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ioimage by dvtel

Installation Manual

trk-101

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Document Information

Document Scope and Purpose

The purpose of this document is to provide instructions and installation procedures for connecting the hardware equipment. This guide describes how to place and connect the trk-101 encoder in preparation for its setup and configuration.

After completion of the hardware installation, additional setup and configurations are required before video analysis and detection can commence.

For information on the unit setup and configuration, refer to the *HTML Edition Units User's Guide*.

Note:

This document is intended for use by technical users who have a basic understanding of CCTV camera/video equipment and LAN/WAN network connections.

Warning:

Installation must follow safety, standards, and electrical codes as well as the laws that apply where the units are being installed.

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Document Conventions

WARNING and **CAUTION** notes are distributed throughout this document, whenever applicable, to alert you of potentially hazardous situations. These may be hazards associated with a task or a procedure you are carrying out or are about to carry out.

The following document conventions are used throughout this manual:

A **Warning** is a precautionary message that indicates a procedure or condition where there are potential hazards of personal injury or death.

A **Caution** is a precautionary message that indicates a procedure or condition where there are potential hazards of permanent damage to the equipment and or loss of data.

A **Note** is useful information to prevent problems, help with successful installation, or to provide additional understanding of the products and installation.

A **Tip** is information and best practices that are useful or provide some benefit for installation and use of ioimage products.

General Cautions and Warnings

This section contains information that indicates a procedure or condition where there are potential hazards. These may be hazards associated with a task or procedure a user is carrying out or about to carry out.

WARNINGS and CAUTIONS are distributed throughout this document, whenever applicable, to alert the user of potentially hazardous situations.

Although the unit is designed and manufactured in compliance with all applicable safety standards, certain hazards are present during the installation of this equipment.

SAVE THESE INSTRUCTIONS: Retain all safety and operating instructions for future use.

To avoid injury or possible damage to hardware components, read and follow all instructions marked on the product and in the documentation before you install or connect the unit to a power source.

Warning:

The unit cover is an essential part of the product. Do not open or remove this cover. Never operate the unit without the cover in place. Operating the unit without the cover in place poses a risk of fire and shock hazards.

Warning:

To prevent injury or damage to the unit, do not insert any objects into the vents of the unit.

Warning:

Only qualified trained personnel should service and repair this equipment.

Electrical Safety Notice and Warnings

Warning:

Read the installation instructions before you connect the unit to a power source.

Warning:

Electrical safety should always be observed. Only qualified trained personnel should service and repair this equipment. All electrical connections must be performed by a certified electrician and according to local safety regulations.

Warning:

The unit uses a three-wire power cord to make sure that the product is properly grounded when in use. The plug on this cord will only fit into a grounding-type outlet. This is a safety feature. If the intended power outlet does not support three prongs, one of which is a ground, contact an electrician to install the appropriate outlet. NEVER remove or otherwise attempt to defeat the ground pin of the power cord. Do not operate the unit in the absence of a suitably installed ground conductor.

Warning:

If you use an extension cord with this system, make sure that the total ampere rating on the products plugged into the extension cord does not exceed the extension cord ampere rating.

Warning:

Assure the connected electrical power source uses a circuit breaker or fuse no larger than 120 VAC, 15A or 240 VAC, 10A are used on the phase conductors (all current-carrying conductors).

Caution:

To avoid damage from overheating or unit failure, do not block the vents of the unit and assure, there is sufficient temperature regulation to support the unit's requirements (cooling/heating). Ambient operating temperature should be kept in the range 0° to 50°C (32° to 122°F).

Warning:

To avoid possible shock hazards or damaging the unit, assure that the positive and negative of the power leads are properly connected to the terminal block connector before plugging it into the unit or turning on the power source.

In the following situations, the electric power should be turned off immediately and appropriate repairs, replacements or remedies should be taken:

- The power line or plug is damaged, frayed or shows heavy wear
- The unit has been physically crushed or deformed
- The unit has been exposed to water
- The unit has been exposed to fire, intense heat or heavy smoke
- Electrical connections of the unit become abnormally hot or generate smoke
- The unit has been dropped, damaged or shows signs of loose internal parts
- The unit does not operate properly
- The unit shows signs of damage from exposure to fumes or vapors

Preventing EMI and RFI

When wires run for a significant distance in an electromagnetic field, electromagnetic interference (EMI) can occur. Poor quality or worn wiring can result in radio frequency interference (RFI).

Note:

Strong EMI (e.g. lightning or radio transmitters) can destroy the units and can pose an electrical hazard by conducting power through lines and into the system.

To remedy EMI problems, consult RFI experts.

