AC-525

Video Integrated Networked Access Controller

Hardware Installation and User Manual

September 2008

ROSSLARE
SECURITY PRODUCTS

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1. Introduction

The AC-525 is a multi-door Networked Access Controller coupled with a digital Video server and Edge DVR technology. The panel supports two analog camera inputs and 2 voice channels. The system streams audio & video in ISO standard Compliant MPEG-4 (SP) in complete synchronization with real-time access control data. The highly integrated panel has a built in embedded Linux OS with web server, which enables advanced network communications options. USB 2.0 allows DVR Flexibility.

Each panel supports two standard PIN and/or Proximity readers, 4 relay outputs, 4 inputs, and supports 30,000 access control users. The panel can encode and digitally broadcast two analog audio/video signals over a built-in Ethernet (TCP/IP) connection.

The 4 Relay outputs and 4 inputs are expandable to 8 outputs and 12 inputs with MD-IO84 IO expansion.

The panel supports 4 readers, 8 inputs and 8 outputs, using the MD-D02 reader expansion board. (Contact the Rosslare sales office for availability information).

The streaming digital multimedia allows for real time remote video surveillance of MPEG-4 over the LAN/WAN and DVR systems.

A USB 2.0 Edge DVR allows the flexibility of recording locally on USB Keys, upon a range of triggers.

The PTZ camera can have 2 preset channels, one for each door in a 2 door application.

When used in combination with Rosslare's AS-525AV ViTrax and AxTrax software systems, the AC-525 gives you full control over the entrances to your premises. The system can control both single and double door entrances, or up to 4 doors using the MD-D02 reader expansion board. It supports up to 30,000 users and uses flash memory to enable easy firmware upgrades.

For more information on the AS-525AV ViTrax and AxTrax systems, refer to the AS-525AV ViTrax and AxTrax Software User Manuals.

The AC-525 consists of these components:

- Controller board
- MD-IPAV1 – video module
- Power Transformer AC/AC 220/16VAC
- Black plastic cover

1.1 Features

The AC-525 is a fully featured, fully integrated access controller with digital multimedia with a range of powerful features:

- Connects to a wide range of analog cameras
- Advanced and robust ISO Standard MPEG-4 video and audio encoding streaming over TCP/IP
- On board Edge DVR can record information on the edge of the network to reduce bandwidth. Recorded files can be downloaded to server
- Platform is capable of future addition of VMD, Smart Alarm Area Mask, License Plate recognition, POS Overlay, and more
- On-Board pre-alarm and post event timers and custom recording preferences
- On-Board USB 2.0 connection for a USB 2.0 compliant memory key enabling Local DVR recording
- Controls 1 or 2 doors (Dipswitch controlled), or 4 doors using an expansion board
- Two IN/OUT readers, with tamper switch and LED control, or up to 4 readers using the MD-D02 expansion board
- 4 inputs, selectable as supervised or non-supervised
- 4 relay outputs (rated 5A)
- Optional MD-IO84 with 4 relay outputs, and 8 supervised inputs
- Optional MD-D02 with 2 readers, 4 relay outputs, and 4 inputs selectable as supervised or non-supervised
- Built-in sounder generator for chime, bell and siren signals
- Panel configuration Dipswitch
- Up to 32 access control panels in every network
- 30,000 users
- 20,000 log events
- RS485 serial communication (up to 115200 bps)
- On-board TCP/IP communication
- Remote firmware upgrades
- Removable terminal blocks

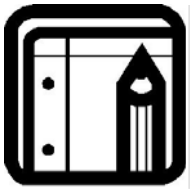
1.2 AxTrax AS-525

The AxTrax AS-525 software system is custom designed to set-up, manage and supervise all aspects of an access panel network.

It offers the following capabilities:

User capacity	30000
Access groups	30000

Number of panels in system	1023



Note:

These options are software and firmware dependent, and may change in later releases or revisions.

