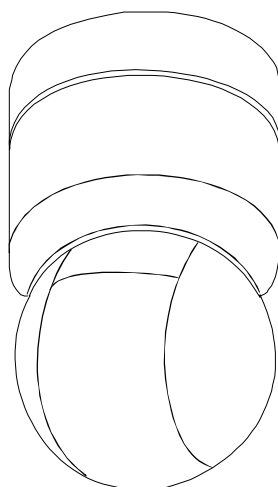


SpeedDome® Ultra VII Camera Dome Configuration Utility

Operator's Manual Supplement



RAS915/RAS916/RAS917 Series

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About this Supplement

This supplement provides detailed information about SpeedDome Ultra VII camera dome features that are not currently covered in your operator's manual. This supplements information found in the following manuals:

- 22x Camera Dome Configuration Utility Operator's Manual, 8200-0184-02
- Day/Night Camera Dome Configuration Utility Operator's Manual, 8200-0184-04

NOTE: Keep this supplement with your operator's manual for reference purposes.

If you need assistance...

Contact your Sales Representative.

New SpeedDome Ultra VII Features

SpeedDome Ultra VII provides the following features with firmware version 0710-0147-0106 and newer.

- Quick Set Menu for accessing commonly used dome settings
- Auto Iris/Auto Focus resume settings
- Scan Limits for establishing start and stop points for monitoring a specific area
- AD Up-the-Coax protocol for compatible American Dynamics controllers

In addition, updated information is provided for the following:

- SensorNet and RS-422 matrix switchers and controllers
- Preset programming instructions for the Panasonic WJ-SX550 multiplexer and WV-CU550A controller

Quick Set Menu

The Quick Set Menu provides easy access to commonly used SpeedDome Ultra VII features when used with compatible controllers. This allows you to change or activate features without starting the dome configuration menu. The options on the Quick Set Menu differ depending on the dome type. See Figure 1 and Figure 2 for examples of the different menus.

Figure 1: 22x Camera Dome Quick Set Menu

0	TOGGLE QUICK SET MENU
1	DOMES CONFIG MENU
2	AUTO IRIS/AUTO FOCUS
3	FLIP
4	PEEL PATTERN
15	SMOOTH SCAN
16	STEPPED SCAN
17	RANDOM SCAN
20	DOMES INFORMATION

Figure 2: Day/Night Camera Dome Quick Set Menu (2 screens)

0	TOGGLE QUICK SET MENU
1	DOMES CONFIG MENU
2	AUTO IRIS/AUTO FOCUS
3	FLIP
4	PEEL PATTERN
10	NIGHT MODE
11	DAY MODE
12	AUTO DAY/NIGHT MODE
13	WDR ON
14	WDR OFF
FOCUS FAR = next page	

15	SMOOTH SCAN
16	STEPPED SCAN
17	RANDOM SCAN
20	DOMES INFORMATION
FOCUS NEAR = previous page	

To access a feature on the menu, enter the number and press the Quick Set button (varies by controller). Table 1 provides a description of the available options.

Table 1: Quick Set Menu Options

Command	Description
0+Quick Set	Toggle Quick Set Menu: Toggles between displaying and hiding the quick set menu.
1+Quick Set	Dome Config Menu: Displays the SpeedDome Ultra configuration menu.
2+Quick Set	Auto Iris/Auto Focus: Resumes Auto Focus/Auto Iris mode.
3+Quick Set	Flip: Rotates the SpeedDome 180° from its current pointing direction. This is the same as pressing the Flip button on compatible controllers.
4+Quick Set	Peel Pattern: Runs the default Apple Peel Pattern. This is the same as pressing the Peel button on compatible controllers.
10+Quick Set*	Night Mode: Sets the dome IR mode setting to ON. The dome switches to full-time black-and-white (B/W) mode.
11+Quick Set*	Day Mode: Sets the dome IR mode setting to OFF. The dome switches to full-time color mode.
12+Quick Set*	Auto Day/Night Mode: Resumes the most recently selected automatic IR mode setting. <ul style="list-style-type: none"> Auto High: B/W mode activates ~30 lux. Auto Mid: B/W mode activates ~3 lux. Auto Low: B/W mode activates ~ 0.5 lux
13+Quick Set*	WDR On: Enables Wide Dynamic Range (WDR). Use this setting when both bright and low light areas need to be viewed simultaneously.

* Menu items 10-14 are available on Day/Night domes only.