Site Preparation

There are several requirements that should be properly addressed prior to installation at the site. The following specifications are requirements for proper installation and operation of the unit:

- **Ambient Environment Conditions**: Keep the unit in a clean and dry environment. Operating temperature should be maintained within 0° to 50°C (32° to 122°F). Operating humidity should be between 5% to 95% (non-condensing). The unit should be kept dry and free from water condensation. To prevent overheating, avoid positioning the unit near heaters or heating system outputs and avoid exposure to direct sunlight. Keep the unit free from dust, dirt, smoke, and exposure to EMI.
- **Accessibility**: The location used should allow easy access to unit connections and cables.
- **Safety**: Cables and electrical cords should be routed in a manner that prevents safety hazards, such as from tripping, wire fraying, overheating, etc. Assure that nothing rests on the unit's cables or power cords.
- **Ample Air Circulation**: Leave enough space around the unit to allow free air circulation.
- **Proximal Location**: Units should be placed in locations that are optimal for the type of video cabling used between the unit and the cameras and external devices. Using a cable longer than the manufacturer's specifications for optimal video signal may result in degradation of color and video parameters.
- **Physical Security**: The unit provides threat detection for physical security systems. In order to ensure that the unit cannot be disabled or tampered with, the system should be installed with security measures regarding physical access by trusted and un-trusted parties.
- **Network Security**: The unit transmits over IP to security personnel for video surveillance. Proper network security measures should be in place to assure networks remain operating and free from malicious interference. The unit is intended for installation on the backbone of a trusted network.
- **Electrostatic Safeguards**: The unit as well as other equipment connected to it (relay outputs, alarm inputs, racks, carpeting, etc) shall be properly grounded to prevent electrostatic discharge.

The installation of the hardware is the first phase of making the unit operational in a security plan. The goal of hardware installation is to physically place the unit, connect it to other devices in the system, and to establish network connectivity.

When finished with the hardware installation, refer to the *HTML Edition Units User Guide* to complete the second phase of installation, which is the setup and configuration of the unit.

Introduction

The trk-101 is a self-contained video analytic encoder that monitors the video input video from a camera.

Figure 1: trk-101 Unit

The unit provides alarms when it automatically detects specific events, such as region entrance, fence trespassing, tripwire crossover, which trigger an automatic notification. It also serves as a standard video encoder that digitizes and compresses the video input stream.

Users can define the events and location in the video of the image that can be detected with user-customizable rules and positioning criteria.

The encoder simultaneously provides video output in two formats: analog video and compressed digital video over IP. On-screen overlays indicate where the detection has occurred on the video output.

Figure 2: trk-101 Unit Connectivity

This chapter includes the following sections:

2.1 Items Included in the Package

The unit package contains the following items:

QTY	Description
1	trk-101 unit
1	Mounting bracket
1	Set of spring clamp terminal blocks
1	Set of documentation and utilities CD

2.2 Hardware Description

This section describes the connection panels of the unit.

2.2.1 Power Connection Panel

The following is a description of the power connection panel of the unit.

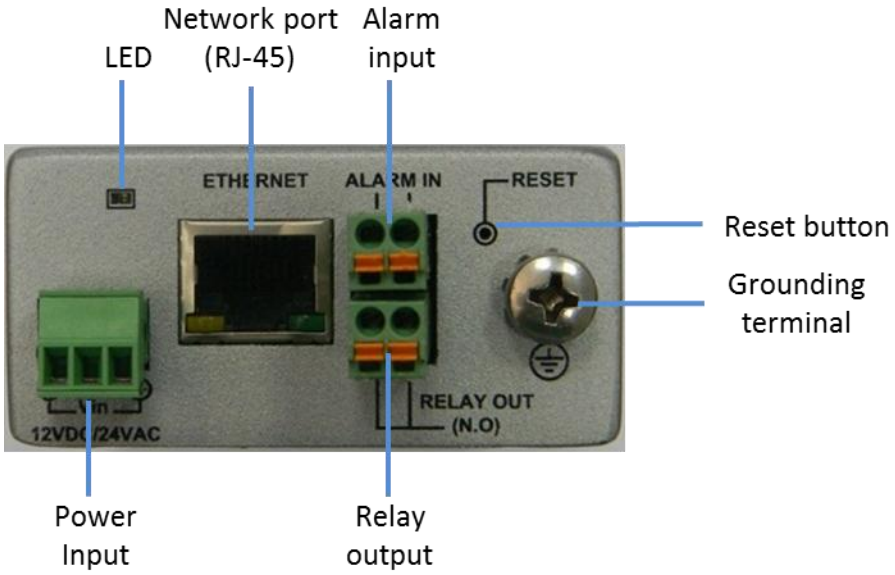

Figure 3: trk-101 Power Connection Panel

The power connection panel of the unit includes the following items:

Item	Description
Grounding Terminal	For connecting the unit to the protective ground (earth) according to local regulations and codes. For more information, see Grounding the Unit (page 7).
Power Input	For powering the unit from a 12VDC or 24VAC power source.
Network Port (RJ-45)	For connecting the unit to the Ethernet network (10/100 Mbps).

Item	Description
Alarm Input	Single alarm input connection (a set of two wires) from an external device — for example, a fire sensor, PIR (passive infrared) sensor, fence sensor, etc. — with a dry contact output to the terminal block.
Relay Output	Dry output contact signal to a single external device (such as an electrical door lock) to the terminal block. The terminal is for Normally Open configuration.
Reset Button	For setting the unit factory defaults, setting Technician mode, or a hard reset of the unit.
LED	The LED indicates several status conditions: • Off: The unit is resetting. • Flashing green (300ms intervals): The firmware is booting. • Flashing green (one second intervals): The firmware has booted successfully, the encoder is connected to the network, and unit is operating normally. • Steady red: Failure in the first phase of the boot. Requires resetting the unit. • Flashing red: Failure in the second phase of the boot. Requires resetting the unit. • Steady yellow: Reset button was pressed for 5-15 seconds and entered Technician mode. Requires resetting the unit. • Flashing yellow (500ms intervals): The unit is in Factory Default mode. To enter this mode, press the Reset button for 15-30 seconds. The LED changes from steady state to flashing after five seconds. The unit's firmware returns to the factory defaults. When finished, the LED displays flashing green. **Note**: If the LED is pressed for more than 30 seconds, it will flash red, indicating an error. In this case, disconnect the unit and reboot.