Client-Server Structure

AxTrax AS-525 operates through a dedicated AxTrax server computer, which communicates with the access control panels and can serve an unlimited number of network clients.

The server also runs the system's SQL database, which contains settings and definitions for access control across the entire facility. Clients can define new employees and control access permissions and the system includes tools for database backup, input, and export of previous configurations and automatic backing-up on a periodic basis.

AxTrax AS-525 supports several access control panel types including the AC-525, and offers scalability and flexibility in addition to a range of advanced control features.

Configurable Links

The system's configurable links model makes it possible to automatically trigger any chosen input, output, or event. It also automatically reports a configurable alarm based on a selected input. This allows easy integration with other access systems such as intruder alarms, CCTV systems, and elevator controls.

AxTrax AS-525 can also define a selected set of operations (defined in configurable links) when a panel registers a specified user or group of users. This can be useful, for example, in elevator control systems. The system can assign users with counters, allowing a limited number of entries to each panel.

Fingerprint Recognition

AxTrax can share user details with Rosslare's BioTrax software system. The BioTrax system can then download all selected users information to an AYC-W6500 fingerprint reader.

2. Technical Specifications

Basic Characteristics

Input Power	Input Vin 16VAC and battery of 12VDC
Input Current	Standby: 550mA at 16VAC Maximum: 2.2A at 16VAC (Not including attached devices and cameras)
Door Support and I/O	2 Doors IN/OUT, 4 inputs, 4 outputs, expandable to 4 doors (MD-D02), or 12 Inputs, 8 Outputs (MD-IO84)

Integrated IP Characteristics

Web Server (Emb. Linux)	Supports Browsers, FTP and other TCP/IP Protocols
Web Addressing	DNS and IP Configuration, MAC Address
Bandwidth Management	Selectivity of Traffic and Video Features: Image size, compression, fps, superimposed details
Data management	Backup, FLASH Firmware, History Event Log and Audit Trail
IP Streaming Cient	Customized Low Latency Streaming Client (VLC)
Security	Multiple Authentication levels for users – Basic Encryption

Video Server Characteristics

Internal A/D MPEG-4 Video Encoder	2 analog video inputs with PAL, NTSC and 420 up to 720 lines of resolution, color, or B/W. Two analogue composite (BNC x 2) – AGC (120m)
PTZ Support	2 PTZ control Channels, supports Pelco D format and others
Video Overlay	Zone, Time, Date, and Custom field markers for every unit.
Video Compression	MPEG-4 - SP/ASP - (ISO 14496-2)
Audio Codec	AGC Audio – Industry Standard – Mono with EQ and speech Codec
Frame Rate	One channel: 30 (NTSC) 25(PAL) @ up to D1 Resolution (Single Video Input) Two channel: 8.3 fps @ up to D1 Resolution (Dual Video Input)
Communication	TCP/IP, RS-485
Data Storage	On-Board pre-alarm, post event timers, and custom recording preferences. On–Board USB 2.0 connection for adding a USB 2.0 compliant memory key to enable Local DVR recording.

Access Control Characteristics

Users Per Panel	30,000 Users per door High Speed < 1 s Authentication time for Full Load
Time Zones and Groups	32 multiple segment time zones, 64 holidays, unlimited access group levels
Networking	32 Unit/subnets, 1023 subnets

Communication Characteristics

RS485	Molex and Terminal Block
TCP/IP	On-board
Speed Options	9600 bps 19200 bps 57600 bps 115200 bps
Reader	2 reader ports
Output voltage	12V

Environmental Characteristics

Operating Temp. Range	32°F – 145.5°F (0°C - 63°C)
Operating Humidity	0 - 90% (Non-condensing)

Dimensions

Height x Width x Depth	14.2” (360mm) 13.5” (342mm) 3.4” (84.5mm)
Weight	9.92 lbs (4.5 kg)

Transformer

AC Transformer	120/220V AC/16V AC 2.5A (40VA) Class 2

Power Supply Specifications

Input Voltage	16V AC / 2.5A

Power LEDs

Power In (AC) Red LED8	Main power

3. AC-525 Panel Set-Up

Every AC-525 panel controls two doors. The panels connect together in a network and are controlled by a central server computer, running the AS-525AV AxTrax software system.