Command	Description
14+Quick Set*	WDR Off: Disables Wide Dynamic Range (WDR). Use this setting when the light level is constant or changes in lighting conditions are gradual.
15+Quick Set	Smooth Scan: Initiates a smooth scan between the left and right scan limits, starting at the left scan limit. If no scan limits have been set, initiates a smooth 360° clockwise rotation around the dome axis using the current tilt, zoom and focus settings.
16+Quick Set	Stepped Scan: Initiates a scan between the left and right scan limits pausing briefly every 10° (at 1x zoom), starting at the left scan limit. When the right scan limit is reached, the scan is reversed. If no scan limits have been set, initiates a clockwise rotation around the dome axis pausing briefly every 10° (at 1x zoom) for 3 seconds using the current tilt, zoom and focus settings.
17+Quick Set	Random Scan: Initiates a scan between the left and right scan limits pausing randomly between the limits. If no scan limits have been set, initiates a clockwise or counter-clockwise rotation around the dome axis using the current tilt, zoom and focus settings. The dome pauses randomly as it rotates around the axis.
20+Quick Set	Dome Information: Displays the Dome Information screen available through the dome configuration menu.

Refer to your controller manual to determine if the Quick Set Menu feature is supported. For more information about these settings, see your SpeedDome Ultra VII Configuration Utility Operator's Manual. See also:

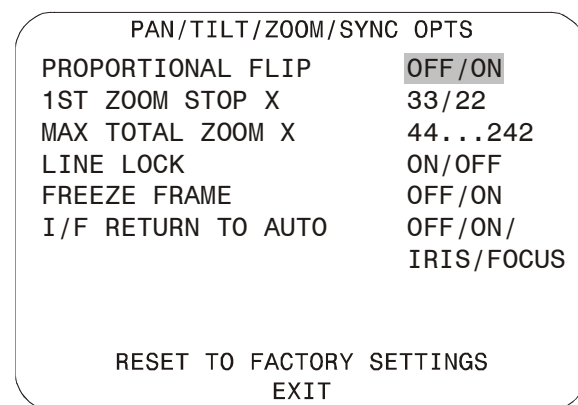
Topic	Page
Auto Iris/Auto Focus Resume Setting	3
Scan Limits	4
AD Up-the-Coax Protocol	5
SensorNet and RS-422 Matrix Switchers and Controllers	6

Auto Iris/Auto Focus Resume Setting

Normally, the camera's iris and focus settings return to automatic mode when the dome moves a minimum of one frame from its current pointing position. In some situations, you may want to maintain specific iris and/or focus adjustments based upon your surveillance needs.

Use the **I/F Return to Auto** setting on the **Pan/Tilt/Zoom/Sync Opts** menu to configure the auto iris and auto focus resume settings.

Figure 3: Pan/Tilt/Zoom/Sync Options menu



Four settings are available: On, Off, Iris and Focus.

Setting	Description
On	Both return to auto iris and return to auto focus settings are enabled . Moving the dome resumes auto mode for both iris and focus changes.
Off	Both return to auto iris and return to auto focus settings are disabled . Moving the dome does not resume auto mode for iris and focus changes.
Iris	Only return to auto iris is enabled. Return to auto focus is disabled. Moving the dome resumes auto iris mode without changing focus settings.
Focus	Only return to auto focus is enabled. Return to auto iris is disabled. Moving the dome resumes auto focus mode without changing iris settings.

Continue with Changing the Auto Iris/Auto Focus Resume Setting on page 4 to configure the setting.

Changing the Auto Iris/Auto Focus Resume Setting

Refer to the SpeedDome Ultra VII Operator's Manual for information about displaying menus and changing settings.

1. Select **Pan/Tilt/Zoom/Sync Opts** from the **Dome Configuration Menu**.
2. Move the highlight bar to **I/F Return to Auto**. Change the setting.
 - Select **On** to enable both resume auto iris and resume auto focus.
 - Select **Off** to disable both resume auto iris and resume auto focus.
 - Select **Iris** to enable resume auto iris only.
 - Select **Focus** to enable resume auto focus only.

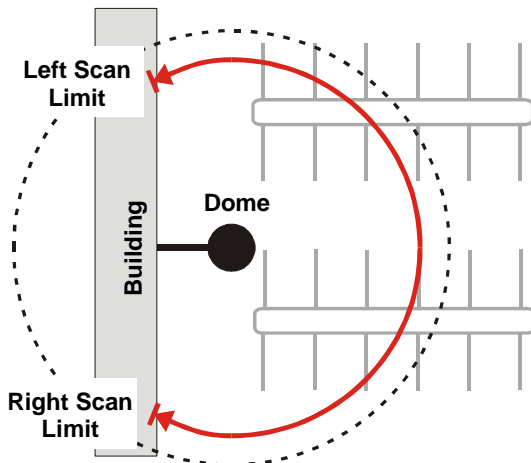
The default setting is **On**.
3. Select **Exit** to return to the Dome Configuration Menu.

