VG4-MTRN-C Alternative Protocol Module

BOSCH

en Installation Manual

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1 Customer Support and Warranty

If this unit needs service, contact the nearest Bosch Security Systems Service Center for authorization to return and shipping instructions.

Service Centers

USA

- **Repair Center**
  - Telephone: 800-566-2283
  - Fax: 800-366-1329
  - E-mail: repair@us.bosch.com
- **Customer Service**
  - Telephone: 888-289-0096
  - Fax: 585-223-9180
  - E-mail: security.sales@us.bosch.com
- **Technical Support**
  - Telephone: 800-326-1450
  - Fax: 585-223-3508 or 717-735-6560
  - E-mail: technical.support@us.bosch.com

Canada

- Telephone: 514-738-2434
- Fax: 514-738-8480

Europe, Middle East, Africa Region

- **Repair Center**
  - Telephone: 31 (0) 76-5721500
  - Fax: 31 (0) 76-5721413
  - E-mail: RMADesk.STService@nl.bosch.com

Asia Region

- **Repair Center**
  - Telephone: 65 63522776
  - Fax: 65 63521776
  - E-mail: rmahelpdesk@sg.bosch.com
- **Customer Service**
  - Telephone: 86 (0) 756 7633117 or 86 (0) 756 7633121
  - Fax: 86 (0) 756 7631710
  - E-mail: customer.service@cn.bosch.com

Warranty and more information

For additional information and warranty queries, please contact your Bosch Security Systems representative or visit our website at www.boschsecurity.com.

2 Hardware Connections

The Bosch alternative protocol module allows a VG4 AutoDome to be controlled by an American Dynamics Manchester or Sensormatic RS-422 PTZ control device. To communicate with these control devices, you must perform additional hardware modifications to the AutoDome wiring connections, therefore, it is important to consider the following information:

- The maximum number of remote devices connected to the system depends on the protocol and the electrical demands of each device (refer to the appropriate instructions supplied with the device).
- Each device has a termination switch or jumper to prevent signals from reflecting back along a cable.
- Only terminate a communications source or remote device when it is at the end of a cable.
- Each alternative protocol requires a different type of cable as indicated as follows:

Alternative Protocol Comparison Table

	Sensormatic RS-422	**Manchester**
Cable Type	2 Shielded, twisted pair[1]	1 Shielded twisted pair[2]
Wire Gauge	22 AWG	18 AWG
Max. Length	1 km (3,281 ft)[3]	1.5 km (4,921 ft)[3]
Connection	Polarized	Polarized
Data Rate	Baud: 4800	Fixed: 31 kbits/sec.
Data Format	8,N,1	Proprietary
Max. Devices per Line	10 Max depending on device loading	3 Max depending on device loading

[1]American Dynamics composite cable is recommended. This cable also contains wires for power and video. If another cable is substituted, cable wire colors may be different. If shielded cable must be used, signals may rapidly decline as more devices are connected or its length increases. As a result, the maximum length allowed for shielded cable is reduced. For

example, the maximum length for Belden 8760 cable is 750 m (2460 ft) in ideal conditions (no noise).

[2]Belden 8760 cable is recommended.

[3]May be significantly less depending on regulatory requirements and noise in the environment.

2.1 AutoDome Module Replacement Instructions

Use the following steps to replace the Bubble assembly and various modules to the Bosch AutoDome.

1. To remove the bubble assembly, do the following:

Pendant Bubble Assembly

a. Apply a counterclockwise rotational force to the Bubble assembly to preload the bubble latch.
b. Insert a small (2 mm) straight blade screwdriver into the latch opening of the bubble trim-ring to release the latch. Then remove the screwdriver.
c. Rotate the Bubble assembly counterclockwise approximately 20° until the Bubble releases from the Pendant housing, and remove the Bubble.

In-ceiling Bubble Assembly

a. Loosen the trim ring lock-screw with a small #1 Philips screwdriver enough for the Bubble assembly to move freely.
b. Rotate the Bubble assembly counterclockwise approximately 1/4 turn until it releases from In-Ceiling housing, and remove the Bubble.