2.2.2 Video Connection Panel

The following is a description of the video connection panel of the unit.

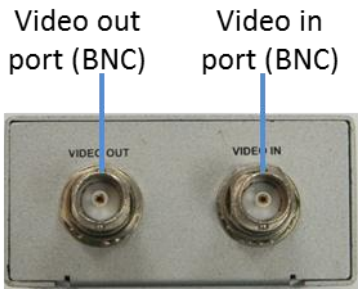

Figure 4: trk-101 Video Connection Panel

The video connection panel of the unit includes the following items:

Item	Description
Analog Video In (BNC)	Input interface for receiving the surveillance camera analog video signal (source) for analysis and detection.
Analog Video Out (BNC)	Output interface that provides the analog video signal after analysis and includes detection overlays and additional On-Screen Display (OSD) information. Typically connected to analog video equipment such as analog video displays or analog video recording device or digital video recorder (DVR). **Note**: In order to view analog video, analog Video Out must be enabled in the unit settings (disabled by default). For more information on how to enable the analog Video Out signal, refer to the *HTML Edition Units User's Guide*.

Installing and Connecting the Unit

This section describes how to install and connect the unit and includes the following sections:

Note:

After connecting the unit, proceed to configure the unit as described in the *HTML Edition Units User's Guide*.

3.1 Installing the Unit

The unit can be installed and mounted next to the camera (inside the camera enclosure).

Alternatively, the unit can be installed inside an equipment room on a shelf or in a rack using the rack mount panel that is available as an optional accessory.

When installing the unit make sure that:

- It is securely tied down and cannot be easily dislodged
- Operating temperatures, at all times, are kept between the minimum/maximum allowed
- Proper ventilation is provided so that the air is free to circulate around the unit
- The unit is protected from direct weather conditions (for example, sunlight, rain, dust, and so on)

Caution:

To avoid damage from overheating or unit failure, do not block the vents of the unit and assure, there is sufficient temperature regulation to support the unit's requirements (cooling/heating). Ambient operating temperature should be kept in the range 0° to 50°C (32° to 122°F).

3.1.1 Assembling the Unit in a Rack Mount Panel (Optional Accessory)

Up to 10 units can be mounted on a single rack mount panel. After the units have been assembled in the rack mount panel, the panel can be installed in a standard 19-inch rack.

To assemble units in a rack mount panel:

1. Remove the nut and washer from each of the two video connectors on the video connection panel of the unit.

Figure 5: trk-101 with Nuts Removed

2. Attach each unit to the rear side of the rack mount panel by inserting it through the holes as shown in Figure 6.

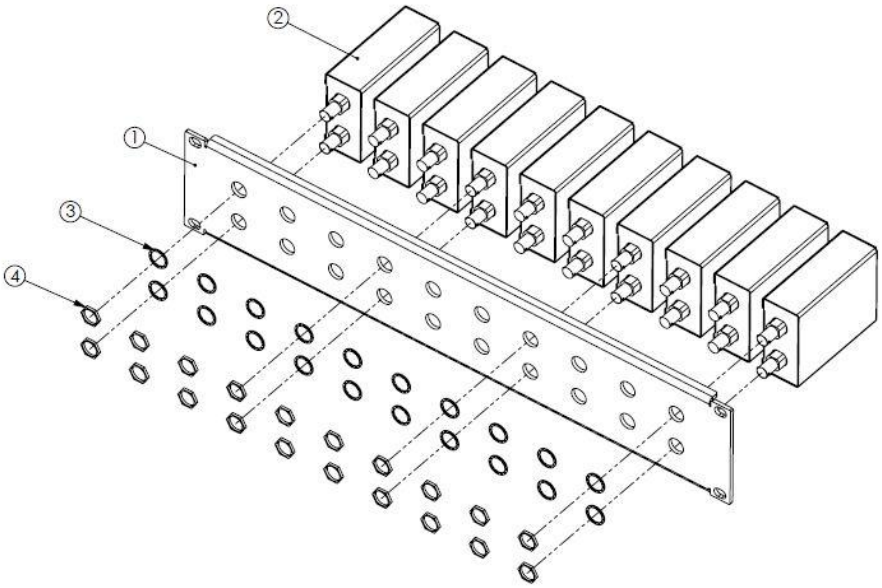

Figure 6: Inserting Units into Rack Mount Panel

3. Fasten each unit using the nuts and washers removed in step 1, making sure to first place the washer on each video connector before tightening the nut on the video connector.
4. Repeat steps 1 through 3 for each of the units you want to assemble on the rack mount panel (up to 10 units can be assembled per panel).
5. Attach the rack mount panel to a 19" rack.

3.2 Connecting the Unit

This section describes the procedures for connecting the unit and includes the following sub-sections:

3.2.1 Grounding the Unit

The unit must be grounded according to local regulations and codes.

To ground the unit:

1. Loosen the screw of the grounding terminal located on the power connection panel of the unit. (see Figure 3: trk-101 Power Connection Panel)
2. Attach a properly rated ground cable. Make sure the ring/spade terminal of the grounding cable is between the toothed washers. Tighten the screw.
3. Ensure that the other end of the ground cable is connected to protective earth according to local regulations and codes.