Scan Limits

Scan Limits are two points around the dome's pan axis, which define a surveillance area. When active, the scan repeats until interrupted by a camera command, preset, pattern, or alarm.

Figure 4 provides an example of scan limits for a dome installed over the edge of a building monitoring a parking lot. In this example, the building blocks part of the dome's viewable area.

Figure 4: Scan Limits example



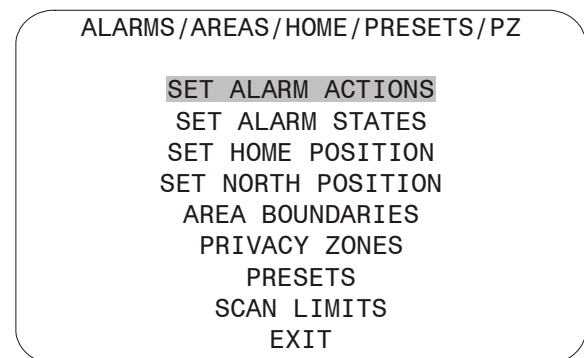
The dashed circle represents the dome's field of view. The solid line curve represents the scan area. By setting the left and right scan limits where the building's wall becomes visible, you ensure that only useful video of the parking lot is being observed when the scan is active. Once these scan limits are programmed you can choose to run a smooth scan, stepped scan, or random scan.

Table 2: Scan Types

Smooth Scan	An automated scan that slowly pans between the left and right scan limits, starting at the left scan limit. When the right scan limit is reached, the scan reverses.
Stepped Scan	An automated scan that pans slowly pausing briefly every 10° between the left and right scan limits. Once the right scan limit is reached, the scan reverses.
Random Scan	An automated scan that pans randomly between the left and right scan limits, starting at any point between the scan limits.

If your controller supports the Quick Set menu function, you can program left and right scan limits to automate your surveillance activities. The **Scan Limits** menu option is found on the **Alarms/Areas/Home/Presets/PZ** menu.

Figure 5: Alarms/Areas/Home/Presets/Privacy Zones menu



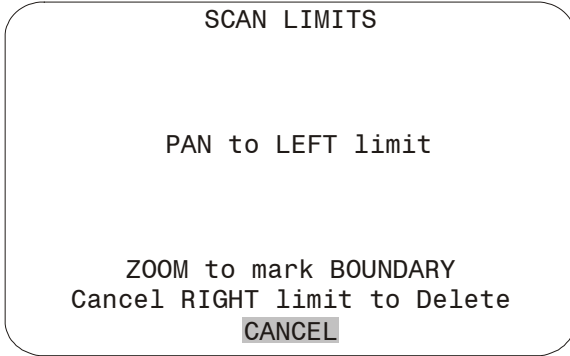
Continue with Programming Scan Limits on page 5 to configure the setting.

Programming Scan Limits

Refer to the SpeedDome Ultra VII Operator's Manual for information about displaying menus and changing settings.

1. Select **Alarms/Areas/Home/Presets/PZ** from the **Dome Configuration Menu**.
2. Select **Scan Limits**.

The Scan Limits screen appears:



Note: Press **Focus** during steps 3 or 4 to cancel scan limit programming.

3. Adjust the pan position of the dome to set the left scan limit. Press **Zoom** to select.
4. Pan the dome to the right to set the right scan limit. Press **Zoom** to select.
5. When the **Alarms/Areas/Home/Presets/PZ** screen appears, select **Exit** to return to the **Dome Configuration Menu**.

AD Up-the-Coax Protocol











The AD Up-the-Coax (AD-UTC) protocol is a new protocol developed by American Dynamics. It provides video and two-way dome control signals on a single cable for compatible American Dynamics switchers and keyboards.

Note: At the time of publication, the following American Dynamics keyboards are compatible with AD-UTC protocol: ADCC0200 and ADCC0300. The commands provided in this document assume that one of these keyboards is being used. Contact your Sales Representative for current information.

AD-UTC Command Summary



Table 3 lists the commands to operate the configuration utility in AD-UTC environment. The keyboard must be in programming mode to perform these functions.