2. To remove the camera module (hot swappable), do the following:

a. Remove the Bubble assembly. See step 1 above.
b. Press the yellow lock tab on Camera module and turn the Camera module counterclockwise until it aligns with the yellow label on the CPU board.
c. Pull the Camera module straight off its connector and remove.

3. To remove the CPU module, do the following:

a. Remove all power from the AutoDome. Caution: Severe damage can be caused to the AutoDome if the power is not turned OFF.
b. Remove the Bubble assembly. See step 1 above.
c. Remove the Camera module. See step 2 above.
d. Loosen the three screws of the CPU module with a #2 Philips screwdriver, until the screws are retained loosely by the CPU module.
e. Pull the CPU module from its connector and tilt the module to clear the housing gasket.

4. To remove the heater module (optional with outdoor pendant model), do the following:

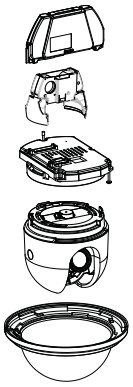
a. Remove the Bubble assembly, Camera module, and CPU module. See steps 1, 2, and 3 above.
b. Squeeze the two Heater module lock tabs with the thumb and index finger, and remove the module.

5. To replace the COMMs module, do the following:

a. Remove the Bubble assembly, Camera module, CPU module, and optional Heater module. See steps 1, 2, 3, and 4 above.

b. Press the lock tab away from the module with one hand while pulling the VG4-MTRN-S COMMs module from its connector with the other hand, and remove the module.
c. Align the replacement VG4-MTRN-C COMMs module to its connector in the housing with the module label facing outward, and insert the module into its connector. Make certain that the lock tab engages the module.

6. To re-assemble the unit, do the following:



a. Replace the optional Heater module, CPU module, Camera module, and Bubble assembly. See steps 4, 3, 2 and 1 above.
b. Replace the CPU module, Camera module, and Bubble assembly. See steps 3, 2 and 1 above.
c. Insert replacement Heater module into Outdoor Pendant Housing, making certain that the lock tabs engage.
d. Replace the Camera module and Bubble assembly. See steps 2 and 1 above.
e. Align the replacement CPU module screws with the holes in the housing and insert the CPU module into its connector. Then tighten the three Philips head screws.
f. Replace the Bubble assembly. See step 1 above.
g. Rotate the Camera module clockwise until it locks.
h. Align the yellow lock tab of the replacement Camera module to the yellow label on CPU module and insert Camera module straight onto its connector on the CPU module.
i. Place the replacement Bubble assembly onto the In-Ceiling housing, and rotate it clockwise approximately 1/4 turn until it stops. Then tighten the lock-screw.
j. Insert the replacement Bubble assembly into the Pendant housing, and rotate it clockwise until it locks. The latch mechanism makes a click when it locks.

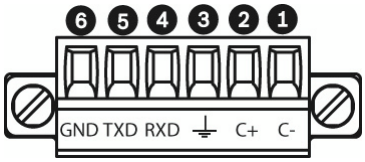
For information on wiring and mounting the Pendant Arm or Pipe/Roof or in-ceiling, refer to the *AutoDome Modular Camera System Installation Manual*.

2.2 Connecting to an AD/Manchester Controller

The AD/Manchester protocol requires shielded cable containing 18 gauge twisted-pair wire, as long as the cable does not exceed 1.5 km (4,921 ft). The protocol can use the daisy-chain network with a maximum of three (3) devices per link. The last device in the link is terminated (100 ohm). Cable wires are polarized.