3.2.2 Connecting the Unit to the Power Supply

Before connecting to the power, please review the Electrical Safety Notice and Warnings (page vi).

Use a 12VDC/24VAC external power supply with suitable over current protection. Connect the power supply wires to the positive and negative inputs on the terminal block connector labeled 12VDC/24VAC**.** (See Power Connection Panel)

Following are the recommended AC adaptor specifications:

- Power Adaptor Input: 110-240V, 47-63Hz, 1A
- Power Adaptor Output: 12v DC 2A, 24W

To power to the unit using a power outlet:

1. Connect the AC adaptor output to the terminal block on the power connection panel of the unit.
2. Connect the AC adaptor to the power outlet.

Warning:
To prevent bodily injury or damage to the unit, use only properly rated and approved power supplies and/or AC adaptors.

Warning:
Make sure that the power supply matches the required specifications. Electrical safety should always be observed.

3.2.3 Connecting the Unit to the Network

By default the unit is shipped with the factory default IP address 192.168.123.10.

Caution:
Before connecting the unit to the network, set the unit IP address according to your specific network requirements to avoid address conflicts. Refer to the instructions in this section on how to change the unit's IP addresses.

If your network uses firewalls, you must configure them to support communication among the units and computers running the Internet browser used to connect to the unit's web interface.

Note:
Refer to the *HTML Edition Units User's Guide* for setting the unit IP address and required firewall settings.

To connect a unit to the network:

1. Connect a PC/laptop directly to the unit using a network cable connected to the Ethernet port located on the front panel of the unit (see Figure 3: trk-101 Power Connection Panel).
2. Change the IP address according to your specific requirements. (See following section.)
3. Disconnect the unit from your PC/laptop.
4. Connect the unit to the system network as follows:
   a. Connect the network cable to the Ethernet port located on the front panel of the unit. (See Figure 3: trk-101 Power Connection Panel)
   b. Connect the other network cable end to the network switch/hub.

To change the unit's IP address:

1. Insert the CD included in the package in your computer's disk drive.
2. Run the `configurator.exe` file by clicking on the  icon. The Configurator application opens.
3. Select the unit by right-clicking on it.

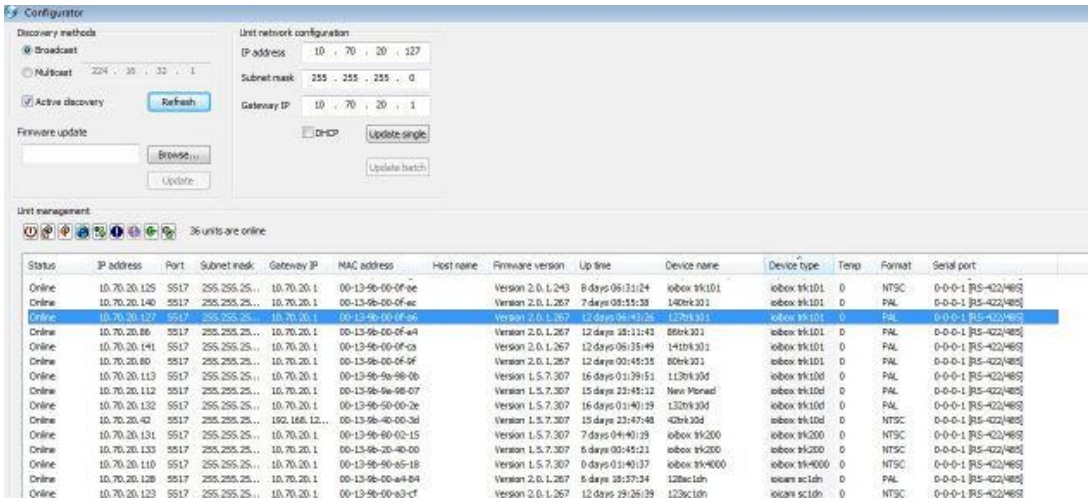

Figure 7: Configurator Window

4. In the Unit network configuration section, enter the IP address, Subnet mask, and Gateway IP address.

Note:

It is possible to set the IP address without changing the subnet.

5. If you will use a DHCP server, select the **DHCP** checkbox.
6. You may change the IP address for a single unit or multiple units.
   - To change the IP address for a single unit, select **Update single**. The IP address is changed.
   - To change the IP address for a number of units, enter the IP address of the first unit in the series. Then select **Update batch**. The IP addresses are changed.

Note:

The unit and the PC must be physically connected on the same network segment.

3.2.4 Connecting the Video Source (Camera) to the Unit

The unit accepts Composite video (1Vp-p) from stationary analog cameras (Standard, Thermal, IR, and so on).

Video connections should use a 75Ω cable and should not be longer than 30 meters (98 feet).

To connect a video source to the unit:

1. Securely connect the video cable connector (BNC) to the analog video output of the camera or video source.
2. Connect the other cable end (BNC) to the VIDEO IN connection on the video connection panel of the unit (see Figure 4: trk-101 Video Connection Panel).

To set the video standard for the unit via its web interface:

1. Enter the IP address of the unit in a browser. The unit's logon window opens.
2. Login to the unit by entering your user name and password. The default user name and password are both "admin". The Web interface opens.
3. If your computer requires Active X installation, install it now.
4. From the Live View window, access the Camera Setup by clicking **Setup → Camera → Streaming**. The **Streaming** window opens.

