CONTAMINATION MONITOR CONFIGURATION GUIDE
ABOUT THE GUIDE

Use this guide to learn about the basic features of Mirion’s comprehensive family of contamination monitors, as well as the wide variety of optional accessories that will enhance the use of the systems in your facility.

This guide will help clarify model numbers and related information for the systems as well as optional accessories. It also highlights options that are incompatible with others (usually due to space constraints), and those that must be purchased with additional options.

The guide contains the most commonly requested options for the following systems plus software that can be used with any of the systems.

It is organized into the following sections:

1. Detector Technologies – Page 3
2. Argos Family and Options – Page 5
3. Sirius-5 and Options – Page 14
4. GEM-5 and Options – Page 16
5. Cronos Family and Options – Page 19
7. Contamination Monitors Common Parts – Page 26

Unless otherwise noted as “field installable/upgradeable”, all options must be factory-installed. However, calibration fixtures, gas regulators, lead bricks for shielding, GEM-5 ramps and Cronos liners, plinths and slings may be ordered at any time.

We hope this guide will simplify the process of selecting the proper contamination monitor systems and accessories to best fit your needs today and for many years to come.
DETECTOR TECHNOLOGIES

Differences between Gas-Flow and TPS

Traditional gas-flow monitors offer the best efficiency and Minimum Detectable Activity for short count times, but require ongoing management of the counting gas required for their operation. Mirion’s gas-flow detectors have a patented design that features three independent counting zones per detector for reduced background and more uniform detector response, leading to better overall detection capability.

With Mirion’s gasless detector technology, the tradeoffs between operating costs and performance have been minimized. Gasless Thin Plastic Scintillator (TPS) detectors offer excellent performance and simplified maintenance requirements typically associated with gas-free monitors. The availability of combinations of alpha/beta, beta and beta/gamma gasless solutions means that a suitable monitor can be selected for any application. The single zone design of the TPS detectors has been optimized to provide excellent signal-to-noise ratios and uniform detection capability, both across and along the detectors.

Mirion gas-flow and gasless detectors are interchangeable for Argos monitors shipped since February 2008 and for all Sirius-5 monitors. As a result, these monitors allow for field replacement of detectors when a switch of detectors is desired at a later time.

These gas-flow and gasless detectors are easily interchangeable.
Differences between Gas-Flow and TPS

**Benefits of Gas-Flow systems:**
- The best efficiency and Minimum Detectable Activity for the shortest count times
- Exceptional detection capability resulting from patented* triple zone detector design
- A variety of gas mixtures can be used, including: P-5, P-7.5, P-10 and Ar/CO2
- Uniform response across detector face

* Patent US 7,470,913 B1 High Efficiency and High Homogeneity Large-Area Gas-Filled Detectors

**Benefits of TPS systems:**
- Gas-free - no cost or worry associated with handling gas
- α/β, β/γ or β monitoring with discrimination between radiation types
- Reduced count time even in high γ background environment compared to other gasless detectors

<table>
<thead>
<tr>
<th>Contamination Detected</th>
<th>Detector Model</th>
<th>Detector Type</th>
<th>Hand, Cuff and Foot Monitor</th>
<th>Whole Body Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha + Beta</td>
<td>LFP-579</td>
<td>Low Flow Proportional Detectors</td>
<td>Sirius-5AB</td>
<td>Argos-3/5AB</td>
</tr>
<tr>
<td>Alpha + Beta</td>
<td>TPS-AB-579</td>
<td>Gasless Plastic Scintillation Detectors</td>
<td>Sirius-5PB</td>
<td>Argos-3/-5PB</td>
</tr>
<tr>
<td>Beta + Gamma</td>
<td>TPS-BG-579</td>
<td>Gasless Plastic Scintillation Detectors</td>
<td>Sirius-5PBG</td>
<td>Argos-3/-5PBG</td>
</tr>
<tr>
<td>Beta</td>
<td>TPS-B-579</td>
<td>Gasless Plastic Scintillation Detectors</td>
<td>Sirius-5PB</td>
<td>Argos-3/-5PB</td>
</tr>
</tbody>
</table>

*These gas-flow and gasless detectors are easily interchangeable*
ARGOS FAMILY AND OPTIONS

Argos Two-Step (front, back, side, head, hands and feet) Whole Body Surface Contamination Monitors

Argos is available in gas-flow Alpha/Beta or in gasless Beta, Alpha/Beta or Beta/Gamma Versions as part of our TPS family and with 18 or 25 detectors. The detectors may be upgraded (gas to TPS or TPS to gas) in the Argos-3/5 systems manufactured since February 2008.

Common family features:
- Contoured monitor design reduces body-to-detector distance to one inch on the average person
- Minimal gaps between detectors for smaller dead zones
- Virtual detector sum zones for enhanced coverage
- Common software platform simplifies training and support
- Efficient, front access, space-saving design minimizes overall clearance requirements and simplifies maintenance
- Built-in computer with Windows® Embedded operating system and LAN/USB capability for easy system management
- Solid state drive for improved reliability
- Compliant with IEC61098 Standard requirements
Argos Family and Options

Argos-5

Argos-5 Configuration

25 Detectors

Argos-5 Gas-Flow System Model:
- **7061780** Argos-5AB, 2-Step Whole Body Monitor
  - Twenty-five (25) triple-zone Model LFP-579, 579 cm², low flow proportional detectors
  - Dual channels for simultaneous and independent alpha and beta counting and alarm levels