To connect to an AD/Manchester Controller, do the following:

1. Connect all power, video, and alarm cables as described in the *AutoDome Modular Camera System Installation Manual*.
2. Substitute control connections for Bi-phase by attaching one of the two incoming AD/Manchester Control Data I/O wires to pin 5 (C+) and attach the other wire to pin 6 (C-) on the P106 connector. The following figure (Reference #1) illustrates the position of the pins:



Pin	Designation	Bosch Label	From Typical AD Controller
1	Manchester (-)	C- / Bi-phase -	White (W)
2	Manchester (+)	C+ / Bi-phase +	Black (B)
3	Shield	⏚	S (shield)
4	Bosch RXD Serial Communications	RXD	-
5	Bosch TXD Serial Communications	TXD	-
6	GND	GND	-

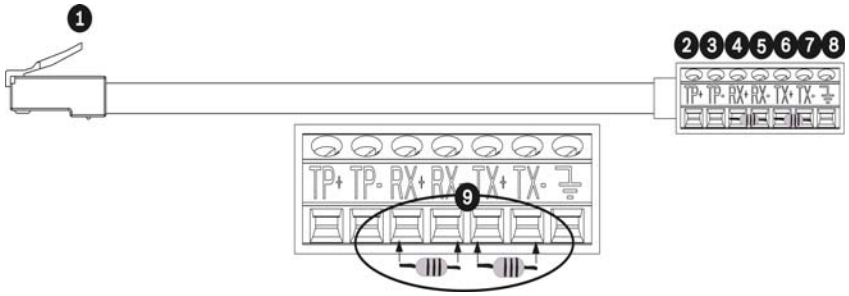
To control the AutoDome, use the P106 connector to control the Pendant and use the P105 connector to control the pipe mount board and the in-ceiling interface module. For additional information, refer to the *AutoDome Modular Camera System Installation Manual* Chapters 2-4.

2.3 Connecting to an AD/Sensormatic RS-422 Controller

The AD/Sensormatic RS-422 protocol requires a special shielded adapter cable (included) containing two 22 gauge twisted-pair wires, as long as the cable does not exceed 1 km (3,281 ft). The wiring must be in the form of a star or daisy-chain network. With a star network, a separate cable (branch) runs from the source code distribution unit or repeater to each remote device. Remember to limit branches to four (4) with a maximum of ten (10) devices per link. Cable wires are polarized.

To connect to an AD/Sensormatic RS-422 Controller, do the following:

1. Connect all power, video, and alarm cables as described in the *AutoDome Modular Camera System Installation Manual*.
2. Plug adapter cable into the RJ45 connector of the pipe board, in-ceiling, or pendant.
3. Cut and trim all wires with sufficient slack to reach their connector terminals in the box, but not so long as to be pinched by or to obstruct closing the Pendant Arm.
4. Attach each of the four (4) incoming RS-422 Control Data I/O wires to the appropriate pin (pin 4 (RX+), pin 5 (RX-), pin 6 (TX+), pin 7 (TX-)) and attach the other wire to the special adapter cable. Attach the signal ground wire to pin 8.
5. If at the end of the line within a daisy chain configuration, where multiple domes are connected, the termination jumper (100 ohm) must be in place for both RX and TX pair.



Ref.	Label	Description	Bosch Label	From Typical Sensormatic Controller
1	Ethernet Connection	Connects to UTP Video/ Ethernet	-	-
2	TP+	UTP Video (+)	Twisted Pair +	-
3	TP-	UTP Video (-)	Twisted Pair -	-
4	RX+	RS-422 Data IN High (+)	Rx +	Orange
5	RX-	RS-422 Data IN Low (-)	Rx -	Green
6	TX+	RS-422 Data OUT High (+)	Tx +	Yellow
7	TX-	RS-422 Data OUT Low (-)	Tx -	Brown
8	Ground	Signal Ground	⏚	
9	Resistors	Included with Jumper for RS-422	-	-

For more information, refer to the Alternative Protocol section within the 200, 300, and 500 Series AutoDome User's Manual.

3 FastAddress

The VG4 AutoDome offers remote addressing via the FastAddress capability, allowing installation of all domes first, then setting the addresses via the control system. Since it is not necessary to go to the camera's physical location, this feature makes it easier to readdress cameras at a later time.

