OFF | ON | ON |
| | Rack 13 | Rack 13 | Rack 13 | OFF | OFF | ON | OFF | ON | ON |
| | Rack 14 | Rack 14 | Rack 14 | ON | ON | OFF | OFF | ON | ON |
| | Rack 15 | Rack 15 | Rack 15 | OFF | ON | OFF | OFF | ON | ON |
| | Rack 16 | Rack 16 | Rack 16 | ON | OFF | OFF | OFF | ON | ON |
| | Rack 17 | Rack 17 | Rack 17 | OFF | OFF | OFF | OFF | ON | ON |
| | Rack 20 | Rack 20 | Rack 20 | ON | ON | ON | ON | OFF | ON |
| | Rack 21 | Rack 21 | Rack 21 | OFF | ON | ON | ON | OFF | ON |
| | Rack 22 | Rack 22 | Rack 22 | ON | OFF | ON | ON | OFF | ON |
| | Rack 23 | Rack 23 | Rack 23 | OFF | OFF | ON | ON | OFF | ON |
| | Rack 24 | Rack 24 | Rack 24 | ON | ON | OFF | ON | OFF | ON |
| | Rack 25 | Rack 25 | Rack 25 | OFF | ON | OFF | ON | OFF | ON |
| | Rack 26 | Rack 26 | Rack 26 | ON | OFF | OFF | ON | OFF | ON |
| | Rack 27 | Rack 27 | Rack 27 | OFF | OFF | OFF | ON | OFF | ON |
| | | Rack 30 | Rack 30 | ON | ON | ON | OFF | OFF | ON |
| | | Rack 31 | Rack 31 | OFF | ON | ON | OFF | OFF | ON |
| | | Rack 32 | Rack 32 | ON | OFF | ON | OFF | OFF | ON |
| | | Rack 33 | Rack 33 | OFF | OFF | ON | OFF | OFF | ON |
| | | Rack 34 | Rack 34 | ON | ON | OFF | OFF | OFF | ON |
| | | Rack 35 | Rack 35 | OFF | ON | OFF | OFF | OFF | ON |
| | | Rack 36 | Rack 36 | ON | OFF | OFF | OFF | OFF | ON |
| | | Rack 37 | Rack 37 | OFF | OFF | OFF | OFF | OFF | ON |
| See note 1 - Rack addresses 40…76 are available only in Standard Mode | | | Rack 40 | ON | ON | ON | ON | ON | OFF |
| | | | Rack 41 | OFF | ON | ON | ON | ON | OFF |
| | | | Rack 42 | ON | OFF | ON | ON | ON | OFF |
| | | | Rack 43 | OFF | OFF | ON | ON | ON | OFF |
| | | | Rack 44 | ON | ON | OFF | ON | ON | OFF |
| | | | Rack 45 | OFF | ON | OFF | ON | ON | OFF |
| | | | Rack 46 | ON | OFF | OFF | ON | ON | OFF |
| | | | Rack 47 | OFF | OFF | OFF | ON | ON | OFF |
| | | | Rack 50 | ON | ON | ON | OFF | ON | OFF |
| | | | Rack 51 | OFF | ON | ON | OFF | ON | OFF |
| | | | Rack 52 | ON | OFF | ON | OFF | ON | OFF |
| | | | Rack 53 | OFF | OFF | ON | OFF | ON | OFF |
| | | | Rack 54 | ON | ON | OFF | OFF | ON | OFF |
| | | | Rack 55 | OFF | ON | OFF | OFF | ON | OFF |
| | | | Rack 56 | ON | OFF | OFF | OFF | ON | OFF |
| | | | Rack 57 | OFF | OFF | OFF | OFF | ON | OFF |
| | | | Rack 60 | ON | ON | ON | ON | OFF | OFF |
| | | | Rack 61 | OFF | ON | ON | ON | OFF | OFF |
| | | | Rack 62 | ON | OFF | ON | ON | OFF | OFF |
| | | | Rack 63 | OFF | OFF | ON | ON | OFF | OFF |
| | | | Rack 64 | ON | ON | OFF | ON | OFF | OFF |
| | | | Rack 65 | OFF | ON | OFF | ON | OFF | OFF |
| | | | Rack 66 | ON | OFF | OFF | ON | OFF | OFF |
| | | | Rack 67 | OFF | OFF | OFF | ON | OFF | OFF |
| | | | Rack 70 | ON | ON | ON | OFF | OFF | OFF |
| | | | Rack 71 | OFF | ON | ON | OFF | OFF | OFF |
| | | | Rack 72 | ON | OFF | ON | OFF | OFF | OFF |
| | | | Rack 73 | OFF | OFF | ON | OFF | OFF | OFF |
| | | | Rack 74 | ON | ON | OFF | OFF | OFF | OFF |
| | | | Rack 75 | OFF | ON | OFF | OFF | OFF | OFF |
| | | | Rack 76 | ON | OFF | OFF | OFF | OFF | OFF |
| | | | Not Valid | OFF | OFF | OFF | OFF | OFF | OFF |