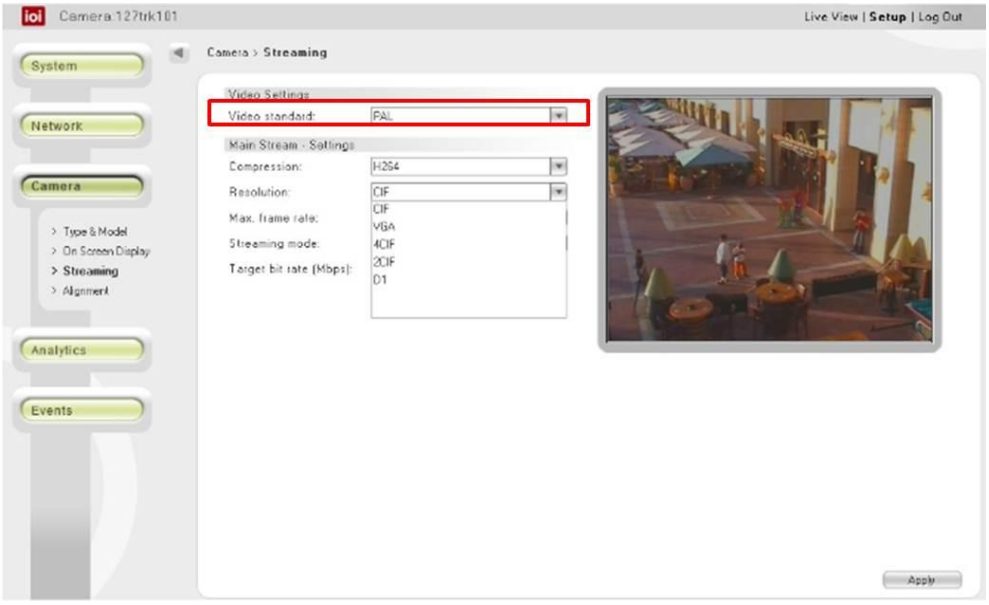

Figure 8: Web Interface Streaming Window

5. In the Video Standard field, select the video standard (PAL or NTSC).
6. Click **Apply** to save the setting.

Note:

If the video standard is changed, all analytic settings will be deleted.

3.2.5 Connecting the Analog Video Output to an Analog Device

Note:

The analog Video Output signal of the unit is disabled by default. Enable it if necessary using the unit's web interface.

The analog Video Output (composite video) contains the video from the camera combined with On-Screen Display (OSD) overlays such as detected objects, tracking boxes and trails, time stamp, alarm, camera status, and so on. These OSDs can be enabled and customized using the unit embedded HTML user interface.

The analog video output can be monitored using an analog monitor or recorded on a digital video recorder (DVR).

For more information, refer to the *HTML Edition Units User's Guide*.

To connect the unit analog video output to an analog device:

- Using video coax 75Ω cable with BNC connectors, connect the VIDEO OUT of the ioimage unit to the analog device Video Input (for example, the VIDEO IN of a monitor or DVR).

Note:

Make sure the ioimage unit and the external analog equipment support the same video standard (PAL/NTSC).

3.2.6 Connecting the Unit to Receive Alarms from External Devices (Alarm Inputs)

The unit supports receiving alarms from external devices such as sensors and doors, enabling it to trigger automatic responses on the unit.

Warning:

Only dry contacts can be connected to the unit's alarm inputs terminals. An external device must fully close or fully open the circuit between the unit's Alarm Input terminals.

The unit supports a single Alarm Input from an external device. The Alarm Input includes two connecting terminals.

To connect an external alarm to the unit:

Warning:

Disconnect power from the unit before performing the following procedure.

- Connect the leads from the external device dry contact output using the spring clamp terminal block into the terminals marked Alarm In (-) and Alarm In (+). See Connecting Leads to a Spring Clamp Terminal Block (page 18). The two terminals are located at the bottom of the terminal block. (See Figure 3: trk-101 Power Connection Panel)
- Connect the terminal block to the external devices connector on the power connection panel of the unit. (See Figure 3: trk-101 Power Connection Panel)
- Connect the other end of the cable to the Alarm Out (dry contact) of the alarm device/sensor.

3.2.7 Connecting the Unit to Control an External Device (Using Relay Outputs)

You can use the Relay Output of the unit to provide an indication signal for controlling external devices, such as door locks, lights, and so on.

The Relay Output of the unit can be activated as a response to events and alerts.

For more information on incident responses and relay outputs, refer to the *HTML Edition Units User's Guide*.

Warning:
The signal from the Relay Output of the unit must be used as an indicator and not for direct control of a device.

Caution:
To prevent damage to the unit, do not exceed the voltage and current ratings for the relay terminals.

Relay Contacts Schematics

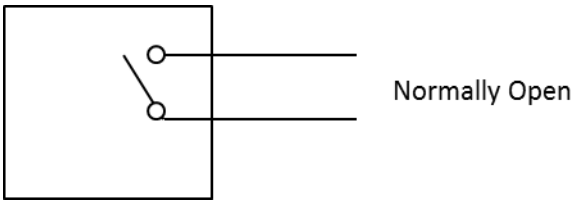

Figure 9: Relay Contacts Schematic

The input supports opto-isolated signal for a single external device.