Prior to setting the FastAddress for each camera, all cameras will initially move together. After the Unique Identifier is set, only the camera that was set with the FastAddress is capable of sending and receiving commands. When setting the FastAddress, it is important to remember that some AD/Manchester systems use address blocks of 1 to 64, while AD/Sensormatic systems typically use address blocks of 1 to 99. This means that when the controller/keyboard is displaying video for cameras higher than 64 or 99 the actual control code sends a different address to the camera (see Appendix for conversion charts). For example at Camera 65, the AD/Manchester system sends out an address of 1, while the AD/Sensormatic RS-422 system with an address of 100 also sends out an address of 1.

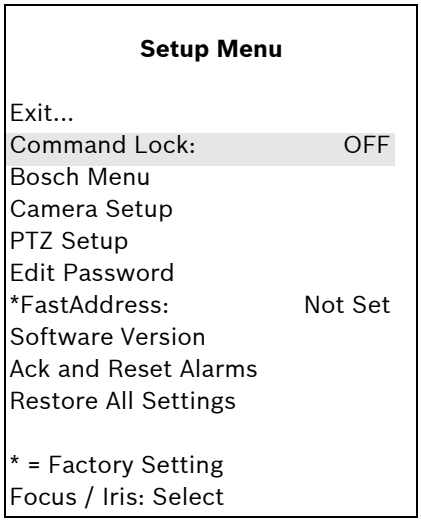
It is NOT NECESSARY to convert these numbers with the Bosch FastAddress method. The camera automatically detects the address being transmitted by the AD/Sensormatic RS-422 control system and adjusts the camera accordingly.

3.1 Setting the FastAddress with an AD/Sensormatic RS-422 Keyboard

To set the FastAddress with an AD/Sensormatic RS-422 Keyboard, do the following:

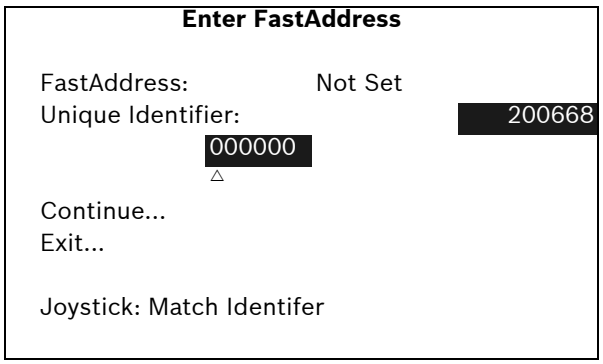
1. Enter the AutoDome Setup menu using **66-Preset/Shot** on most AD/Sensormatic RS-422/keyboards. Note: Based on your keyboard model, it may be necessary to enter the **PROGRAMMING** mode prior to entering this command.

2. Move the joystick to highlight the **Command Lock** menu.
   Note: Upon the first time the VG4 is set-up out of the box, the Command Lock feature is set to OFF for the first two (2) minutes of operation and then reverts to the ON setting.



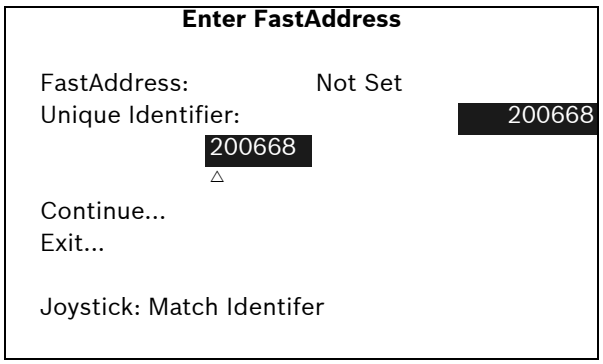
3. Press the **FOCUS** or the **IRIS** button to turn **Command Lock** to **OFF**.
4. Move to the **FastAddress** menu and press the **FOCUS** or the **IRIS** button to open the menu.