Argos-5 Gasless (TPS family) Models:
- **818001** Argos-5PB, 2-Step Whole Body Monitor
  - Twenty-five (25) Model TPS-B-579 TPS Plastic Scintillator detectors, 579 cm²
- **Argos-5PBG**, 2-Step Whole Body Monitor
  - Twenty-five (25) Model TPS-BG-579 TPS Plastic Scintillator detectors, 579 cm²
- **Argos-5PAB**, 2-Step Whole Body Monitor
  - Twenty-five (25) Model TPS-AB-579 TPS Plastic Scintillator detectors, 579 cm²
  * — Requires CURTAINPB Front Curtain Lead Kit

Argos-3

Argos-3 Configuration

18 Detectors

Argos-3 Gas-Flow System Model:
- **7062322** Argos-3AB, 2-Step Whole Body Monitor
  - Eighteen (18) triple-zone Model LFP-579, 579 cm², low flow proportional detectors
  - Dual channels for simultaneous and independent alpha and beta counting and alarm levels

Argos-3 Gasless (TPS family) Models:
- **7062324** Argos-3PB, 2-Step Whole Body Monitor
  - Eighteen (18) Model TPS-B-579 Thin Plastic Scintillator detectors, 579 cm²
- **Argos-3PBG**, 2-Step Whole Body Monitor
  - Eighteen (18) Model TPS-BG-579 Thin Plastic Scintillator detectors, 579 cm²
- **Argos-3PAB**, 2-Step Whole Body Monitor
  - Eighteen (18) Model TPS-AB-579 Thin Plastic Scintillator detectors, 579 cm²
  * — Requires CURTAINPB Front Curtain Lead Kit

Visit our web site for up-to-date information & specifications. [www.mirion.com](http://www.mirion.com)
Argos Moveable Head Detector Options

Moveable Head Detector Options for Argos-3/-5

Reliable positioning mechanism automatically positions detector at 1 cm (0.39 in) from head for complete body coverage. These options do not include the relevant head detector that will be used with the mechanism. The head detector is already included in the standard Argos-5 monitor configuration and is not required for simulator units. The detector must be added for Argos-3 systems.

- **Benefits of Moveable Head Detector Option:**
  - Minimized head-detector distance for best $\alpha/\beta$ monitoring efficiencies
  - Robust and secure design
  - Standard Moveable Head Detector option requires no increase in height

- **Argos5-FLW-MHD-XTD** Moveable Head Detector Mechanism, Argos-3/-5AB
- **Argos5-TPS-MHD-XTD** Moveable Head Detector Mechanism for Argos-3/-5PB, Argos-3/-5PAB, Argos-3/-5PBG
- **Argos-3** requires additional Head Detector of same type as the rest of the system
- **Movable Head Detector** includes height mechanisms needed for AccuRate™ option

Argos Family and Options
Continued on next page
AccuRate™ Anthropometric Correction Option

AccuRate is Mirion’s innovative solution that improves the performance of its current generation of gamma-sensitive whole body surface contamination monitors by correcting for the self shielding effect of an individual in the monitor. The AccuRate system enables the detection of lower levels of contamination, reduces false positives and negatives, and minimizes overall personnel monitoring effort. Its optimized analysis addresses the industry need to reduce cost, improve accuracy, and increase ALARA.

- Improves accuracy of contamination monitoring
- Helps detect lower levels of contamination
- Reduces instances of missed contamination

**Comparison of detection coverage with and without AccuRate** - 700 Bq (42,000 dpm or ~19 nCi) source placed in various body parts, natural background, 600 Bq (36,000 dpm or ~16 nCi) alarm level.

**Kits are also available to retrofit existing units.**

- **AccuRate-PBG** Anthropometric Correction Option; Argos-3/-5PBG
  - Factory installed mounting hardware and electronics to enable Anthropometric Correction on an Argos-3/-5PBG.

- **AccuRate-ZEUS** Anthropometric Correction Option; Zeus-3/-5G
  - Factory installed mounting hardware and electronics to enable Anthropometric Correction on an Argos-3/-5P(G)(A)B with Zeus-3G/-5G.

- **AccuRate-PBG-MHD** Anthropometric Moving Head Correction Option; Argos-3/-5PBG, MHD
  - Factory installed mounting hardware and electronics to enable Anthropometric Correction on an Argos-3/-5PBG with Moveable Head Detector Option (Argos5-TPS-MHD-XTD) installed at same time.

- **AccuRate-ZEUS-MHD** Anthropometric Moving Head Correction Option; Zeus-3/-5G, MHD
  - Factory installed mounting hardware and electronics to enable Anthropometric Correction on an Argos-3/-5(P)(A)B with Zeus-3G/-5G and Moveable Head Detector Option (Argos5-FLW-MHD-XTD) installed at same time.
Argos Options

**Purged Spare Detector**
Having a purged spare detector on hand allows a damaged detector to be replaced in minutes, facilitating easy maintenance and minimizing down time for your monitors.

- **LFP-579D/PURGE**
  Factory-installed LFP-579 Purge Detector with preamp for Argos-3/5AB

- **7062325** Argos-3/5 Simulator
  - Same as Argos-3/5 except no detectors, preamps or detector LED indicators
  - Includes remote switch on coiled cable to simulate a randomly-chosen contaminated detector
  - Audible voice and visual prompts/alarms (including remote-controlled simulated CONTAMINATED result)
  - Moveable Head Detector Simulator Options available.

**Argos Side Mount 2nd Display and Lockable Keyboard Options**
These options are for Argos-3/5 only and are mutually exclusive (on same side) with sliding door, frisker or side-mounted small item monitor (SIM) options.