Signals can be sent as continuous (ON/OFF) or single pulse of predefined duration.

Note:
It is also possible to configure the relay for a Normally Closed (N/C) condition. See N/O to N/C Relay Configuration in the Appendix for details.

Relay Output Specifications

- Maximum current 1A @ 30VDC

To connect a device controller to a Relay Output of the unit:

- Connect the leads from the external device controller to the respective terminal points on the spring clamp terminal block according to your requirements (Normally Open or Normally Closed configuration). See Connecting Leads to a Spring Clamp Terminal Block (page 18). The three terminal points for the Relay Output are located at the bottom left of the terminal block. (See Figure 3: trk-101 Power Connection Panel)
- Connect the terminal block to the external devices connector on the power connection panel of the unit. (See Figure 3: trk-101 Power Connection Panel)
- Connect the other end of the cable to the external controller, which receives the signal from the unit and controls/powers the external device.

3.3 Resetting the Unit

The unit can be reset as follows:

- Hard Reset Using the Reset Button (page 13)
- Hard Reset by Removing the Power Supply (page 13)

3.3.1 Hard Reset Using the Reset Button

The unit has a Reset button located on the power connection panel of the unit. (See Figure 3: trk-101 Power Connection Panel)

To reset a unit using the Reset button:

7. Insert a small pointed object into the hole labeled **Reset** on the power connection panel of the unit.
8. Press in and release the button within 5 seconds. The unit resets to its last settings and the LED flashes green.

3.3.2 Hard Reset by Removing the Power Supply

The unit can be reset by turning off the power and then turning it on again.

To reset a unit by removing the power supply:

9. Turn off or disconnect the power to the unit.
10. Turn on or reconnect the power to the unit. The unit restarts with the last settings.

3.4 Night Mode Max FPS

A new setting, *Night Mode Max FPS*, has been added to the **Setup>Camera>Video Settings>Advanced** tab. This setting can be implemented only via the camera's web interface. For instructions how to use the Night Mode Max FPS setting, see page 19 in the Appendix.

Appendix

The appendix contains the following sections:

A.1. trk-101 Specifications

The following are the trk-101 unit's specifications:

Video Input channels					
Number of Intelligent Video Analysis Channels	1				
Analog Video Inputs					
Video Signal	Composite 1Vp-p (PAL or NTSC)				
Physical Connector	1 x BNC 75Ω				
Analog Video Outputs					
Video Signal	Composite 1Vp-p (PAL or NTSC)				
Physical Connector	1 x BNC 75Ω				
Digital Video Output					
IP video streaming	H.264, MPEG-4 SP, and MJPEG				
Frame Rate (H.264) per Resolution	D1	4CIF	VGA	2CIF	CIF
	12/15 fps (PAL/NTSC)	12/15 fps (PAL/NTSC)	18 fps (PAL/NTSC)	25/30 fps (PAL/NTSC)	25/30 fps (PAL/NTSC)
Frame Rate (MPEG-4 SP)	Up to 25/30 fps (PAL/NTSC) for all resolutions				
Rate Control Option	CBR, VBR				
Network					
Ethernet (IEEE 802.3/802.3U)	1 x Ethernet RJ-45 interface				
Services and Protocols	TCP/IP, UDP/IP, HTTP, SMTP, DHCP, DNS, SNTP				
Video streaming	RTP/RTSP				
Alarms /Commands	TCP/IP, HTTP				
I/O Interface					
Serial - RS-232/RS-485	None				
IN – Alarm Input	1 x dry contact				
OUT – Relay Output	1 x relay output (rated load 0.3A@125VAC, 1A @ 30VDC)				
Power Source					
Voltage	12VDC (+/-10%)/24VAC				
Power Consumption	3.5W				
Physical Dimensions					
Dimensions (mm)	88 x 64.5 x 31.5mm (W x H x D)				
Dimensions (inches)	3.46" x 2.54" x 1.24" (W x H x D)				
Mounting	Shelf/optional rack-mounting (single-unit or multiple-unit accessory)				

Environmental Specifications	
Operating Temperature	0° to 50°C (32° to 122°F)
Operating Humidity	5% to 95% (non-condensing)
Certifications	
Safety	UL60950-1, CE, cTUVus
Electromagnetic Interference (EMC)	FCC Part 15, Subpart B, Class B; CE Class A; EN55022; EN55024; C-TICK
Environmental	RoHS

A.2. Connecting Leads to a Spring Clamp Terminal Block

The unit is delivered with two terminal block connectors. The connectors enable you to connect wires for either the Relay Output or Alarm Inputs and then connect them to the unit.

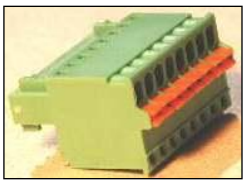

Figure 10: Spring Clamp Terminal Block

To connect a wire to the spring clamp terminal block:

11. Strip the insulation form the end of each wire that is to be connected to the terminal block. Approximately 1 cm (2.54”) of wire should be exposed.
12. With a small screwdriver, press in and hold the orange spring-clamp button next to the female outlet where the wire will be inserted.
13. Insert the stripped end of the wire into the female outlet.
14. Release the orange spring-clamp button.