5. Use the joystick to re-enter the 6-digit factory set **Unique Identifier** displayed for the VG4 AutoDome. See example as follows:



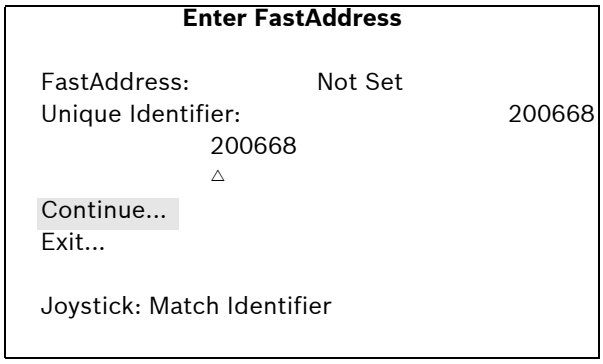
– Move the joystick up or down to select the individual number.
– Move the joystick right to move to the next number position.

When completed, the number entered must match the number displayed. See example as follows:



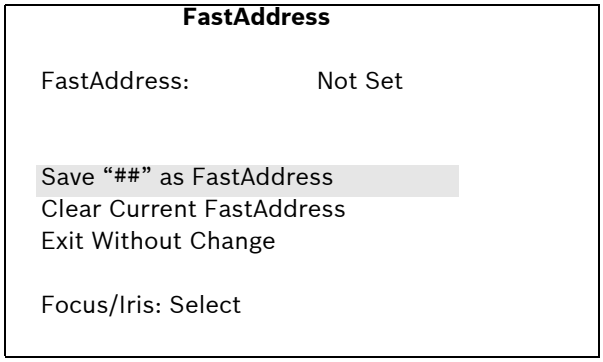
Note: If the user does not enter the exact manufacturer Unique Identifer as displayed on-screen, the FastAddress can not be set and the only option available is to Exit the menu.

6. Move the joystick right to highlight **Continue**. Then, press the **FOCUS** or the **IRIS** button.

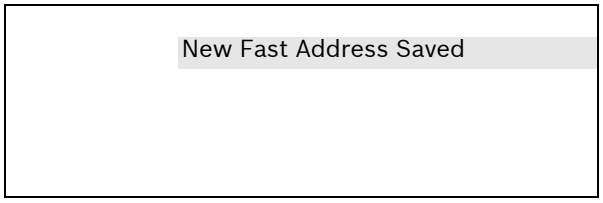


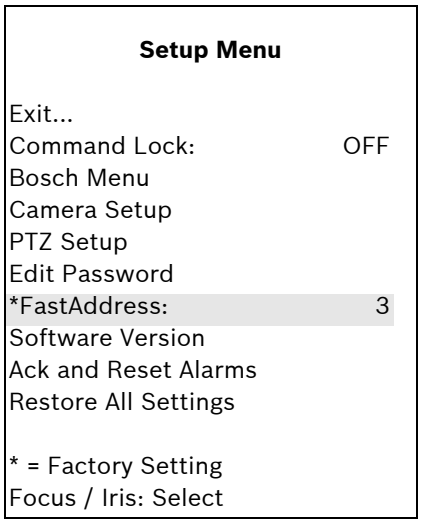
7. The AutoDome automatically reads the correct Address sent by the controller and is displayed as **Save "##" as FastAddress** (“**##**” is based on either 1-64 AD/Manchester or 1-99 AD/Sensormatic RS-422). It is NOT POSSIBLE to change the address that is displayed. The following options are available:

– Press the **FOCUS** or the **IRIS** button to store the FastAddress number.
– Move the joystick to highlight **CLEAR** the fast address and then press the **FOCUS** or **IRIS** button to clear any currently saved Fast Address.
– Move the joystick to highlight **Exit Without Change**.



8. The on-screen display menu confirms that the VG4 AutoDome stored the FastAddress and then returns to the **Main** menu with the new Fast Address displayed. Move the joystick to highlight **EXIT**, and then press **FOCUS** or **IRIS** to exit the menus.