- **7063217** Side Mount 2nd LCD Display and Keyboard-Touchpad Kit
- **7062280** Secondary LCD Display Kit (only)
- **7063216** Side Mount Keyboard-Touchpad Kit (only)

Argos Family and Options
Continued on next page
Argos Options

Electric Barriers For Argos-3/5

Must order Front Curtain (Model 816614) if Zeus-3G/5G or Sliding Door not ordered at same time.

- **816651** Argos Electric Barrier, Entrance (shown)
- **Argos-EBX** Argos Electric Barrier, Exit

- **816614** Argos-3/5 Front Curtain Kit
  - Curtain to restrict access for Argos-3/5 (if Zeus-3G/5G not already present or ordered at same time)

Electric Sliding Doors for Argos-3/5

Must order Front Curtain (Model 816614) if Zeus-3G/5G not ordered at same time. Electric sliding doors add approx. 59 mm (2.32 in) to height of monitor.

- **817008** Argos Sliding Door, Exit (shown)
- **817007** Argos Sliding Door, Entrance
- **817009** Dual Argos Sliding Doors - Entrance and Exit
Zeus Gamma Options (7062229 Zeus-3G/818002 Zeus-5G) for Argos-3/5 to enhance gamma sensitivity including:

- 3 large gamma scintillation detectors
- One 817128 Gamma Foot Detector
- One 816614 Argos-3/-5 Front Curtain Kit
- Requires CURTAINPB Argos-3/-5 Front Curtain Lead Kit

The Zeus Gamma Option provides enhanced gamma sensitivity for Argos monitors.

Benefits of Zeus option:

- Enhancing the gamma contamination monitoring capability of your program leads to improved confidence on overall monitoring quality and reliability
- Enables passive monitoring and supports achievement of 1% or less Annual Limit of Intake (ALI)

Substitute/Additional Argos Gamma Detectors for Head or Top of Shoe

- **ArgosSAB-GDH** Substitute Gamma Head Detector for Argos-5AB
  - Substitutes LFP-579 alpha/beta detector in head position with gamma plastic scintillator detector; Argos-5AB only

- **ArgosSAB-GDS** Substitute Gamma Top Of Shoe Detector for Argos-5AB
  - Substitutes LFP-579 alpha/beta detector in top of shoe position with gamma plastic scintillator detector; Argos-5AB only

- **817128** Substitute Gamma Detector in Foot (Position 1 or 2)
  - For use with Argos-3/-5 Contamination Monitors: Substitutes LFP-579 Alpha/Beta gas-flow detector or TPS-AB-579 Alpha/Beta or TPS-B-579 Beta or TPS-BG-579 Beta/Gamma Thin Plastic Scintillator Detector in Foot Position 1 or 2 with Gamma-only Plastic Scintillator Detector

- **Detector addition: LFP-579 or TPS-579** detectors can be added to the Argos-3 configuration typically in Head, Top Of Shoe or Foot positions.

- **Detector substitution: LFP2TPS579-SUB** Substitute LFP-579 with TPS-(A)B(G)-579:
  - The Argos technology offers flexible solutions to substitute detectors from the standard configuration to a custom configuration. LFP-579 Alpha/Beta detector can be substituted with desired TPS detector (TPS-B-579 Beta detector or TPS-BG-579 Beta/Gamma detector or TPS-AB-579 Alpha/Beta detector) in selected position. Factory MUST be contacted to check compatibility with current configuration; provide model and serial number of unit in question.

Zeus gamma detectors are mounted behind TPS detectors in an Argos-PB or Argos-PAB or behind LFP detectors in an Argos-3/-5AB.

- **818002** Zeus-5G, gamma capability for Argos-5
- **7062229** Zeus-3G, gamma capability for Argos-3

Gamma Plastic Scintillator Detector used in Top of Head, Top of Shoe and Foot Positions

Foot Position 1 changed to gamma foot detector
Argos Options

Argos Built-In Small Item Monitors
The monitor chamber is installed in the left-hand-side corner post of an Argos-3/5 and includes detectors at top and bottom. The internal dimensions of chamber are: 10 x 12.5 x 20 cm (3.9 x 4.7 x 7.9 in.).

Shown with option pulled out for easy access to detectors/electronics.

- **7062059** Built-In Small Item Monitor, AB(Bot)-G(Top)
  - Includes LFP-180 gas-flow alpha/beta detector – bottom; plastic scintillator gamma detector – top
  - For Argos-3/-5AB Gas-Flow monitors only

- **7062139** Built-In Small Item Monitor, G(Bot)-G(Top)
  - Includes any two plastic scintillator gamma detectors in the bottom and top positions
  - For any Argos-3/5

- **Consult factory for other configurations including beta/gamma and alpha/beta sensitive detectors**

Argos Side-Mounted Small Item Monitors
The side-mounted chamber is installed on the entrance side corner post of an Argos-3/5 and includes detectors at top and bottom. The approximate internal dimensions of chamber are: 17.5 x 15 x 26 cm (6.9 x 5.9 x 10.2 in.). Mutually exclusive with entrance doors.