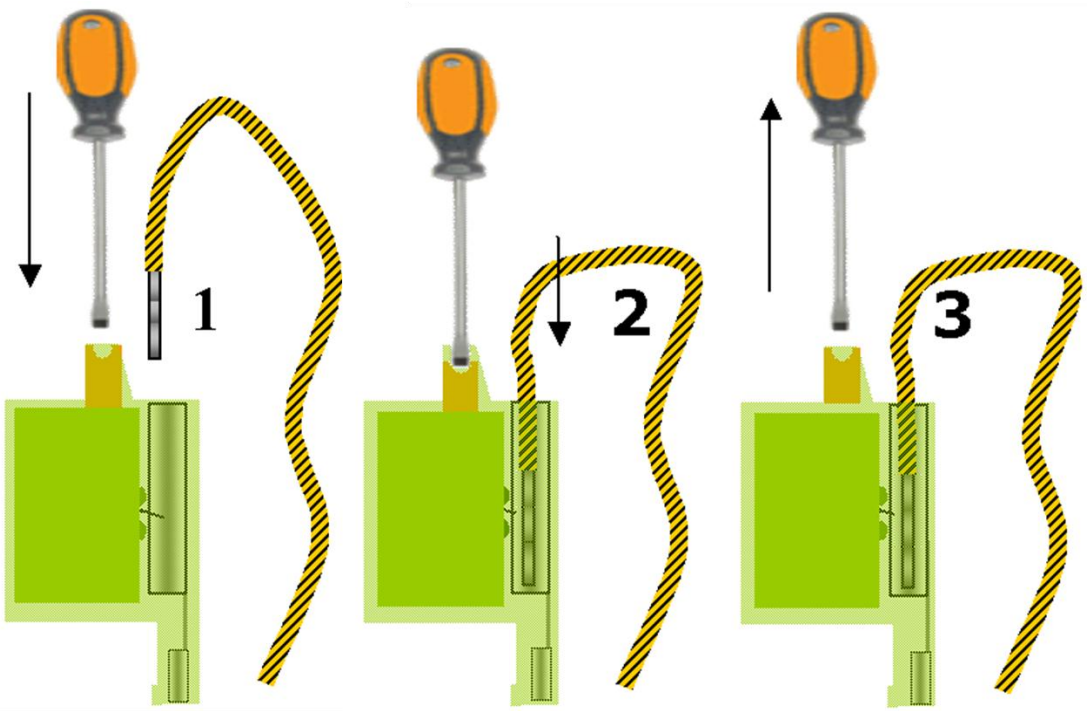

Figure 11: Connecting a Wire to a Terminal Block

A.3. Night Mode Max FPS

A new setting, *Night Mode Max FPS*, has been added to the **Setup>Camera>Video Settings>Advanced** tab. This setting can be implemented via the camera's web interface.

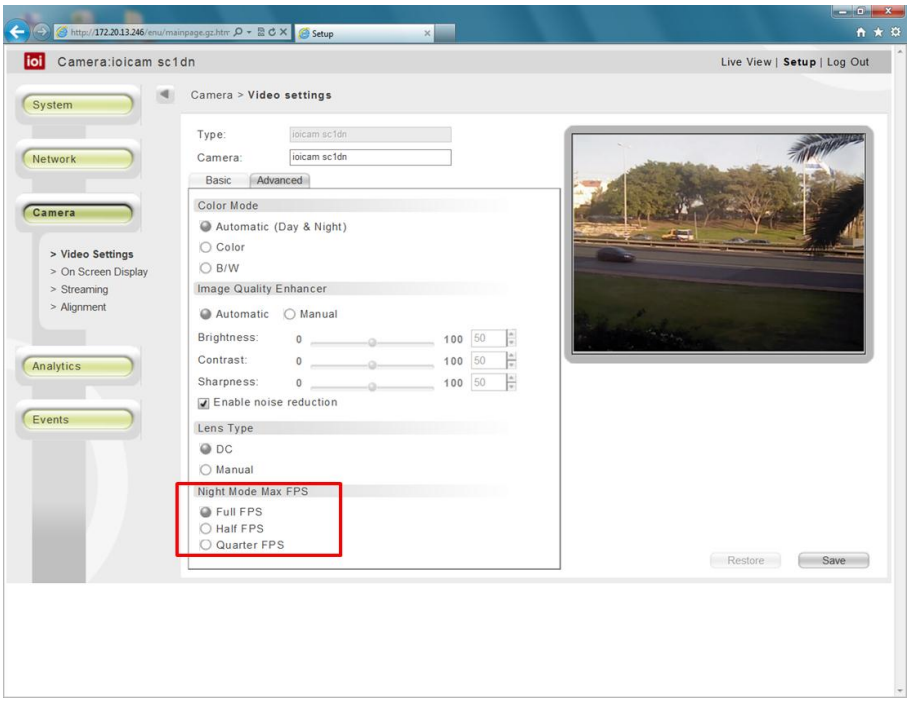

Figure 12: Night Mode Max FPS Window

This setting is used to improve the image quality in low-light situations by increasing the exposure time of the camera's sensor, which, in turn, decreases the frames per second (FPS).

There are three options for setting the sensor FPS:

- *Full FPS* - sensor captures 30/25 FPS (NTSC/PAL). This is the default setting.
- *Half FPS* - sensor captures 15/12.5 FPS (NTSC/PAL)
- *Quarter FPS* - sensor captures 7.5/6.25 FPS (NTSC/PAL)

Reducing the sensor FPS improves the quality of an image in low-light scenes due to the longer exposure time.