4 Alternative Protocol On-screen Menus

You can program the AutoDome through the alternative protocol on-screen display (OSD) menus. To access these menus, install the alternative protocol module and invoke the main **Setup Menu**.

4.1 Special Commands

The following table lists special commands for the alternative protocols.
Note: The described functionality may vary based on the system configuration.

Mode	Command	Description
Operator	65-Preset	Constant 180° spin and tilt (apple peel)
	66-Preset	Resume AutoIris/AutoFocus
	67-Preset	Flip 180° (pans 180° from the current position)
	68-Preset	Activate/Deactivate Day/Night Mode (moves IR cut filter in and out; toggles between on and off)
	69-Preset	Repeat previous pattern (continuous playback)
	1-PATRN	Run pattern 1 (AutoPan 360°)
	2-PATRN	Run pattern 2 (AutoDome tour A)
	3-PATRN	Run pattern 3 (AutoDome tour B)
Program	65-Preset	Soft reset
	66-Preset	Enter Setup Menu
	67-Preset	Activate/Deactivate V-phase delay (line lock delay)
	69-Preset	Save recording (stops and saves a recording)
	71-Preset	Record pattern 2
	72-Preset	Record pattern 3

AD/Manchester Commands

Mode	Command	Description
Operator	66-Preset	Resume AutoIris/AutoFocus
	67-Preset	Flip 180° (pans 180° from the current position)
	1-PATRN	Run pattern 1 (AutoPan 360°)
	2-PATRN	Run pattern 2 (AutoDome tour A)
	3-PATRN	Run pattern 3 (AutoDome tour B)
Program	65-Preset	Soft reset
	66-Preset	Enter Setup Menu
	68-Preset	Save recording (stops and saves a recording)
	71-Preset	Record pattern 2
	72-Preset	Record pattern 3

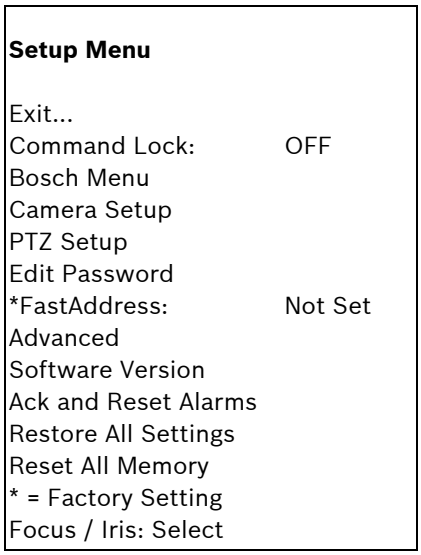
AD/Sensormatic RS-422 Commands

4.2 Setup Menu

The main **Setup Menu** provides access to the programmable AutoDome settings. Some menu items are locked and require a system password to use. Menu items marked with an asterisk (*****) are the default settings.

To open the main Setup Menu (locked commands):

1. Press **SET-SHOT-66** to open the menu.
2. Use the joystick to highlight a menu item.
3. Press either the **Focus** or the **Iris** key to open a menu item.
4. Follow the on-screen instructions at the bottom of the screen.



Use Zoom to select the **Exit** item from anywhere in a menu.

Menu	Description
Exit	**Exits the menu.**
Command Lock (locked)	Allows or prohibits accessing locked commands. (If the password is set, you are prompted to enter the password.
Bosch Menu (locked)	Accesses the full AutoDome configuration menu and all AutoDome settings.
Camera Setup	Accesses the White Balance and Night Mode camera settings.
PTZ Setup	Accesses the tours, tour periods, scan speed, edit presets, limit stops, recording, and AutoPivot settings.
Edit Password (locked)	Changes the password.
FastAddress (locked)	Sets or changes a camera address.
Software Version	Displays the current software versions.
Ack and Reset Alarms	Acknowledges and resets active alarms.
Restore All Settings (locked)	Restores all settings to their original default setting.
Reset All Memory (locked)	Clears all settings, including scene shots, tours, and recordings stored in the AutoDome memory.