Table 3: Configuration Menu Commands

Command	Function
 ,  +  (Function, and then Shift+Menu)	Start the configuration utility.
Joystick (Pan/Tilt)	Move the highlight bar on the active menu.
 (Focus Far) Or  (Focus Near)	Select the highlighted item on the active menu.
 (Zoom In) or Twist joystick clockwise	Increase the value of the selected setting. Display the next choice for the setting.
 (Zoom Out) or Twist joystick counterclockwise	Decrease the value of the selected setting. Display the previous choice for the setting.
 ,  +  (Function, and then Shift+Clear)	Save changes and exit the utility from any screen.

When setting names or entering password information, the screen displays the available characters in the selected language. Table 4 provides the name programming and password entry commands:

Table 4: Name Programming/Password Entry Commands



















Command	Function
Joystick Left/Right	Move the highlight left or right in the character field.
Joystick Up/Down	Move the highlight up or down in the character field.
 (Focus Far) Or  (Focus Near)	Select the highlighted character in the character field.

Command	Function
 (Zoom In) or Twist joystick clockwise	Move the cursor to the right of the current character in the name or password.
 (Zoom Out) or Twist joystick counterclockwise	Move the cursor to the left of the current character in the name.

Additional Dome Commands

Table 5 provides the special commands available when using the dome in an AD-UTC network. These commands are available when you enter the keyboard combination provided.

Table 5: Additional Dome Commands

Command	Function
 (Function), Preset # (1-96), and then  (Preset)	Program selected Preset
Preset # (1-96), and then  (Preset)	Recall selected Preset
 (Function), pattern # (1-3), and then  +  (Shift+Preset)	Start selected Pattern programming
Pattern # (1-3), and then  (Function)	Save Pattern programming
Pattern # (1-3), and then  +  (Shift and Preset)	Run selected Pattern continuously
 +  (Function+Focus Far) Or  +  (Function+Focus Near)	Resume Auto Focus mode
 +  (Function+Iris Open) Or  +  (Function+Iris Close)	Resume Auto Iris mode
 (Flip)	Rotate dome 180° from current position (“flip”)


Performance Notes

Keep the following considerations in mind when using the SpeedDome Ultra VII camera dome in the AD-UTC environment.

Address Setting

The SpeedDome Ultra VII camera dome must be set to address 891 to operate in the AD-UTC environment. When the dome initializes or resets, the address and protocol information (UTC_T) appear on-screen.

Accessing the Quick Set Menu

The Quick Set Menu provides easy access to specific SpeedDome Ultra VII functions from the keyboard. To access the Quick Set menu, select the dome, and press  (Quick Set button).

See Quick Set Menu on page 2 for information about the Quick Set functions.

SensorNet and RS-422 Matrix Switchers and Controllers

The following provides information about SensorNet and RS-422 controllers compatible with SpeedDome Ultra VII. Specific operating considerations are also included.

VM8

Supported Protocol	SensorNet
Maximum Presets	0
Maximum Patterns (1)	1
Quick Set Menu	Not supported
Address Range	1-8

Notes:

- (1) Apple Peel only. Programmable patterns are not available.

VM16/ADTT16 (White Touch Tracker)

Supported Protocol	SensorNet RS-422 (1)
Maximum Presets	96 – SensorNet 4 – RS-422
Maximum Patterns (2)	3
Quick Set Menu	Not supported
Address Range	1-16

Notes:

- (1) Requires RCSN422 code converter.
- (2) Patterns are limited by time and the number of available dome commands. Total time for each pattern cannot exceed 6 minutes 50 seconds. Total dome commands used in all patterns cannot exceed 99.

VM16E/ADTT16E (Black Touch Tracker)

Supported Protocol	SensorNet RS-422 (1)
Maximum Presets	96 – SensorNet 4 – RS-422
Maximum Patterns (2)	3
Quick Set Menu	Yes (3)
Address Range	1-16 or 1-64 (3)

Notes:

- (1) Requires RCSN422 code converter.
- (2) Patterns are limited by time and the number of available dome commands. Total time for each pattern cannot exceed 6 minutes 50 seconds. Total dome commands used in all patterns cannot exceed 99.
- (3) Requires firmware version 0701-2833-0103 (EEPROM) / 0701-2834-0201 (Flash PROM) or newer.

VM32/AD32

Supported Protocol	SensorNet RS-422 (1)
Maximum Presets	96 – SensorNet 4 – RS-422
Maximum Patterns (2)	3
Quick Set Menu	Not supported
Address Range	1-32

Notes:

- (1) Requires RCSN422 code converter.
- (2) Patterns are limited by time and the number of available dome commands. Total time for each pattern cannot exceed 6 minutes 50 seconds. Total dome commands used in all patterns cannot exceed 99.