- **818065** Side-Mounted Small Item Monitor, AB(Bot)-G(Top)
  - Includes LFP-579 flow proportional Alpha/Beta detector – bottom position; plastic scintillator Gamma detector – top
  - For Argos-3/-5AB

- **7063032** Side-Mounted Small Item Monitor, G(Bot)-G(Top)
  - Includes two plastic scintillator Gamma detectors in the bottom and top positions
  - For any Argos-3/5

- **7063031** Side-Mounted Small Item Monitor, PB(Bot)-G(Top)
  - Includes TPS-579 beta thin plastic scintillator detector – bottom; plastic scintillator gamma detector – top
  - For Argos-3PB or Argos-5PB

- **Argos-SIMPAB** Side-Mounted Small Item Monitor, PAB (BOT) – G(TOP)
  - Includes TPS-AB-579 Alpha/Beta plastic scintillator detector – bottom; plastic scintillator gamma detector – top
  - For Argos-3PAB or Argos-5PAB

- **Argos-SIMPBG** Side-Mounted Small Item Monitor, BG (BOT/TOP)
  - Includes TPS-BG-579 Beta/Gamma plastic scintillator detectors in the bottom and top positions
  - For Argos-3PBG or Argos-5PBG
Contamination Monitor Configuration Guide

Argos Family and Options

- **CAL-FIXTURE-LFP**
  Argos-3/-5AB Calibration and Alarm Fixture Kit
  *Source holder only; source not included*
  Includes:
  - 7075132 One Argos-3/-5 Triple Zone Calibration Fixture to calibrate accessible Argos-3/5AB LFP-579 detectors with 3 sources simultaneously
    - Adjustable distance of up to three sources is from 0 to 75 mm (0 to ~2.95 in.)
  - 7074911 One Argos-3/-5 Single Calibration Fixture for use with any accessible Argos-3/-5 detectors
    - Adjustable distance from 0 to 75 mm (0 to ~2.95 in.)
  - 7075461 One Argos-3/-5 Single Thin Calibration Fixture for use with any accessible Argos-3/-5 hand detectors
    - For use on contact only

- **CAL-FIXTURE-TPS**
  Argos-3/-5P(A)B(G) Calibration and Alarm Fixture Kit
  *Source holder only; source not included*
  Includes:
  - 7074911 One Argos-3/-5 Single Calibration Fixture to calibrate any accessible Argos-3/-5 detector
    - Adjustable distance from 0 to 75 mm (0 to ~2.95 in.)
  - 7084916 One Argos-3/-5 Calibration Fixture for sources up to 50.8 mm (2 in.) diameter
    - Adjustable distance from 50 to 150 mm (approx. 3 to 6 in.)
  - 7075461 One Argos-3/-5 Single, Thin Calibration Fixture for use with any accessible Argos-3/-5 hand detector
    - For use on contact only

**Handle Options**

Standard mounting configuration is on outer left side of left corner post. Where a barrier/door options prohibit standard configuration, handle is mounted vertically on inner side of left corner post.

- **Argos5-HANDLE** Side support handle (factory); Argos-3/-5
  - assists in stabilization of users while counting

- **Argos5-HANDLE-KIT** Side support handle (field); Argos-3/-5
  - assists in stabilization of users while counting
  - includes mounting hardware, drill template and instructions
  - customer to provide Model(s) and Serial Number(s) of unit(s) to be retrofitted

**Camera Kit**

Provides event driven pictures and capture video associated with monitor use.

- **7062258** Argos-3/5 IP Camera Kit
  - Factory-installed IP camera for Argos-3/5 Only

Additional software options and accessories for Argos monitors are included in the Common Accessories and Software Options section at the end of this guide.
Sirius-5 Hand, Cuff and Foot Surface Contamination Monitor

The Sirius-5 Hand, Cuff and Foot monitor meets the need for a robust, industrial-strength contamination control product. It is designed for the high-throughput, demanding applications found in the nuclear industry – nuclear power plants, fuel cycle facilities, nuclear waste facilities and D&D operations.

The Sirius-5 is an extension of the CANBERRA “no compromises” approach towards radiological protection. The unit is designed with extensive detector damage protection, diagnostics and an unsurpassed ease-of-maintenance that will make it the first choice for facilities where up-time and instrument availability is of major importance. Detector interchangeability between hand and foot locations – and also with Argos™-3/-5 monitors – helps the facility operator minimize spare parts inventory, training and maintenance cost.

Sirius-5 is available in gas-flow Alpha/Beta or in gasless Beta, Alpha/Beta or Beta/Gamma versions as part of our TPS family. Monitors include six detectors, and the detectors may be upgraded (gas to TPS or TPS to gas) with no modifications to the system chassis.

**Common features:**
- Common software platform simplifies training and support
- Efficient, front access, space-saving design minimizes overall clearance requirements and simplifies maintenance
- Built-in computer with Windows® Embedded operating system and LAN/USB capability for easy system management
- Solid state drive for improved reliability
- Compliant with IEC61098 Standard requirements
**Sirius-5**

- **Sirius-5AB** hand/cuff/foot monitor for alpha/beta contamination:
  - Six (6) large area low flow gas proportional LFP-579 detectors
  - 1 step process for hands

- **Sirius-5PB** hand/cuff/foot monitor for beta contamination:
  - Six (6) large area gasless TPS detectors
  - 1 step process for hands

- **Sirius-5PBG** hand/cuff/foot monitor for beta/gamma contamination:
  - Six (6) large area gasless TPS detectors
  - 1 step process for hands

- **Sirius-5PAB** hand/cuff/foot monitor for alpha/beta contamination:
  - Six (6) large area gasless TPS detectors
  - 1 step process for hands

**Sirius-5 Accessories**

- **Sirius5-CAST-KIT** Sirius-5 Casters Kit Option
  - Casters with Integrated Leveling Feet to facilitate installation at final location. Includes four 50 mm swivel casters and associated hardware to mount to Sirius-5

- **SIRIUS5-PURGE-DET** Sirius-5 Purge detector kits available - consult price list for details