After a period of 4.5 minutes of inactivity, the OSD menu times-out and exits without warning. Some unsaved settings can be lost!

4.2.1 Command Lock (locked)

The **Command Lock Menu** allows or prohibits the use of locked commands. The default setting is **ON**.

If the Command Lock is set to **ON** and you press **Focus** or **Iris** on a locked command, the AutoDome displays the on-screen message: “Command is Locked.”

4.2.2 Bosch Menu (locked)

The **Bosch Menu** allows full access to the AutoDome main **Setup Menu** and all AutoDome configuration settings.

Alternative Protocol Menu

Setup Menu

Exit...
Command Lock: OFF
Bosch Menu
Camera Setup
PTZ Setup
Edit Password
*FastAddress: Not Set
Advanced
Software Version
Ack and Reset Alarms
Restore All Settings
Reset All Memory
* = Factory Setting
Focus / Iris: Select

Bosch menu

Setup Menu

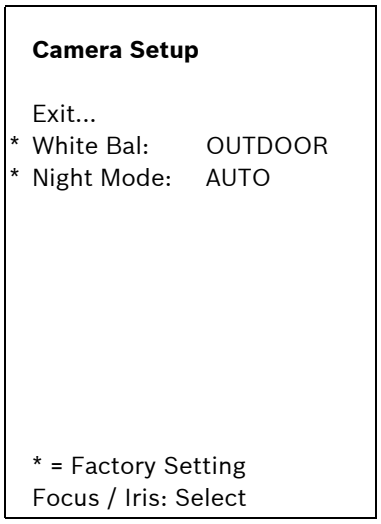
Exit...
Camera Setup
Lens Setup
PTZ Setup
Display Setup
Communication Setup
Alarm Setup
Language
Advanced
Diagnostics

Focus / Iris: Select

Refer to *Section 2: On-Screen Display Menu Navigation* for a complete description of Bosch menus and configuration settings.

Camera Setup (unlocked)

The **Camera Setup Menu** provides access to camera settings.



Camera Setup Menu Choices:

Menu	Description	Sub-menu / Description	Default Setting
Exit	Exits the menu.		
White Balance	Sets a default value in case the controller disables the white balance.	**OUTDOOR**: Sets a default setting if the controller disables white balance. **INDOOR**: Sets a default setting if the controller disables white balance.	**OUTDOOR**
Night Mode	Switches from color to monochrome.	**ON**: Sets Night Mode on. **OFF**: Sets Night Mode off. **AUTO**: Sets Night Mode to Auto set.	**ON** (Day/Night models only)

4.2.3 PTZ Setup (unlocked)

The **PTZ Setup Menu** provides access to the PTZ settings such as tours, scan speed, presets, limit stops, recording, and AutoPivot.

```
PTZ Setup

  Exit...
* Edit Tour 1...
* Edit Tour 2...
* Tour 1 Period:   5 sec
* Tour 2 Period:   5 sec
* Scan Speed       30 deg/sec
  Edit Presets...
* Limit Stops:     OFF
* Recording:       "A"
* Autopivot:       ON

  * = Factory Setting
  Focus / Iris: Select
```

PTZ Setup Menu Choices:

Menu	Description	Sub-menu / Description	Default Setting
Exit	Exits the menu.		
Edit Tour 1 (300 and 500i Series)	Accesses the **Add** / **Remove Scenes On Standard Tour 1 Menu**.	**Exit**: Exits the menu. **Scene (1 - 5)**: Adds or removes scenes from the **Standard Tour**.	
Edit Tour 2 (300 and 500i Series)	Accesses the **Edit Custom Tour Menu**.	**Exit**: Exits the menu. **Scene (1 - 5)**: Adds or removes scenes from the **Custom Tour**.	
Tour 1 Period	Changes the length of waiting time between presets.	Sliding scale: – (3 sec. to 10 min.) +	**5 sec.**