The actual encoder FPS will be the lower of the sensor FPS setting or the encoder FPS setting. The following table illustrates actual behavior of the FPS:

Encoder FPS Setting (NTSC/PAL)	**Sensor FPS Setting**			
	Full (NTSC/PAL)	***Half*** (NTSC/PAL)	***Quarter*** (NTSC/PAL)	
30/25	30/25	15/12.5	7.5/6.25	**Actual Encoder FPS**
15/12.5	15/12.5	15/12.5	7.5/6.25	
7.5/6.25	7.5/6.25	7.5/6.25	7.5/6.25	

Note:

When setting *Quarter FPS*, the system might not detect fast-moving objects.

A.4. Troubleshooting

This section provides useful information and remedies for common situations where problems may be encountered.

Problem	Possible Solution
No network connection	**Hardware issues:** • Check that the network is working and the unit is powered on. • Check that the network (Ethernet) cable is properly attached to the unit. • Confirm that the LED on the Ethernet (RJ-45) connector on the power connection panel of the unit is on. • Confirm that the network cables are not damaged and replace if necessary. **IP Address issues**: • Change the default IP address/addresses of the unit • From the PC running the web browser, ping the unit IP address and confirm that it can be reached. • Confirm that the network settings/firewalls are set according to the requirements.
How do I find the IP address of my unit?	The IP address can be set via the unit's Configurator application. See Connecting the Unit to the Network.
The IP address responds to a ping on the network from the workstation but does not show in the Configurator	Disconnect the unit's Ethernet 10/100 port or turn the power to unit off, and then ping the IP address again. If the IP address responds, there is another device using the IP address. Consult with your Network Administrator to resolve the conflict.
The unit IP address is in use by another computer (collision)	Change the unit IP address after connecting to it directly (not through the system network). See Connecting the Unit to the Network to set the IP address via the Configurator.
No analog output video signal	• Make sure the analog video out is enabled on the unit/channel. (Refer to the *HTML Edition Units User's Guide* for details) • Check that the video cables are securely connected between the VIDEO OUT BNC connector of the unit and the analog video source. • Check that the connection is made to the correct VIDEO OUT connector of the analog video source. • Confirm that the camera has power. • Check the cables for damage and replace as needed.

Problem	Possible Solution
Bad output video quality	• Check the source video signal quality by connecting an analog monitor to the video source. If video quality is acceptable, connect video source to the unit. • Check that the cables are connected securely. This includes junction boxes and amplifier that may be used. • Check that the camera settings are correct on the camera and in the unit. (Refer to the *HTML Edition Units User's Guide* for details) • Check that the camera lens is clean and unobstructed. • Check that the analog video signal is not being degraded due impedance caused by lengthy or worn cable, numerous connectors, ground loops interference, and so on. • Check that the cable length is within specification.
Streaming video image is hanging (stopped)	• Confirm the unit's video streaming settings. (Refer to the *HTML Edition Units User's Guide* for details) • Refresh your browser screen (F5). • Check that the bandwidth and bitrate settings of the network are set properly. • Check that other processes and applications are not causing undue latency. • Check that the firewall analysis or blocking is not interfering with the video stream and supports the required ports and communication protocols.
Alarm Inputs are not working	• Check the unit settings to confirm that the Alarm Input is enabled. (Refer to the *HTML Edition Units User's Guide* for details) • Check that a proper rule for an Alarm Input event has been defined in the unit. (Refer to the *HTML Edition Units User's Guide* for details). • Check that the Alarm Input (dry contact close/open) is being provided by the connected device. • Check that the unit is communicating through the network. • Check that the Alarm Input wires are connected securely. • Check that the alarm wires are paired in the terminal block in the right positions and according to requirements.
Relay Outputs are not working	• Check the unit settings to confirm that the Relay Output is enabled. (Refer to the *HTML Edition Units User's Guide* for details) • Check that a proper rule for activating a Relay Output has been defined in the unit or activate it manually. (Refer to the *HTML Edition Units User's Guide* for details) • Check the Relay Output wires are connected securely. • Check that the Relay Output wires are paired in the terminal block according to requirements and that one wire is connected to the common. • Check that the NO or NC matches the system Normally Open or Normally Closed configuration.

A.5. N/O to N/C Relay Configuration

The on-board relay in the trk-101 provides a single contact which is by default Normally Open (N/O), enabling it to be configured to CLOSED upon an alarm condition. This is usually configured with a momentary closure (for example, five seconds), followed by returning to the OPEN condition, to be ready for the next alarm event.

Should a Normally Closed (N/C) condition be preferred, the relay may be configured by selecting one of the following two events in the Event Engine:

- Event 1: Triggering event = Power ON
    - Action = Activate relay contact – continuous ON
- Event 2: Triggering Event = Detection Alarm (according to your configuration)
    - Action 1 = Activate relay contact – continuous OFF – immediately
    - Action 2 = Activate relay contact – continuous ON – after five seconds

The above conditions will turn on the relay at Power ON. An alarm will open the relay for five seconds and close it again.

The above conditions also will create an alarm indication in case of a loss of power.

Note:

The unit must be rebooted after configuration in order for this setting to take effect.

Note:

Event 1 can also be replaced by Triggering Event = ARM. In this instance, the relay will be OPEN until the unit is armed, at which time it will behave as described above. This may be desirable in some deployments.

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