

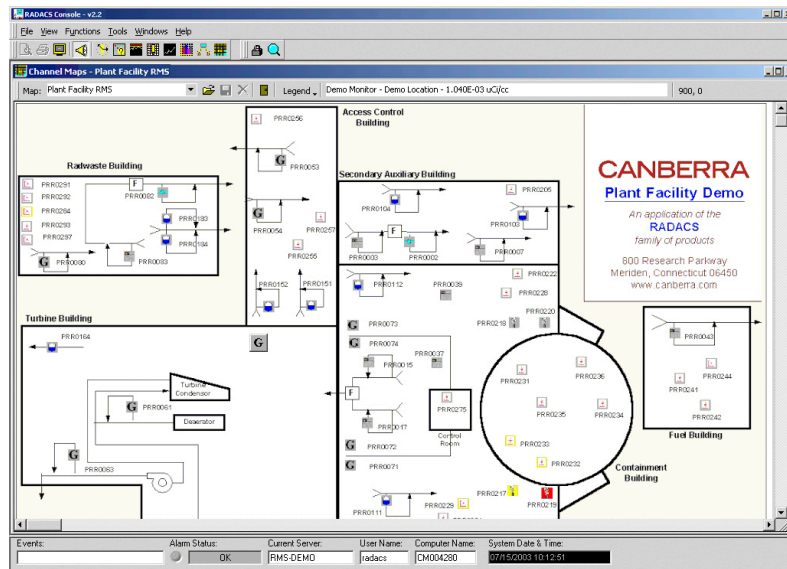


# Configuration Guide – RMS Detectors and Ratemeters for Area Monitoring

## Description

Radiation monitoring systems are deployed for a diverse set of applications in many types of facilities including nuclear power plants, fuel cycle facilities, research reactors, national laboratories, universities and medical labs. While the activities conducted at these facilities are quite different, the need for reliable, robust, easy to use radiation monitoring systems is shared. CANBERRA SafePoint™ RMS solutions offer modular hardware and electronics that support a broad spectrum of area monitoring, liquid and air monitoring scenarios and are easily scalable from small to large configurations. The specific requirements of each application will dictate the type of the SMART detectors, ratemeters, support hardware, alarms units and supervisory software needed. This brief guide provides the tools for simple configuration of the radiation monitoring solution that's right for you.

Two common radiation monitoring setups are presented – local and remote configurations for use in safety and non-safety applications. In the local configuration the ratemeter(s) is placed in a control room where all monitoring takes place. In a remote configuration, the additional ratemeter(s) is placed at some distance from the local one, enabling remote monitoring.



Large Area Monitoring System, Nuclear Power Plant.

A comprehensive set of components and cables are available for nuclear safety related duty as well as for non-safety and non-nuclear applications. Our safety qualified components are designed and built to meet rigid 1E, Appendix B and seismic requirements. For non-safety applications, plenum rated cable is a less expensive option that meets the requirements defined under UL910 code which regulates fire resistance and low-smoke characteristics. For nuclear and safety related applications, the 1E nuclear grade cable meets the requirements of IEEE 383 for nuclear power plants.

The following standard components form the basis for typical area monitoring systems:

- SMART detectors:
  - Ion Chamber Detectors – IP and ICP Series
  - Geiger Mueller Detectors – GP Series
  - Neutron Probes – NP Series
- Scintillation Detectors
  - MD Series Detectors and associated Preamplifiers
  - GSP100 detectors
- Ratemeters:
  - iR7040 Intelligent ratemeter
  - Rack mount ADM606
  - Portable ADM606M
  - Wall mount ADM616
- Auxiliary Alarm – AX302.
- RADACS™ or Horizon® supervisory software – Small, Medium or Large packages, based on the number of sensors.

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For complete specifications, please see the individual component data sheets. The tables below identify terminated and raw cables, detectors and ratemeters with their respective connectors needed for configuring

an area monitoring system. The auxiliary equipment refers to a preamplifier (PA100M) or current to frequency converter (CF300), required for use between some detectors and ratemeters.

## NON-SAFETY, NON-NUCLEAR APPLICATIONS

Detector	Model	Connector	Maximum Cable Length	Auxiliary Equipment	ADM606 and ADM616		ADM606M		iR7040	
					Raw Cable	Terminated Cable	Raw Cable	Terminated Cable	Raw Cable	Terminated Cable
GP Series	GP100 GP100SI	12-pin MS	300 M or 1000 ft	N/A	C1733-X	C1745T-X	C1731-X	C1730T-X	C1733-X	C1762T-X
	GP100C GP100CS	12-pin MS	300 M or 1000 ft	N/A	C1733-X (2)	C1745T-X (2)	N/A	N/A	N/A	N/A
	GP100C2 GP100C2S	12-pin MS	200 M or 660 ft	N/A	C1733-X (2)	C1745T-X (2)	N/A	N/A	C1733-X	C1762T-X
	GP110 GP110SI	7-pin Hiroshi	30 M or 100 ft	N/A	C1731-X	C1746T-X	C1731-X	C1743T-X	C1731-X	C1763T-X
	GP100M GP100MS	12-pin MS	300 M or 1000 ft PA to ADM 60 M or 200 ft GP to PA	C1745T-X to PA100M Max 60 M or 200 ft	C1733-X	C1745T-X	C1731-X	C1730T-X	C1733-X	C1762T-X
GSP100	GSP100	7-pin Hiroshi	90 M or 300 ft	N/A	C1731-X	C1746T-X	C1731-X	C1743T-X	C1731-X	C1763T-X
IP Series	IP100 IP100SI	12-pin MS	90 M or 300 ft	N/A	C1733-X	C1745T-X	C1733-X	C1730T-X	C1733-X	C1762T-X
	IP100C IP100CS	12-pin MS	90 M or 300 ft	N/A	C1733-X (2)	C1745T-X (2)	N/A	N/A	N/A	N/A
	IP100C2 IP100C2S	12-pin MS	90 M or 300 ft	N/A	C1733-X (2)	C1745T-X (2)	N/A	N/A	C1733-X	C1762T-X
NP Series	NP100H	12-pin MS	300 M or 1000 ft	N/A	C1733-X	C1745T-X	C1731-X	C1730T-X	C1733-X	C1762T-X
	NP100B									
AX302	AX302	N/A	90 M or 300 ft	N/A	C1731-X				C1731-X	
Remote Ratemeter	ADM606	Three 12-pin MS	300 M or 1000 ft	N/A	C1732-X	C1750T-X	C1732-X	C1749T-X	C1732-X	C1749T-X
	ADM606M	Three 7-pin Hiroshi and Three DB15								
	ADM616	Three MS12 pins								
PC RADACS	PC COM1	DB 9		N/A	C1732-X	N/A	C1732-X	N/A	C1732-X	
Power	Ratemeter provides power to detector			N/A	Power cord (optional)		Power cord Part of Ratemeter		Power cord (optional) US = iR-PCUS UK = iR-PCUK Euro = iR-PCEU	
PREAMP	PA300E	MS12 pins		N/A	C1733-X	C1745T-X	C1733-X	C1754T-X	C1733-X	C1762T-X