VM96 (1)

Supported Protocol	SensorNet RS-422
Maximum Presets	Unlimited (2)
Maximum Patterns (3)	3
Quick Set Menu	Not supported
Address Range	1-32

Notes:

- (1) Requires software version 5.2 or newer.
- (2) Preset information is stored at the host, not the dome.
- (3) Patterns are limited by time and the number of available dome commands. Total time for each pattern cannot exceed 6 minutes 50 seconds. Total dome commands used in all patterns cannot exceed 99.

AD2150/AD2350

Supported Protocol	RS-422 (1)
Maximum Presets	16 (2) or 60 (3)
Maximum Patterns (4)	3
Quick Set Menu	Not supported
Address Range	1-32

Notes:

- (1) Requires the AD2083-02 series code converter.
- (2) Preset information is stored at the converter, not the dome.
- (3) Requires AD2083-02 with firmware version 0701-11YB-156A or newer. Preset information is stored in the dome, not the converter.
- (4) Patterns are limited by time and the number of available dome commands. Total time for each pattern cannot exceed 6 minutes 50 seconds. Total dome commands used in all patterns cannot exceed 99.

AD1650

Supported Protocol	RS-422 (1)
Maximum Presets	16 (2) or 60 (3)
Maximum Patterns (4)	3
Quick Set Menu	Not supported
Address Range	1-128 (5)

Notes:

- (1) Requires the AD2083-02 series code converter.
- (2) Preset information is stored at the converter, not the dome.
- (3) Requires AD2083-02 with firmware version 0701-11YB-156A or newer. Preset information is stored in the dome, not the converter.
- (4) Patterns are limited by time and the number of available dome commands. Total time for each pattern cannot exceed 6 minutes 50 seconds. Total dome commands used in all patterns cannot exceed 99.
- (5) Requires additional equipment to achieve these numbers. A dome address within each group of 64 or 99 cameras is reserved as a global broadcast address.

AD168

Supported Protocol	SensorNet (1) RS-422 (1) or (2)
Maximum Presets	16 (1)(2), 64 (1)(3), or 60 (4)
Maximum Patterns (5)	3
Quick Set Menu	Not supported
Address Range	SensorNet: 1-180 RS-422: 1-99 (1)(6) or 1-180 (2)(6)

Notes:

- (1) Requires the appropriate code control module.
- (2) Requires the AD2083-02 series code converter.
- (3) Presets information is stored at the converter or control module, not the dome.
- (4) Requires AD2083-02 with firmware version 0701-11YB-156A or newer. Preset information is stored in the dome, not the converter.
- (5) Patterns are limited by time and the number of available dome commands. Total time for each pattern cannot exceed 6 minutes 50 seconds. Total dome commands used in all patterns cannot exceed 99.
- (6) Requires additional equipment to achieve these numbers. A dome address within each group of 64 or 99 cameras is reserved as a global broadcast address.

AD2050

Supported Protocol	RS-422 (1)
Maximum Presets	16 (2) or 60 (3)
Maximum Patterns (4)	3
Quick Set Menu	Not supported
Address Range	1-1024 (5)

Notes:

- (1) Requires the AD2083-02 series code converter.
- (2) Preset information is stored at the converter, not the dome.
- (3) Requires AD2083-02 with firmware version 0701-11YB-156A or newer. Preset information is stored in the dome, not the converter.
- (4) Patterns are limited by time and the number of available dome commands. Total time for each pattern cannot exceed 6 minutes 50 seconds. Total dome commands used in all patterns cannot exceed 99.
- (5) Requires additional equipment to achieve these numbers. A dome address within each group of 64 or 99 cameras is reserved as a global broadcast address.

MegaPower LT

Supported Protocol	SensorNet
Maximum Presets	96
Maximum Patterns (1)	3
Quick Set Menu	Yes (2)
Address Range	1-32

Notes:

- (1) Patterns are limited by time and the number of available dome commands. Total time for each pattern cannot exceed 6 minutes 50 seconds. Total dome commands used in all patterns cannot exceed 99.
- (2) Requires a compatible keyboard.

MegaPower 48

Supported Protocol	SensorNet RS-422
Maximum Presets	96(1)
Maximum Patterns (2)	3
Quick Set Menu	Yes (3)
Address Range	1-48

Notes:

- (1) Preset information is stored at the host, not the dome.
- (2) Patterns are limited by time and the number of available dome commands. Total time for each pattern cannot exceed 6 minutes 50 seconds. Total dome commands used in all patterns cannot exceed 99.
- (3) Requires firmware 1.07 or newer and a compatible keyboard.