The following diagram shows an example set-up for the AC-525 access control panel configuration.

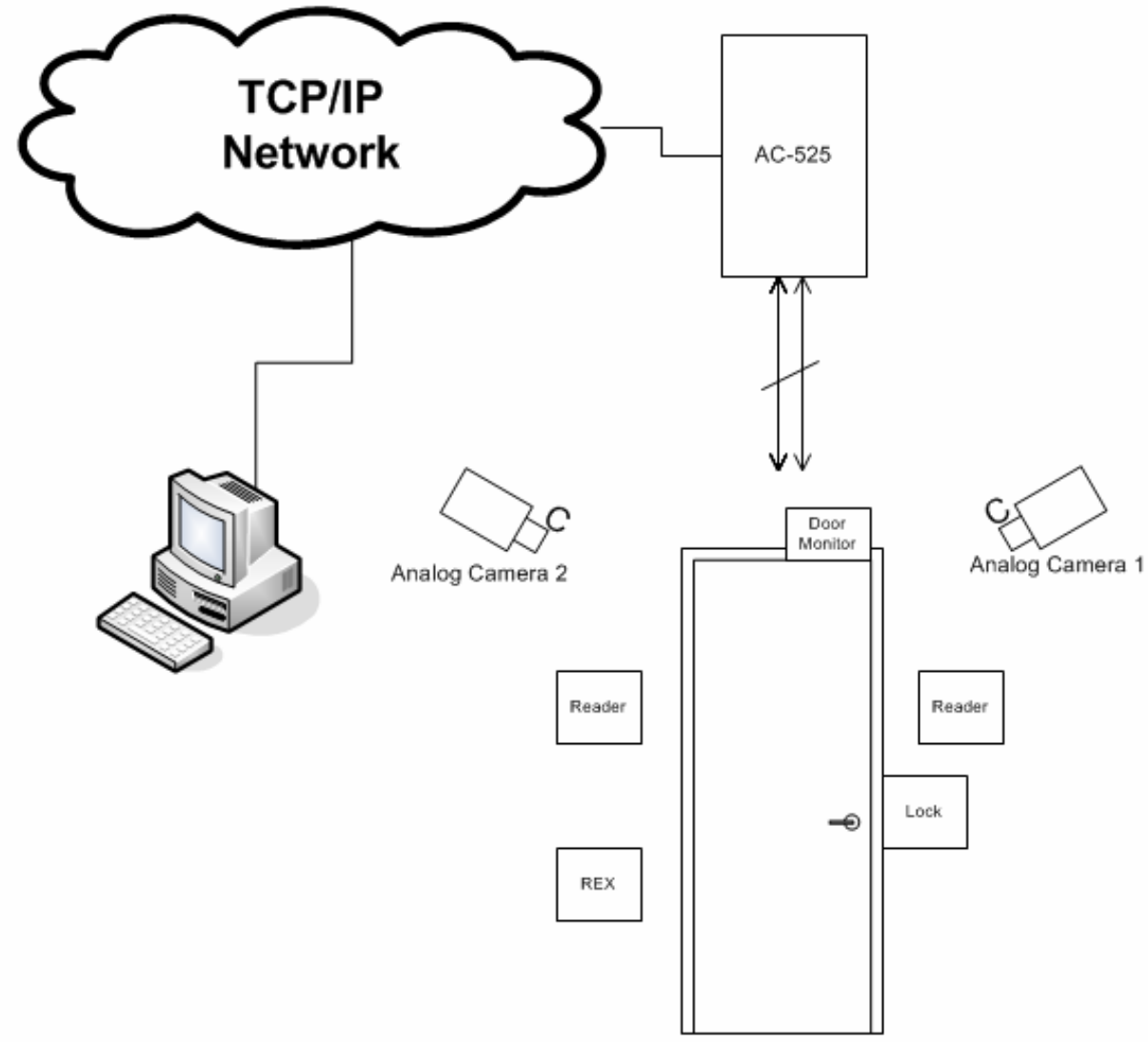


Figure 1: Sample AC-525 Configuration

3.1 AC-525 Access Control Panel Diagram

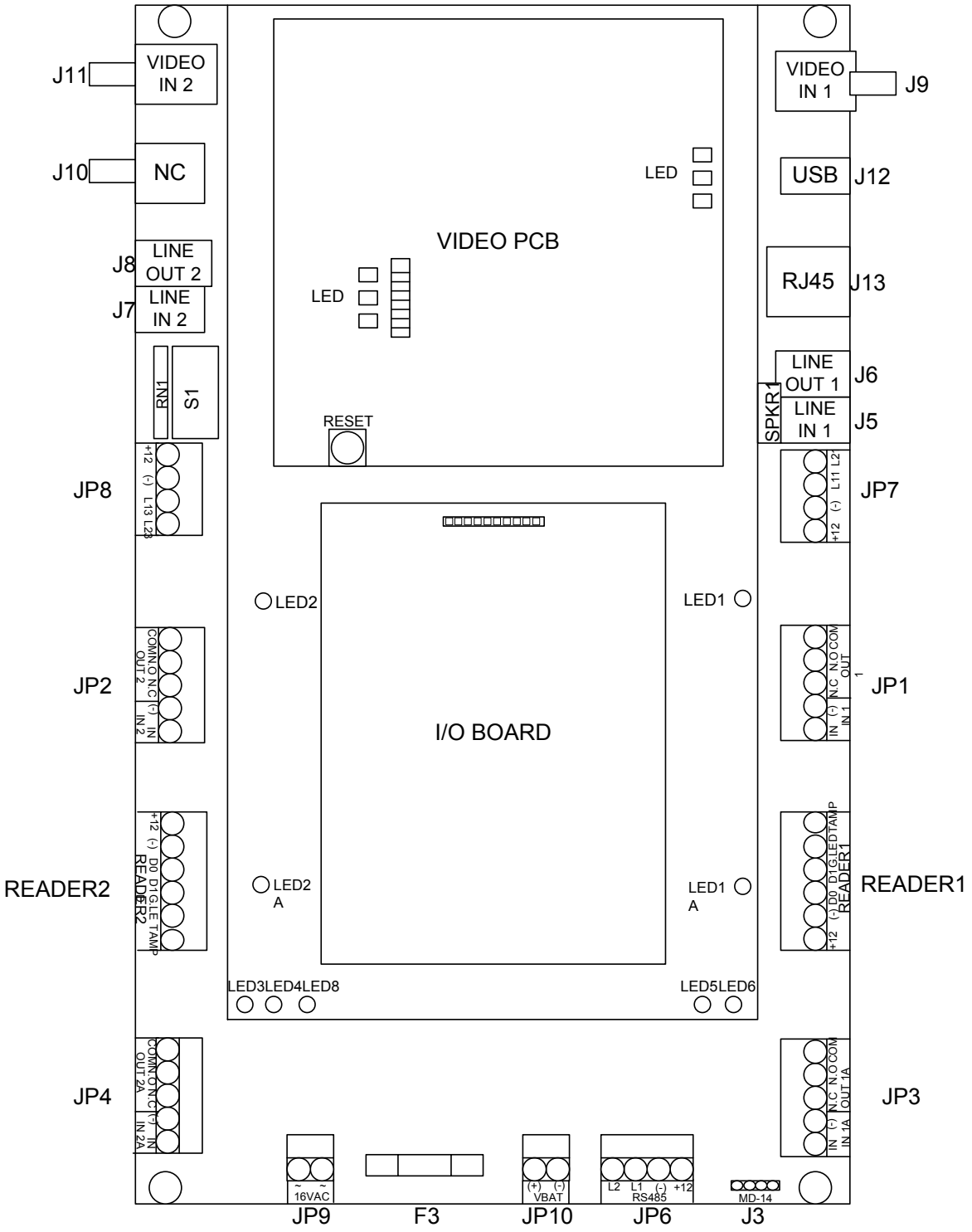


Figure 2: AC-525 Access Control Panel