Menu	Description	Sub-menu / Description	Default Setting
Tour 2 Period	Changes the length of waiting time between presets.	Sliding scale: – (3 sec. to 10 min.) +	**5 sec.**
Scan Speed	Changes the Autopan and AutoScan speeds.	Sliding scale: – (1°/sec to 60°/sec) +	**30°/ sec.**
Edit Presets	Modifies preset scenes.	1-99 scenes	
Limit Stops	Toggles the Limit Stops for AutoScan.	**ON** or **OFF**	**OFF**
Recordings (300 and 500i Series)	Selects record Pattern 1 or 2, if normal pattern command does not respond.	"**A**" or "**B**".	"**A**"
AutoPivot	Follows a subject while beneath the camera, without inverting the picture.	**ON** or **OFF**	**ON**

4.2.4 Other Menus

Menu	Description	Default Setting
Edit Password (locked, 300 and 500i Series)	Sets or displays the password.	
FastAddress (locked)	Sets or changes the AutoDome address.	**Not Set**
Software Version (unlocked)	Displays the camera software version.	
Ack and Reset Alarms (unlocked, 300 and 500i Series)	Acknowledges and resets alarms. If there is no active alarm input, the OSD displays the following message: "No Active Alarms."	

Menu	Description	Default Setting
Restore All Settings (locked)	Restores all settings to their original factory default settings.	
Reset All Memory (locked)	Restores all settings to their original factory default settings and clears all user programmed settings such as preset scenes and recordings.	

5 Appendix

Sample: If there is video coming from Camera #131, look at the appropriate conversion table below to convert the FastAddress accordingly (i.e. using an AD system 131=3 and using a Sensormatic system 131=32). Ensure that the camera number displayed within the menu on the keyboard represents the converted camera number.

BLOCK 1		BLOCK 2		BLOCK 3		BLOCK 4		BLOCK 5		BLOCK 6		BLOCK 7		BLOCK 8	
Bosch	AD	Bosch	AD	Bosch	AD	Bosch	AD	Bosch	AD	Bosch	AD	Bosch	AD	Bosch	AD
1	1	65	1	129	1	193	1	257	1	321	1	385	1	449	1
2	2	66	2	130	2	194	2	258	2	322	2	386	2	450	2
3	3	67	3	131	3	195	3	259	3	323	3	387	3	451	3
4	4	68	4	132	4	196	4	260	4	324	4	388	4	452	4
5	5	69	5	133	5	197	5	261	5	325	5	389	5	453	5
6	6	70	6	134	6	198	6	262	6	326	6	390	6	454	6
7	7	71	7	135	7	199	7	263	7	327	7	391	7	455	7
8	8	72	8	136	8	200	8	264	8	328	8	392	8	456	8
9	9	73	9	137	9	201	9	265	9	329	9	393	9	457	9
10-64	10-64	74-128	10-64	138-192	10-64	202-256	10-64	266-320	10-64	330-384	10-64	394-448	10-64	458-512	10-64

Address Conversion Table for AD/Manchester Systems

Group 1		Group 2		Group 3		Group 4		Group 5		Group 6		Group 7		Group 8	
IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	1	100	1	199	1	298	1	397	1	496	1	595	1	694	1
2	2	101	2	200	2	299	2	398	2	497	2	596	2	695	2
3	3	102	3	201	3	300	3	399	3	498	3	597	3	696	3
4	4	103	4	202	4	301	4	400	4	499	4	598	4	697	4
5	5	104	5	203	5	302	5	401	5	500	5	599	5	698	5
6	6	105	6	204	6	303	6	402	6	501	6	600	6	699	6
7	7	106	7	205	7	304	7	403	7	502	7	601	7	700	7
8	8	107	8	206	8	305	8	404	8	503	8	602	8	701	8
9	9	108	9	207	9	306	9	405	9	504	9	603	9	702	9
10-99	10-99	109-198	10-99	208-297	10-99	307-396	10-99	406-495	10-99	505-594	10-99	604-693	10-99	703-792	10-99

Address Conversion Table for AD/Sensormatic RS-422 Systems

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