- **Sirius-5 SIM** Sirius-5 simulator
  - Same as Sirius-5 except no detectors, preamps or LED indicators
  - Includes remote switch on coiled cable to simulate a randomly-chosen contaminated detector.
  - Audible voice and visual prompts/alarms (including remote-controlled simulated CONTAMINATED result)

Additional software options and accessories for Argos monitors are included in the **Common Accessories and Software Options** section at the end of this guide.
GEM-5 AND OPTIONS

GEM-5 Gamma Exit Monitors

Common features:
- Common software platform simplifies training and support
- Built-in computer with Windows® Embedded operating system with LAN/USB capability for easy system management
- Solid state drive for improved reliability
- PC-based electronics provide full self-diagnostics

- **816002** GEM-5, Gamma Exit Monitor, 61 cm (24 in.) inner width
  - Exceptional sensitivity via eight (8) identical large plastic scintillator detectors (three per side + one top/bottom)
  - Standard portal opening width - 61 cm (24 in.);
  - Other available inner widths include:
    - 7063219 - 80 cm (31.5 in.)
    - GEM-5W93 - 93 cm (36.6 in.)
    - GEM-5W100 - 100 cm (39.4 in.)
  - Large full color LCD display and annunciator lights
  - Digitized voice prompts and visual prompts on the LCD display
  - Bi-directional operation (i.e., approach from either direction) plus one-step, two-step or walk-through modes are software selectable
  - 25 mm (1 in.) lead ingot shielding GEM5PB required

Visit our web site for up-to-date information & specifications. www.mirion.com
**GEM-5 Options**

**GEM-5 Shielding Options**

- **GEMSP8** 1” Layer of lead for GEM-5 (one required, second optional)
- **816087** GEM-5 Top Pan/Extra Lead Kit
  - Includes top pan and 9 lead ingot 25 mm (1 in.) bricks
  - Adds 30 mm (~1.2 in.) to height
  - Only for 61 cm (24 in.) models
- **7062330** GEM-5 Bottom Extra Lead Kit
  - Includes 9 lead ingot 25 mm (1 in.) bricks
  - Can also be used to add a second 25 mm (1 in.) layer of lead to the top of a GEM-5 if ordered with Model 816087

**7062269** GEM-5 IP Camera Kit
- Factory-installed IP camera for GEM-5 only
- Provides event driven pictures and capture video associated with monitor use

**816032** Set of GEM-5 Entrance/Exit Ramps for use with standard 61 cm (24 in.) or 80 cm (31.5 in.) width GEM-5

**GEM5-RP100** Set of Ramps for 100 cm (39.4 in.) or 93 cm (36.6 in.) width GEM-5

**816153** GEM-5 Shadow Shield Kit
- Includes curtain assembly kit with 54 lead ingot bricks and support panel to connect curtain assembly to GEM-5
- Shadow shields may be added to either side or both

Additional software options and accessories for Argos monitors are included in the Common Accessories and Software Options section at the end of this guide.
GEM-5 and Options

- **7061572** GEM-5 Simulator
  - Same as GEM-5 except no detectors, preamps or lead
  - Includes remote switch on coiled cable to simulate a randomly chosen contaminated detector
  - Audible voice and visual prompts/alarms (including remote-controlled simulated CONTAMINATED result)

- **816140** GEM-5 Calibration Fixture
  - Source holder only; *source not included*
  - Fits standard 61 cm (24 in.) width GEM-5 only
  - Spring-loaded expansion bars fit between the GEM-5 walls to hold source in place

- **816161** GEM-5 Electric Barrier, Entrance or Exit
  - must specify entrance or exit when ordering

Electric Barrier For GEM-5
Cronos Gamma Object/Tool Contamination Monitors

Common features:

- Common software platform simplifies training and support
- Built-in computer with Windows® Embedded operating system and LAN/USB capability and for easy system management
- Solid state drive for improved reliability
- Six (6) plastic scintillator detectors
- 25 mm (1 in.) removable epoxy-coated lead shielding ingots must be added (one or two layers)
- User selectable one-door or two-door pass thru operation
- Weigh scale for activity/mass measurements*
- Calibration fixture (without source)
- Large full color LCD display and annunciator lights
- Digitized voice prompts and visual prompts on the LCD display
- Heavy duty casters* and fork lift channels for ease of installation

* Optional on Cronos-1
Cronos Options (all models)

Cronos Shielding Options

These options bring the total shielding thickness to 25 mm (1 in.), or 50 mm (2 in.). Color-coded bricks provide easy size identification. Choose one or two shielding layers. One layer is required.

- **Crn1PB** – 25 mm (1 in.) Lead Shielding for Cronos-1
- **817849** – 25 mm (1 in.) Lead Shielding for Cronos-4
- **817949** – 25 mm (1 in.) Lead Shielding for Cronos-11

Cronos Removable Liner Kits

The plastic liners have preprinted center markings for calibration while the outer layers are removable for decontamination. Includes one white base layer with targets for each detector face per kit (totaling six) and three clear layers for each detector face per kit (totaling eighteen).