3.2 Inputs Wiring – Non-Supervised Inputs

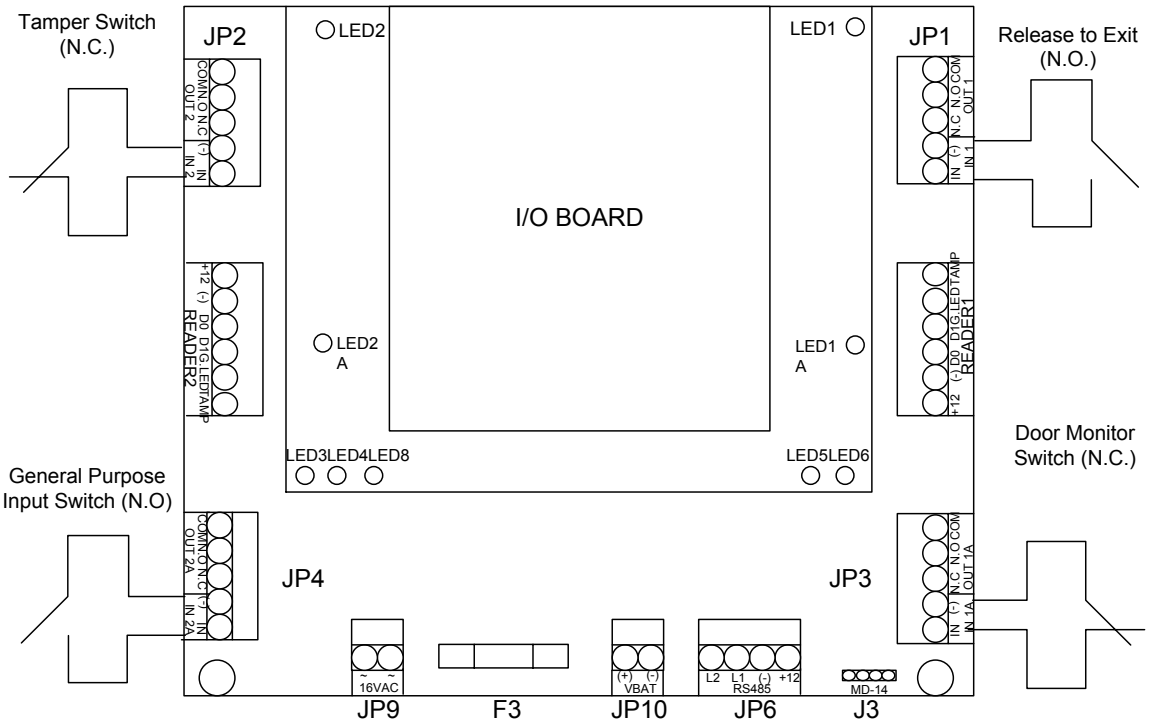


Figure 3: Inputs Wiring – Non-supervised Inputs

3.3 Inputs Wiring – Supervised Inputs

When wiring the AC-525 for supervised inputs, resistors should be placed on the input switch and not on the terminal block.

For further details refer to Input and Output Requirements on page 19.

3.4 Outputs Wiring

The following diagram illustrates wiring for two main types of 12VDC electrical release mechanisms. Other electrical devices can be switched using the voltage free relay contacts.