MegaPower 1024

Supported Protocol	RS-422 (1)
Maximum Presets	16 (2) or 60 (3)
Maximum Patterns (4)	3
Quick Set Menu	Not supported
Address Range	1-1024 (5)

Notes:

- (1) Requires the AD2083-02 series code converter.
- (2) Preset information is stored at the converter, not the dome.
- (3) Requires AD2083-02 with firmware version 0701-11YB-156A or newer. Preset information is stored in the dome, not the converter.

- (4) Patterns are limited by time and the number of available dome commands. Total time for each pattern cannot exceed 6 minutes 50 seconds. Total dome commands used in all patterns cannot exceed 99.
- (5) Requires additional equipment to achieve these numbers. A dome address within each group of 64 or 99 cameras is reserved as a global broadcast address.

Panasonic UTC Protocol Preset Programming

The Dome Configuration Menu must be used to program Presets. Up to 64 Presets may be programmed using the Panasonic UTC protocol.

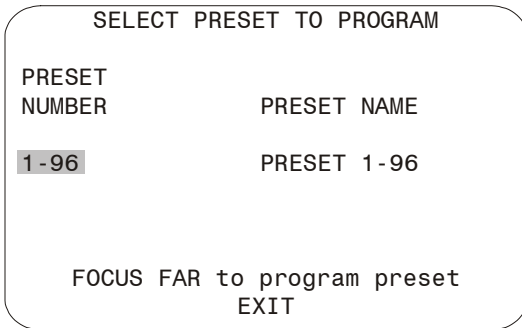
These instruction apply to the following equipment:

- Panasonic WJ-SX550 Multiplexer
 - Panasonic WV-CU550A Controller
1. Select the monitor and camera number assigned to the Speed Dome Ultra VII camera dome.
 2. Use the arrow keys on the controller to scroll to the **Camera Setup Menu** (D4).
 3. Press **F1** (On) key to display the **Dome Configuration Menu**.
 4. Use the joystick to move the highlight to **Alarms/Areas/Home/Presets/PZ**. Press **Set** to select.

ALARMS / AREAS / HOME / PRESETS / PZ

SET ALARM ACTIONS
 SET ALARM STATES
 SET HOME POSITION
 SET NORTH POSITION
 AREA BOUNDARIES
 PRIVACY ZONES
 PRESETS
 SCAN LIMITS
 EXIT

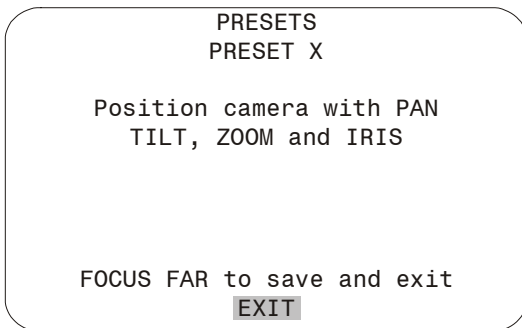
- Use the joystick to move the highlight to **Presets**. Press **Set** to select. The **Select Preset to Program** screen displays.



- Use the joystick to select the Preset you want to program. If the Preset has been programmed the dome automatically moves to that position.
 - Move the joystick right to increase the preset number.
 - Move the joystick left to decrease the preset number.

When the correct Preset number appears, press **Set** to begin programming.

- The **Presets** screen displays. Use the joystick to adjust the dome to the correct pan/tilt position.



IMPORTANT! If using the WV-CU550A Controller with the WJ-SX550 Multiplexer, you must press **F3** (A. Res) to adjust the zoom, focus, or iris settings. This places the controller in normal navigating mode. Make the necessary adjustments. When finished, press **F1** (On) to resume menu mode.

- Press **Set** to save the Preset information.
- To program more Presets, repeat steps 5 through 8. To exit the **Dome Configuration Menu** and save changes, press **F4** (Exit).

To verify the Preset programming, enter a Preset number (1-64) and press Preset.