**Notes:**

- (1) To include any length limitations
- (2) These detectors are not applicable to ADM606

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## SAFETY, NUCLEAR APPLICATIONS

Detector	Model	Connector	Maximum Cable Length	Auxiliary Equipment	ADM606 and ADM616		iR7040	
					Raw Cable	Terminated Cable	Raw Cable	Terminated Cable
GP Series	GP100 GP100SI	12-pin MS	300 M or 1000 ft	N/A	C1734-X	C1740T-X	C1734-X	C1760T-X
	GP100C GP100CS	12-pin MS	300 M or 1000 ft	N/A	C1734-X (2)	C1740T-X (2)	N/A	N/A
	GP100C2 GP100C2S	12-pin MS	200 M or 660 ft	N/A	C1734-X (2)	C1740-X (2)	C1734-X	C1760T-X
	GP100M GP100MS	12-pin MS	300 M or 1000 ft PA – ADM 60 M or 200 ft GP – PA	C1744T-X to PA100M Max. 60 M or 200 ft	C1734-X	C1740T-X	C1734-X	C1760T-X
IP Series	IP100 IP100SI	12-pin MS	90 M or 300 ft	N/A	C1734-X	C1740T-X	C1734-X	C1760T-X
	IP100C	12-pin MS	90 M or 300 ft	N/A	C1734-X	C1740T-X	N/A	N/A
	IP100C2	12-pin MS	90 M or 300 ft	N/A	C1734-X (2)	C1740T-X (2)	C1734-X	C1760T-X
	ICP100H ICP100L ICP100LS	HN	300 M or 1000 ft CF – ADM 90 M or 300 ft ICP – CF300	2 cables C1747T-X to CF300 (one for signal and one for HV)	C1734-X	C1752T-X	C1734-X	Consult Factory
NP Series	NP100H NP100B	12-pin MS	300 M or 1000 ft	N/A	C1734-X	C1740T-X	C1734-X	C1760T-X
AX302	AX302	N/A	90 M or 300 ft	N/A	C1737-X		C1737-X	
Remote Ratemeter	ADM606 ADM616	Three 12-pin MS	300 M or 1000 ft	N/A	C1735-X	C1749T-X	C1735-X	C1749T-X
PC RADACS	PC COM1	DB 9	5 M or 15 ft	N/A	C1735-X		C1735-X	
Power	Ratemeter provides power to detector			N/A	Optional		Power cord (optional) US = iR-PCUS UK = iR-PCUK Euro = iR-PCEU	
<b>Notes:</b> (1) To include any length limitations (2) These detectors are not applicable to ADM606								

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## SAFETY OR NON-SAFETY, NUCLEAR APPLICATIONS

Detector	Model	Connector	PA300E		ADM606 and ADM616		iR7040	Comments									
			Raw	Term	Raw	Term	Term										
MD Series	MD45E		Detector pig tail; 2 M/6 ft		C1734-X	C1739T-X	C1759T-X	Maximum cable length between preamp and ratemeter: 300 M or 1000 ft									
	MD55EV1	19-pin MS	Detector pig tail; 2 M/6 ft long					C1734-X	C1739T-X	C1759T-X	Maximum cable length between preamp and ratemeter: 300 M or 1000 ft						
	MD55EV2	19-pin MS															
	MD55EV5	19-pin MS															
	MD55EB1	12-pin MS	C1737-X	C1742T-X							C1734-X	C1739T-X	C1759T-X	Maximum cable between detector and preamp: 60 M or 200 ft Maximum cable length between preamp and ratemeter: 300 M or 1000 ft			
	MD455E	19-pin MS	Detector pig tail; 2 M/6 ft											C1734-X	C1739T-X	C1759T-X	Maximum cable length between preamp and ratemeter: 300 M or 1000 ft
	MD455V5	12-pin MS	C1737-X	C1742T-X													Maximum cable between detector and preamp: 60 M or 200 ft Maximum cable length between preamp and ratemeter: 300 M or 1000 ft
	MD455V6	19-pin MS	Detector pig tail; 2 M/6 ft														

**Notes:**  
 All detector pigtails come with the 19-pin MS connector needed by the PA300E  
 MS19 pins from detector  
 MS12 pins to ratemeter

Maximum cable length between preamp and ratemeter: 300M/1000 ft



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