- **817891** Cronos-4 Removable Liner Kit
- **817991** Cronos-11 Removable Liner Kit

Cronos Simulators

- **CRONOS-1 SIM / CRONOS-4 SIM**
  - Same as standard CRONOS except no detectors, preamps or lead
  - Includes remote switch on coiled cable to simulate a randomly chosen contaminated detector
  - Audible voice and visual prompts/alarms (including remote-controlled simulated CONTAMINATED result)
  (Cronos-11 Simulator also available)

Cronos 1 Option

- **Crn1SCALE** – Weight scale option for Cronos-1 only
  - 20 kg (44.1 lb) range
  - 10 g (0.02 lb) resolution
  - Provides detection of an object left in the monitor

Additional software options and accessories for Argos monitors are included in the Common Accessories and Software Options section at the end of this guide.
Cronos Family and Options

Cronos Second LCD Kits
Color LCD screen for exit (rear) side. Includes rear start and stop buttons. Simplifies pass-through operation.
- **Crn1D2** – Cronos-1 Secondary Color LCD Kit
- **817885** – Cronos-4 Secondary Color LCD Kit
- **817985** – Cronos-11 Secondary Color LCD Kit

Cronos Lifting Slings
Specially designed lifting sling device for each system.
- **Crn1LFT** – Cronos-1 Lifting Sling Arrangement
- **817890** – Cronos-4 Lifting Sling Arrangement
- **817990** – Cronos-11 Lifting Sling Arrangement

Specially designed stands/plinths available for standard & non-standard heights
Installation of anchor bolts (supplied) into floor recommended for stability

For non-standard heights:
- Once height is selected, it is fixed
- Desired height within available range must be specified at time of order
- **Crn1TAB** - Cronos-1 Stand/Plinth Table
  - Plinth height 530 mm (21 in.)
- **Crn1TAB-VAR** - Non-standard height Cronos-1 Stand/Plinth Table
  - Plinth height between 530 mm and 780 mm (21 in. and 31 in.)
- **817893** - Cronos-4 Stand/Plinth Table
  - Plinth height is 480 mm (19 in.)
- **817893-VAR** - Non-standard height Cronos-4 Stand/Plinth Table
  - User selectable height between 480 mm and 710 mm (19 in. and 28 in.)

Height of Cronos Tray to Floor

<table>
<thead>
<tr>
<th>Model</th>
<th>No Casters</th>
<th>With Casters</th>
<th>On Standard Plinth</th>
<th>Range with Variable Plinth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronos-1</td>
<td>230 mm (9 in.)</td>
<td>325 mm (12.75 in.)</td>
<td>760 mm (30 in.)</td>
<td>760 - 1010 mm (30 - 40 in.)</td>
</tr>
<tr>
<td>Cronos-4</td>
<td>267 mm (10.5 in.)</td>
<td>382 mm (15 in.)</td>
<td>747 mm (29.5 in.)</td>
<td>747 - 977 mm (29.5 - 38.5 in.)</td>
</tr>
<tr>
<td>Cronos-11</td>
<td>267 mm (10.5 in.)</td>
<td>394 mm (15.5 in.)</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Additional Source Calibration Jigs
Model number is for additional jig, as one is supplied with each monitor. Sources not supplied with jig.
- **Crn1JIG** – Source Calibration Jig for Cronos-1
- **817892** – Source Calibration Jig for Cronos-4
- **817992** – Source Calibration Jig for Cronos-11
COMMON ACCESSORIES AND SOFTWARE OPTIONS

Personnel ID Readers
Units include Reader and pertinent mounting hardware. CANBERRA recommends sending a sample of customer’s ID card to factory to ensure compatibility.

Seismic/Tie Down Options
For Argos, Sirius-5, GEM-5 and Cronos

Mounting plate attaches to unit and floor
Argos and Sirius-5 Friskers

External, 100 cm² friskers are available for both gas-flow and gasless Argos and Sirius monitors to facilitate hand frisking. All friskers are supplied with necessary mounting hardware, electronics, and cabling required to connect to the monitor. Manual Frisking is helpful to confirm and locate the presence of contamination detected by the monitor.

- **ARGOS-FSK5** Frisker Option for Argos-3/5AB
  - 100 cm², LFP-100D detector

- **ARGOS5-FSKPB** Beta CSP Smart Probe Frisker for Argos-3/-5PB
  - Includes Model SB-100/A CSP PROBE (EM75862)
  - CSPS calibration software and cable are recommended

- **ARGOS5-FSKPAB** Alpha/Beta CSP Smart Probe Frisker for Argos-3/5PAB
  - Includes Model SAB-100 CSP PROBE (EM75864)
  - Two channels; Alpha and Beta monitoring
  - CSPS calibration software and cable are recommended

- **ARGOS5-FSKPBG** Alpha/Beta/Gamma CSP Smart Probe Frisker for Argos-3/5PBG
  - Includes Model SABG-100 CSP PROBE (EM81933)
  - Two channels Alpha and Beta/Gamma monitoring (no discrimination between Beta/Gamma)
  - CSPS calibration software and cable are recommended

- **Sirius5-FSKAB** Frisker Option for Sirius-5AB
  - 100 cm², LFP-100D HP detector

- **Sirius5-FSKPB** Beta CSP Smart Probe Frisker for Sirius-5PB
  - Includes Model SB-100/A CSP PROBE (EM75862)
  - CSPS calibration software and cable are recommended

- **Sirius5-FSKPAB** Alpha/Beta CSP Smart Probe Frisker for Sirius-5PAB
  - Includes Model SAB-100 CSP PROBE (EM75864)
  - Two channels; Alpha and Beta monitoring
  - CSPS calibration software and cable are recommended

- **Sirius5-FSKPBG** Alpha/Beta/Gamma CSP Smart Probe Frisker for Sirius-5PBG
  - Includes Model SABG-100 CSP PROBE (EM81933)
  - Two channels; Alpha and Beta/Gamma monitoring (no discrimination between Beta/Gamma)
  - CSPS calibration software and cable are recommended

CSPS Ordering Information:

CSP probes are ready to go out of the box and are calibrated using the normal contamination monitor software. Purchase of CSPS calibration software is recommended, however, to facilitate occasional maintenance activities such resetting the optimum High Voltage. Please select (see list below) the appropriate software along with the CSP Smart Probe PC-USB cable.