Rack address 77 is an illegal configuration.
PLC-5/11 processors can scan rack 03.
PLC-5/15 and PLC-5/20 processors can scan racks 01…03.
PLC-5/25 and PLC-5/30 processors can scan racks 01…07.
PLC-5/40 and PLC-5/40L processors can scan racks 01…17.
PLC-5/60 and PLC-5/60L processors can scan racks 01…27.
PLC-5/80 processors can scan racks 01…27.
PLC-5/250 processors can scan racks 00…37.
Note 1 – Rack switch 1-1 is used to set a mode in this adapter. As a result, rack addresses from 40…76 are only available in Standard mode.

### Complementary I/O Rack Number Switch Settings for PLC-5 Processors

(refer to your processor documentation for all other processors)

**Primary Rack**

| Rack Number | | S1 Switch Position | | | | | |
|---|---|---|---|---|---|---|---|
| **1747-SN** | **PLC-5** | **6** | **5** | **4** | **3** | **2** | **1** |
| Rack 0 | Not Valid | ON | ON | ON | ON | ON | OFF |
| Rack 1 | Rack 1 | OFF | ON | ON | ON | ON | OFF |
| Rack 2 | Rack 2 | ON | OFF | ON | ON | ON | OFF |
| Rack 3 | Rack 3 | OFF | OFF | ON | ON | ON | OFF |
| | Rack 4 | ON | ON | OFF | ON | ON | OFF |
| | Rack 5 | OFF | ON | OFF | ON | ON | OFF |
| | Rack 6 | ON | OFF | OFF | ON | ON | OFF |
| | Rack 7 | OFF | OFF | OFF | ON | ON | OFF |

**Complementary Rack**

| Rack Number | | S1 Switch Position | | | | | |
|---|---|---|---|---|---|---|---|
| **1747-SN** | **PLC-5** | **6** | **5** | **4** | **3** | **2** | **1** |
| Rack 0 | Not Valid | ON | ON | ON | OFF | ON | ON |
| Rack 1 | Rack 1 | OFF | ON | ON | OFF | ON | ON |
| Rack 2 | Rack 2 | ON | OFF | ON | OFF | ON | ON |
| Rack 3 | Rack 3 | OFF | OFF | ON | OFF | ON | ON |
| | Rack 4 | ON | ON | OFF | OFF | ON | ON |
| | Rack 5 | OFF | ON | OFF | OFF | ON | ON |
| | Rack 6 | ON | OFF | OFF | OFF | ON | ON |
| | Rack 7 | OFF | OFF | OFF | OFF | ON | ON |

### Specifications

| Specifications – 1794-ASB/E, 1794-ASBK/E, and 1794-ASB2/D | | |
|---|---|---|
| | **1794-ASB/E, 1794-ASBK/E** | **1794-ASB2/D** |
| I/O capacity | 8 modules | 2 modules |
| Power supply | Power supply must be capable of providing a turn-on inrush surge current of 23 A (at 24V DC) for 2 ms for each adapter connected to the power supply. | |
| Input voltage range | 19.2V…31.2 V DC, 450 mA | |
| Output voltage | 5V DC, 640 mA | |
| Communication rate | 57.6 Kbps<br>115.2 Kbps<br>230.4 Kbps | |
| Indicators | Power – green; Adapter active – green; Adapter fault – red; Local fault – red | |
| Dimensions (H x W x D) | 87 x 69 x 69 mm<br>3.4 x 2.7 x 2.7 inches | |
| Isolation voltage | 50V (continuous), Basic Insulation Type<br>Type tested at 750V DC for 60 s, power to system, power to RIO, and RIO to system | |
| Current draw | 330 mA at 24V DC; 450 mA max | |
| Power dissipation, max | 4.6 W | |
| Thermal dissipation, max | 1.7 BTU/hr @ 31.2V DC | |
| Enclosure type rating | None (open-style) | |
| Wire size | Power and RIO connections:<br>Single wire connection: 0.33... 2.5 $mm^2$ (22...12 AWG) solid or stranded copper wire rated at 75 °C (167 °F ) or greater 1.2 mm (3/64 in.) insulation max<br>Double wire connection: 0.33... 1.3 $mm^2$ (22...16 AWG) solid or stranded (not intermixed) copper wire rated at 75 °C (167 °F ) or greater 1.2 mm (3/64 in.) insulation max | |
| Wire category[1] | 3 – on power ports<br>2 – on communications ports | |
| Terminal screw torque | 0.8 Nm (7 lb-in.) | |
| Remote I/O cable | Belden 9463 or equivalent | |
| Remote I/O connector plug | Part number 942029-03 | |
| North American temp code | T4A | |
| IEC temp code | T4 | |