Specifications-Indoor Dome

Operational

Pan/Tilt:

Manual Pan Speed.....	0.2°-100° per second (scaled to zoom position)
Manual Tilt Speed	0.25°-100° per second (scaled to zoom position)
Preset Pan/Tilt Speed	220° per second maximum
Pan Travel.....	360° continuous rotation
Tilt Travel	>90°
Pan/Tilt Accuracy	±0.5°

22X Camera Zoom Functions:

Optical Zoom.....	22X
Digital Zoom.....	11X
Zoom Pause.....	22X selectable or 33X default
Total Zoom.....	242X
Maximum Zoom Stop	44X, 66X, 88X (default), 110X, 132X, 154X, 176X, 198X, 220X, 242X
Zoom/Focus Accuracy	±0.5%

23x Day/Night Camera Zoom Functions:

Optical Zoom.....	23X
Digital Zoom.....	10X
Zoom Pause.....	23X selectable or 35X default
Total Zoom.....	230X
Maximum Zoom Stop	46X, 69X, 92X (default), 115X, 138X, 161X, 184X, 207X, 230X
Zoom/Focus Accuracy	±0.5%

Auto Synchronization:

Line Locked.....	Remote V-phase adjustment
Internal.....	Built-in sync generator
Address Range	1-255

Number of Presets:

VM16 / ADTT16	96 with SensorNet 485
VM32 / AD32.....	96 with SensorNet 485
AD2150	64 with Manchester 16 with RS422 (using AD2083-02A)
VM96.....	Virtual with RS422 or SensorNet 485
VM168 / AD168.....	64 with Manchester, RS-422 or SensorNet 16 with RS422 (using AD2083-02A)
AD2050	64 with Manchester 16 with RS422 (using AD2083-02A)

Quick View™ Access Time.....<1 second to position.
 Full zoom in <4 seconds.
 Focus on VM16, VM32 and
 VideoManager systems is <1 second.
 Focus on VM96 and RV2715 systems
 is <7 seconds

Programmable Patterns

Number Patterns.....3

Storage

Program Storage 256 Kbytes of Flash memory
 Data Storage 128 Kbytes of SRAM

Configuration Menu

Languages..... English, French, German, Spanish,
 Italian, and Portuguese

Electrical

Input Voltage 18-30Vac, 50/60 Hz
 UL Class 2 LPS
 Design Tolerance..... 16-36Vac, 50/60 Hz
 Power Consumption 16W max.
 Current..... 0.85A max.
 Allowable Drop Out..... 100ms
 Power On In-Rush Current 1.5A

Surge Protection:

Video Output.....Low capacitance Zener
 suppressor 6.5V, 1500W
 Power Line.....TVS rated at 60V, 1.5 joules,
 250A 8/20µs impulse
 RS422.....TVS rated at 9.8V/1A,
 20V/25A, 500W,
 8/20µs impulse

Manchester/

SensorNet 485..... Gas discharge tube rated at:
 8/20µs impulse discharge current
 of 10kA, ten 8/20µs impulse
 discharge current of 5kA
 Isolation transformer coupled 2000Vrms
 PTC fuse protects transformer.
 TVS rated at 9.8V/1A, 20V/25A,
 500W, 8/20µs impulse
 Alarm InputTVS rated at 9.8V/1A,
 20V/25A, 500W, 8/20µs impulse

Alarms Inputs/Control Outputs:

When no I/O board is used:

Inputs..... 1 dry contact/3.5mA sink
 Outputs 1 open collector driver
 @ 12Vdc, 40mA

When I/O board is used:

Inputs 4 dry contacts/3.5mA sink
 Outputs 4 open collector drivers
 @ 12Vdc, 40mA

Environmental

Operating Temperature..... -10° to 50°C (14° to 122°F)
 Relative Humidity0 to 95% non-condensing
 Storage Temperature -20°C to 65°C
 (-4°F to 149°F)

Mechanical

Height.....20.8cm (8")
 Eyeball Diameter.....12cm (4.7")
 Weight:
 Housing and Eyeball..... 1.36kg (3 lbs.)
 Base (standard) 0.09kg (0.20 lbs.)
 Base (with I/O board)..... 0.16kg (0.35 lbs.)

Lens and Bubble Densities

Eyeball Lens f0
 Bubbles:
 RUCLR (Clear) f0
 RUSLV (Silver) f1.5 to f2
 RUSMK (Smoke) f0.5
 RUGLD (Gold) f1.5 to f2

Specifications-22X Camera

Type Interline transfer 1/4" CCD array
 Scanning Area.....3.2 (H) x 2.4 (V) mm
 Scanning System2:1 interlace
 Video Out1.0 Vp-p/75 ohms composite
 Signal-to-Noise..... 50 dB (typical)

Color Camera Only

Horizontal Resolution470 lines at center
 Minimum Illumination0.3 lux (AGC On, 20 IRE)
 0.02 lux with ¼ s open shutter
 White Balance Through-the-Lens (TTL)
 Automatic Tracing White balance (ATW)

NTSC:

Effective Pixels.....768 (H) x 494 (V) pixels
 Scanning525 lines, 60 fields, 30 frames
 Horizontal 15.734kHz
 Vertical 59.9Hz