**CSPS Calibration Software (select one):**

- **EM80643 CSPS-E** Instruments & Probes Calibration SW, English-Si Units
- **EM80642 CSPS-R** Instruments & Probe Calibration SW English-USA Units
- **EM78468 CSPS-F** Instruments & Probes Calibration SW French-Si Units

**Canberra Smart Probe PC-USB cable**

- **EM78466** Canberra Smart Probe-PC USB Cable

Continued on next page
Remote Control and Data Access Software

**WebRemote™ Contamination Monitor Interface**

- Web-based and local user interface for the following equipment:
  - Argos™-3 /-5 Whole Body Contamination Monitors
  - Sirius™-5 Hand and Foot Monitors
  - GEM™-5 Gamma Exit Monitors
  - Cronos® Gamma Object/Tool Monitors
- Provides intuitive user interface to monitor results, change parameters and view status of monitors with the system’s touchscreen or from anywhere in the facility using a desktop or a tablet PC
- Offers graphical selection of detectors for setup and calibration
- Any contaminated regions can easily be identified by the user
- Included with Version 9.0x of Monitor Software or greater

**Dashboard™ Web-based Monitor Overview Interface**

- Provides color-coded status overview of all networked Contamination Monitors on one screen
- Access via Internet Explorer or Firefox from any PC linked to the monitor network (Ethernet or Wi-Fi®) without any proprietary program or interface
- Contamination monitors can be selected from Dashboard to inquire the details, and to change the parameters remotely through the WebRemote interface
- Included with Version 9.0x of Monitor Software or greater

**Dashboard™ Interface**

**Color-coded status:**
- **Green** – operational
- **Red** – out of service
- **Magenta** – contaminated
- **Gray** – maintenance mode
- **Black** – offline
CRemote Remote Control Data Access LAN SW
CRemote can be used with any Argos/GEM-5/Sirius/Cronos Contamination Monitors. The software provides status of up to 90 systems on the network as well as remote diagnostic and reporting tools without the need for WebRemote.

- **SOFT-CREMOTE**
  Remote Control Data Access LAN SW
  - Primary seat license

- **7062263**
  CRemote, Remote Control Data Access LAN SW
  - Additional seat license

**Database Options**

SOFT-LDB Local Database Support for Argos/GEM-5/Sirius/Cronos Contamination Monitors
SOFT-LDB provides a data repository for the contamination monitor program and aids in the effectiveness of the Health Physics program by providing useful information at a glance. It includes an SQL Database with advanced reports which can be viewed locally on the monitor display or remotely using a web browser or WebRemote.

- **SOFT-LDB Local Database Support; Factory Installed**
- **SOFT-LDB-KIT Local Database Support; Field Installed**
  - Prequisite: Windows 7 Embedded PC
- **SOFT-LDB-KITPC-A Local Database Support; Field Installed**
  - For existing Argos-3/-5, Sirius-5 or or Cronos monitors
  - Includes factory configured Windows 7 Embedded PC
- **SOFT-LDB-KITPC-G Local Database Support; Field Installed**
  - For existing GEM-5 Serial and GEM-5M monitors
  - Includes factory configured Windows 7 Embedded PC
CONTAMINATION MONITORS
COMMON PARTS

Without a doubt, Mirion’s contamination monitors are appealing thanks to their modern, ergonomic design that is based on a “no compromises” approach toward contamination detection. But our family of monitors is attractive for other reasons as well. The common platforms and detection technologies that bring you superior, reliable performance from current Argos, Sirius, GEM-5 and Cronos monitors also contribute to significant commonalities in parts and options across the family.

The Comparison Overview Chart below highlights the many commonalities that are shared by the members of Mirion’s current Contamination Monitor family. As you can see, there are a number of key commonalities across the family – software, computers, displays, etc. And even more parts and options including detectors and friskers are shared by multiple members of the family.

What does that mean for you? Simplicity of use, reduced training costs, ease of serviceability and lower parts inventories!

