

RIO Adapters

An adapter module resides at each remote drop on the RIO network. The type of adapter used depends on:

- the type of RIO processor at the head-end of the network
- the series of I/O modules at the drop
- whether or not ASCII devices are being supported at the drop
- whether the drop adapter will support one or two RIO cables

Drop Adapter	Head Processor	I/O at the Drop	ASCII Ports	RIO Cable Ports
140CRA93100	140CRP93100	Quantum	N/A	1
140CRA93200	140CRP93200	Quantum	N/A	2
AS-J890-001/101	S908 or CRP93X	800	0	1
AS-J890-002/102	S908 or CRP93X	800	0	2
AS-J892-001/101	S908 or CRP93X	800	2	1
AS-J892-002/102	S908 or CRP93X	800	2	2
AS-P890-000	S908 or CRP93X	800	0	1
ASP890300	S908 or CRP93X	800	2	2
AS-P892-000	S908 or CRP93X	800	2	1

Field Adapter Kits

Field adapter kits are also available to convert the P451 and most P453 adapters to the S908 RIO protocol. This conversion allows the Quantum CPUs, the 984 controllers, and the host-based CPUs to support installed drops of 200 Series I/O.

Kit	New RIO Adapter	RIO Ports	ASCII Ports	Power Supply
AS-J290-010	AS-P453-581	1	0	50 Hz
	AS-P453-681	1	0	60 Hz
	AS-P453-582	1	2	50 Hz
	AS-P453-682	1	2	60 Hz
AS-J290-020	AS-P453-591	2	0	50 Hz
	AS-P453-691	2	0	60 Hz
	AS-P453-592	2	2	50 Hz
	AS-P453-692	2	2	60 Hz
AS-J291-010	AS-P451-581	1	0	50 Hz
	AS-P451-681	1	0	60 Hz

RIO Network Node Part Number Summary

RIO Devices

The following table shows RIO device types.

RIO Device Type		One RIO Port	Two RIO Ports
Head Processor	in a 16K 984A chassis (standard)	Px-984A-816*	
	in a 32K 984A chassis (standard)	Px-984A-832*	Px-984A-932*
	in a 32K 984B chassis (standard)	Px-984B-832*	Px-984B-932*
	in a 64K 984B chassis (standard)	Px-984B-864*	Px-984B-964*
	in a 128K 984B chassis (standard)	Px-984B-828*	Px-984B-928*
	in a 984X chassis (standard)	S929-001	
	on an AT-984 (standard)	AM-0984-AT0	
	on an MC-984 (standard)	AM-0984-MC0	
	on a Q984 for MicroVAX II (standard)	AM-0984-Q20	
	on a 984-485E (standard)	PC-E984-485	
	on a 984-48K (standard)	PC-K984-485	
	option module for 984-685E and 984-785E/K/D	AS-S908-110	
	option module for Quantum all CPUs	140CRP93100	140CRP93200
Drop Adapter	for 800 Series I/O	AS-J890-101 ASP890300	AS-J890-102 ASP890300
	for 800 Series I/O with two ASCII ports	AS-J892-101 ASP890300	AS-J892-102 ASP890300
	for 800 Series I/O with built-in P/S	AS-P890-000 ASP890300	ASP890300
	for 800 Series I/O with two ASCII ports, built in P/S	ASP890300	ASP890300
	for 800 Series I/O with ASCII, built in P/S	AS-P892-000 ASP890300	ASP890300
	J291 conversion for 200 Series I/O	AS-P451-581/-681	
	J290 conversion for 200 Series I/O with ASCII without ASCII	AS-P453-582/-682 AS-P453-581/-681	AS-P453-592/-692 AS-P453-591/-691
	for Quantum I/O	140CRA93100	140CRA93200

*These part numbers are for the entire chassis mount PLC system, including the chassis itself; x = 1 for a four-card chassis; and x = 5 for a seven-card chassis.

Planning RIO Drops

Overview

The maximum length for Modicon's recommended drop cable is 164 ft (50 m). Keeping the drop cable lengths within this limit helps reduce attenuation on the drop and noise problems on the system. The minimum length for a drop cable is 8.53 ft (2.5 m)—shorter drop cable generates unacceptable signal reflections from the tap.

RG-6 is the more commonly used drop cable—it has fair noise immunity and good flexibility. RG-11 cable can also be used—it has better noise immunity and lower loss; RG-11 is recommended in high noise environments.

Connecting the Drop Cable to the Drop Adapter

All drop adapters connect to a coaxial drop cable via either an F connector or a BNC connector:

RIO Adapter	RIO Cable Connection	Drop Termination
J890/J892-00x	BNC Connector	External
J890/J892-10x*	BNC Connector or F Connector(s)	In the drop adapter
ASP890300	F Connector(s)	In the drop adapter
P890/P892		
P451/P453		
140CRA93100/93200		

*The older J890/J892-00X adapters use a BNC connector and require a 75 Ω inline terminator in drop cable.

Each drop adapter must be connected separately to a tap port. The tap isolates the drop from other drops on the network and also from the trunk cable. Multiple adapters cannot be connected on the same port of a tap. Since an adapter is not directly connected to any other node on the network, most installation and noise-related problems at a drop will not reflect across the entire RIO system.

RIO drop adapters cannot be connected directly to the trunk; they must be connected to a drop cable that is connected to a tap. Direct connection of adapters will cause a severe trunk impedance mismatch.