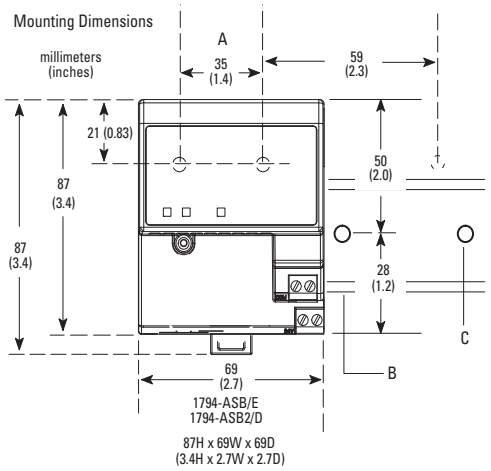
(1) Use this Conductor Category information for planning conductor routing. Refer to Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

| Environmental Conditions | |
|---|---|
| Temperature, operating | IEC 60068-2-1 (Test Ad, Operating Cold),<br>IEC 60068-2-2 (Test Bd, Operating Dry Heat),<br>IEC 60068-2-14 (Test Nb, Operating Thermal Shock):<br>0…55 °C (32…131 °F) |
| Temperature, surrounding air, max | 55 °C (131 °F) |
| Temperature, nonoperating | IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold),<br>IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat),<br>IEC 60068-2-14 (Test Na, Un-packaged Non-operating Thermal Shock):<br>-40…85 °C (-40…185 °F) |
| Relative humidity | IEC 60068-2-30 (Test Db, Un-packaged Damp Heat):<br>5…95% non-condensing |
| Vibration | IEC60068-2-6 (Test Fc, Operating):<br>5 g @ 10…500 Hz |
| Shock, operating | IEC60068-2-27 (Test Ea, Unpackaged shock):<br>30 g |
| Shock, nonoperating | IEC60068-2-27 (Test Ea, Unpackaged shock):<br>50 g |
| Emissions | CISPR 11:<br>Group 1, Class A (with appropriate enclosure) |
| ESD immunity | IEC 61000-4-2:<br>8 kV air discharges |
| Radiated RF immunity | IEC 61000-4-3:<br>10 V/m with 1 kHz sine-wave 80%AM from 80…2000 MHz<br>10 V/m with 200 Hz 50% Pulse 100%AM at 900 MHz<br>10 V/m with 200 Hz 50% Pulse 100%AM at 1890 MHz<br>3 V/m with 1 kHz sine-wave 80%AM from 2000…2700 MHz |
| EFT/B immunity | IEC 61000-4-4:<br>±2 kV at 5 kHz on power ports<br>±2 kV at 5 kHz on communications ports |
| Surge Transient Immunity | IEC 61000-4-5:<br>±2 kV line-earth(CM) on communications ports |
| Conducted RF Immunity | IEC 61000-4-6:<br>10 Vrms with 1 kHz sine-wave 80%AM from 150 kHz…80 MHz |

| Certifications (when product is marked)[1] | |
|---|---|
| c-UL-us | UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584.<br>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.<br>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/EC EMC Directive, compliant with:<br>EN 61326-1; Meas./Control/Lab., Industrial Requirements<br>EN 61000-6-2; Industrial Immunity<br>EN 61000-6-4; Industrial Emissions<br>EN 61131-2; Programmable Controllers (Clause 8, Zone A & B) |
| C-Tick | Australian Radiocommunications Act, compliant with:<br>AS/NZS CISPR 11; Industrial Emissions |
| Ex | European Union 94/9/EC ATEX Directive, compliant with:<br>EN 60079-15; Potentially Explosive Atmospheres, Protection "n"<br>EN 60079-0; General Requirements<br>II 3 G Ex nA IIC T4 X |
| Publications | Installation Instructions 1794-IN098; User Manual 1794-UM009 |

[1] See the Product Certification link at www.ab.com for Declarations of Conformity, Certificates, and other certification details.

## Mounting Dimensions




A = Mounting hole dimensions for optional mounting kit
B = DIN rail
C = Secure DIN rail approximately every 200 mm

Rockwell Otomasyon Ticaret A.Ş., Kar Plaza İş Merkezi E Blok Kat:6 34752 İçerenköy, İstanbul, Tel: +90 (216) 5698400

**www.rockwellautomation.com**

**Power, Control and Information Solutions Headquarters**

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444
Europe/Middle East/Africa: Rockwell Automation, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

Publication 1794-IN098E-EN-P - January 2011
Supersedes Publication 1794-IN098D-EN-P- March 2005