Comparison Overview Chart

<table>
<thead>
<tr>
<th>Monitor Items</th>
<th>Item Number SCN</th>
<th>Item Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software</td>
<td>SOFT-MON-ROL</td>
<td>Latest Version 9.0x of MONITOR.EXE</td>
</tr>
<tr>
<td>CRemote Compatible</td>
<td></td>
<td>CRemote</td>
</tr>
<tr>
<td>Local Database Support Compatibile</td>
<td>SOFT-LDB</td>
<td>Local Database (SQL) Support</td>
</tr>
<tr>
<td>Monitoring Software</td>
<td>SOFT-WEBREMOTE</td>
<td>Web Remote Software</td>
</tr>
<tr>
<td>Monitoring Software</td>
<td>SOFT-DASHBOARD</td>
<td>Dashboard Software</td>
</tr>
<tr>
<td>Touch Screen</td>
<td>7079104</td>
<td>10.4” Touch Screen</td>
</tr>
<tr>
<td>Power Supply (embedded)</td>
<td>7079475</td>
<td>Power Supply (embedded)</td>
</tr>
<tr>
<td>10.4” LCD Display</td>
<td>7070196</td>
<td>10.4” LCD Display</td>
</tr>
<tr>
<td>Sensor Board</td>
<td>816540</td>
<td>Sensor Board</td>
</tr>
<tr>
<td>Embedded Computer</td>
<td>7079641</td>
<td>Embedded Computer for Argos/Cronos/Sirius</td>
</tr>
<tr>
<td>Auxiliary Sensor Board</td>
<td>816696</td>
<td>Auxiliary Sensor Board</td>
</tr>
<tr>
<td>Head Motor Control Board</td>
<td>8168825</td>
<td>Head Motor Control Board</td>
</tr>
<tr>
<td>Gamma Scintillator Assembly Zeus-3G/5G option</td>
<td>816550</td>
<td>Gamma scintillation detector assembly (includes plastic scint., PMT assembly, gamma detector board, mounting brackets)</td>
</tr>
<tr>
<td>Gamma PMT Assembly Zeus-3G/5G option</td>
<td>816061</td>
<td>Gamma PMT assembly (includes pmt, hv div board, housing, cables &amp; connectors to hook up to gamma det. Board)</td>
</tr>
<tr>
<td>Gamma Board Assembly Zeus-3G/5G option</td>
<td>816112</td>
<td>Gamma Board Assembly</td>
</tr>
<tr>
<td>TPS detector/preamp</td>
<td>818050 TPS-B-579</td>
<td>TPS Plastic Scintillation Detector/Preamp combo</td>
</tr>
<tr>
<td></td>
<td>818079 TPS-AB-579</td>
<td></td>
</tr>
<tr>
<td></td>
<td>818087 TPS-BG-579</td>
<td></td>
</tr>
<tr>
<td>Window replacement kit</td>
<td>7071450</td>
<td>TPS-B-579 (SCN 818050), TPS-BG-579 or TPS-AB-579 Detector Window replacement kit (including 10x SCN 7071319 “Snap-On” Window Assembly and 1x SCN 7067599 roll of black tape)</td>
</tr>
<tr>
<td>LFP-579</td>
<td>78050</td>
<td>Gas-Flow Alpha/Beta Detector</td>
</tr>
<tr>
<td>Window replacement kit</td>
<td>7068273</td>
<td>LFP-579 Detector Window replacement kit (including 10x 780533; LFP-579 gasket-window sub-assemblies + 1x of 160202; Tube RTVS140/18120 LOCTITE)</td>
</tr>
<tr>
<td>LFP-579 Preamp</td>
<td>816520</td>
<td>Alpha/Beta Preamp Assembly with cover for use with LFP-579</td>
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<tr>
<td>LFP-100D Gas-Flow Frisker option</td>
<td>780401</td>
<td>Gas-Flow Alpha/Beta Frisker Detector</td>
</tr>
<tr>
<td>LFP-100D Preamp</td>
<td>816761</td>
<td>Alpha/Beta Preamp Assembly for use with LFP-100D</td>
</tr>
<tr>
<td>LFP-100D Control Board Gas-Flow Frisker option</td>
<td>816766</td>
<td>Alpha/Beta Control Board Assembly for use with LFP-100D</td>
</tr>
<tr>
<td>SB-100/I</td>
<td>EM75862</td>
<td>BETA Frisker probe</td>
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<td>SAB-100</td>
<td>EM75864</td>
<td>ALPHA BETA Frisker probe</td>
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<td>SABG-100</td>
<td>EM81933</td>
<td>ALPHA BETA GAMMA Frisker probe</td>
</tr>
<tr>
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<td>CSP Frisker Control Board for use with CSP Probes connected to Argos/Sirius</td>
</tr>
<tr>
<td>CSP Probe Cable</td>
<td>EM77336</td>
<td>Generic CSP Cable for use with CSP Probes connected to Argos/Sirius</td>
</tr>
</tbody>
</table>
CANBERRA provides you with simplicity of use, reduced training costs, ease of serviceability and lower parts inventories!

**Model Numbers For CANBERRA's Current Monitors below**

*(The color coded boxes below indicate that a part is common to that monitor)*

<table>
<thead>
<tr>
<th>Monitor Items</th>
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</tr>
</thead>
<tbody>
<tr>
<td>SCN</td>
<td>Item Description</td>
</tr>
<tr>
<td>Argos-3/-5AB</td>
<td>Item Number</td>
</tr>
<tr>
<td>Argos-3/-5PB</td>
<td>Item Number</td>
</tr>
<tr>
<td>Argos-3/-5PAB</td>
<td>Item Number</td>
</tr>
<tr>
<td>Argos-3/-5PBG</td>
<td>Item Number</td>
</tr>
<tr>
<td>Sirius-5PB</td>
<td>Item Number</td>
</tr>
<tr>
<td>Sirius-5PAB</td>
<td>Item Number</td>
</tr>
<tr>
<td>Sirius-5PBG</td>
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<tr>
<td>Sirius-5AB</td>
<td>Item Number</td>
</tr>
<tr>
<td>GEM-5 (Serial)</td>
<td>Item Number</td>
</tr>
<tr>
<td>Cronos</td>
<td>Item Number</td>
</tr>
<tr>
<td>-1/-4/-11</td>
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**Software**

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<th>Software</th>
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<tr>
<td>SOFT-MON-SERIAL</td>
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<tr>
<td>CRemote Compatible</td>
<td>SOFT-CREMOTE</td>
</tr>
<tr>
<td>Local Database Support</td>
<td>SOFT-LDB</td>
</tr>
<tr>
<td>Local Database (SQL) Support</td>
<td>Monitoring Software SOFT-WEBREMOTE</td>
</tr>
<tr>
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<td>TPS detector/preamp</td>
<td>818050 TPS-B-579</td>
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<td>Window replacement kit</td>
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<td>SABG-100</td>
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<td>CSP Probe Cable</td>
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<tr>
<td>CSP Frisker Control Board for use with CSP Probes connected to Argos/Sirius</td>
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