PAL:

Effective Pixels 752 (H) x 582 (V) pixels
Scanning..... 625 lines, 50 fields, 25 frames
Horizontal 15.625kHz
Vertical..... 50Hz

Monochrome Camera Only

Horizontal Resolution..... 500 lines at center
Minimum Illumination 0.008 lux (AGC On, 20 IRE)
0.004 lux with 1/4 s open shutter
White Balance Through-the-Lens (TTL)
Automatic Tracing White balance (ATW)

EIA:

Effective Pixels 768 (H) x 494 (V) pixels
Scanning..... 525 lines, 60 fields, 30 frames
Horizontal 15.734kHz
Vertical..... 59.9Hz

CCIR:

Effective Pixels 752 (H) x 582 (V) pixels
Scanning..... 625 lines, 50 fields, 25 frames
Horizontal 15.625kHz
Vertical..... 50Hz

Lens Design

Type.....Aspherical
Focal Length..... 4 to 88mm
Aperture.....f1.6 (wide angle)
f3.8 (telephoto)

Viewing Angle (equivalent to 8-80 mm on 1/2" CCD array, or 11-110 mm on 2/3" CCD array):

4mm.....47.0°(H) x 35.2°(V)
88mm.....2.2°(H) x 1.6°(V)

**Specifications-23X
Day/Night Camera**

Type.....Interline transfer 1/4" CCD array
Scanning Area 3.2 (H) x 2.4 (V) mm
Scanning System.....2:1 interlace
Video Out..... 1.0 Vp-p/75 ohms composite
Signal-to-Noise50 dB (typical)
Horizontal Resolution..... 470 lines at center

Minimum Illumination 0.5 lux (AGC On, 20 IRE)
0.03 lux with 1/4 s open shutter
0.01 lux in IR mode
0.009 lux in IR mode with 1/4 s open shutter

White Balance..... Through-the-Lens (TTL)
Automatic Tracing
White balance (ATW)

NTSC:

Effective Pixels.....724 (H) x 494 (V) pixels
Scanning525 lines, 60 fields, 30 frames
Horizontal..... 15.734kHz
Vertical59.9Hz

PAL:

Effective Pixels.....724 (H) x 582 (V) pixels
Scanning625 lines, 50 fields, 25 frames
Horizontal..... 15.625kHz
Vertical50Hz

Lens Design

Type Aspherical
Focal Length 3.6 to 82.8mm
Aperture f1.6 (wide angle)
f3.7 (telephoto)

Viewing Angle (equivalent to 8-80 mm on 1/2" CCD array, or 11-110 mm on 2/3" CCD array):

3.6mm 54.0°(H) x 40.5°(V)
82.8mm 2.5°(H) x 1.9°(V)

Field-of-View Formulas:

$$\frac{3.2\text{mm} \times \text{distance from camera (m)}}{\text{Focal length (mm)}} = \text{Horizontal view (m)}$$

$$\frac{2.4\text{mm}^{**} \times \text{distance from camera (m)}}{\text{Focal length (mm)}} = \text{Vertical view (m)}$$

* Horizontal scanning area of pickup device (mm) in camera.
** Vertical scanning area of pickup device (mm) in camera.

Example: Wide angle view with lens at 6mm and viewed object at 10m.

$$\frac{3.2\text{mm} \times 10\text{m}}{6\text{mm}} = 5.33\text{m Horizontal view (m)}$$

$$\frac{2.4\text{mm} \times 10\text{m}}{6\text{mm}} = 4.0\text{m Vertical view (m)}$$

Declarations

Regulatory Compliance

Emissions	47 CFR, Part 15, Class A ICES-003 EN55022, Class B EN61000-3-2 EN61000-3-3 AS/NZ 3548, Class A CISPR 22
Immunity	EN50130-4
Safety	UL1950 CSA C22.2 No. 950 EN60950 IEC 60950

FCC COMPLIANCE: This equipment complies with Part 15 of the FCC rules for intentional radiators and Class A digital devices when installed and used in accordance with the instruction manual. Following these rules provides reasonable protection against harmful interference from equipment operated in a commercial area. This equipment should not be installed in a residential area as it can radiate radio frequency energy that could interfere with radio communications, a situation the user would have to fix at their own expense.

EQUIPMENT MODIFICATION CAUTION: Equipment changes or modifications not expressly approved by Sensormatic Electronics Corporation, the party responsible for FCC compliance, could void the user's authority to operate the equipment and could create a hazardous condition.

Other Declarations

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