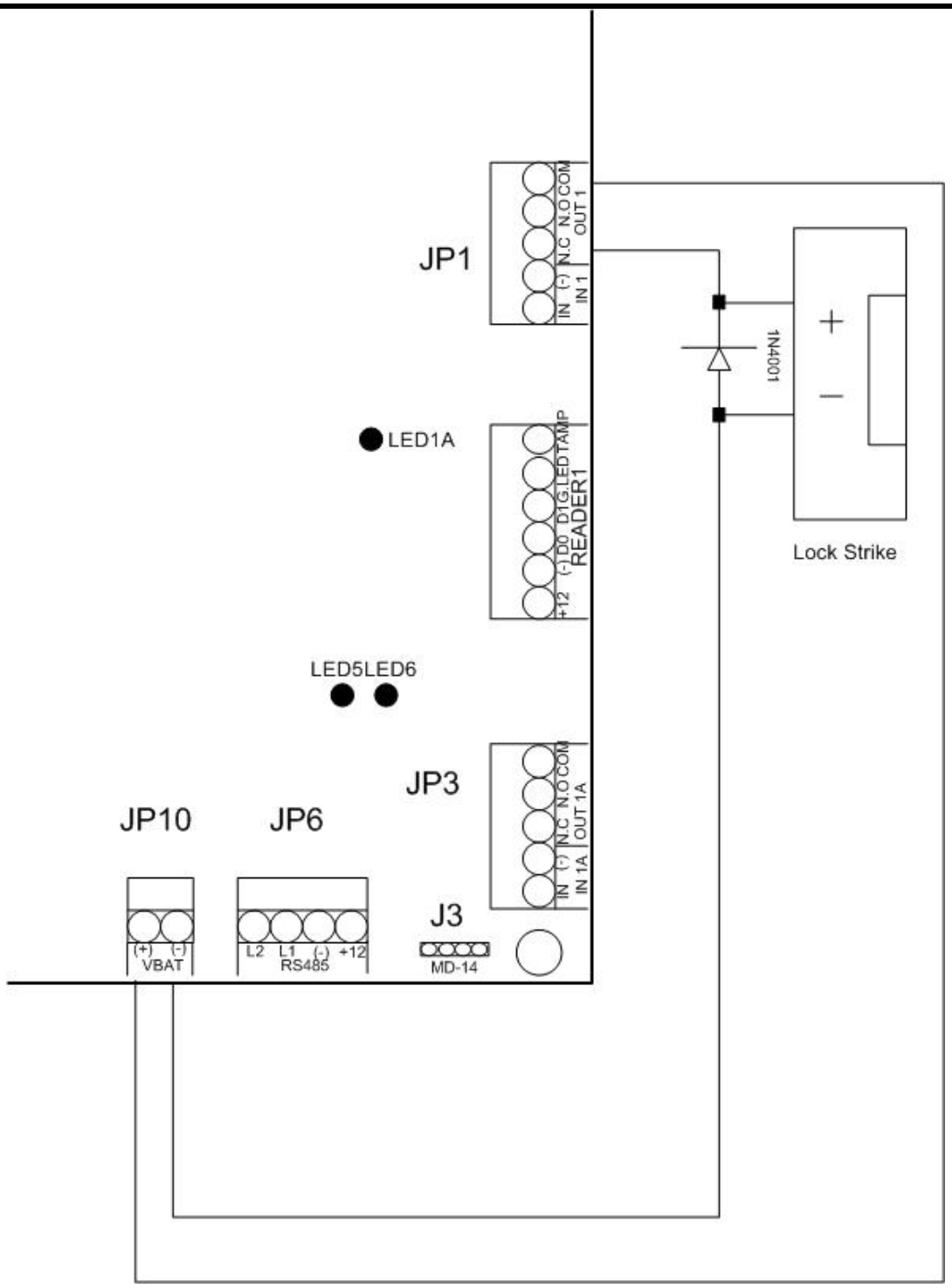


Figure 4: Door Lock – Failed Close

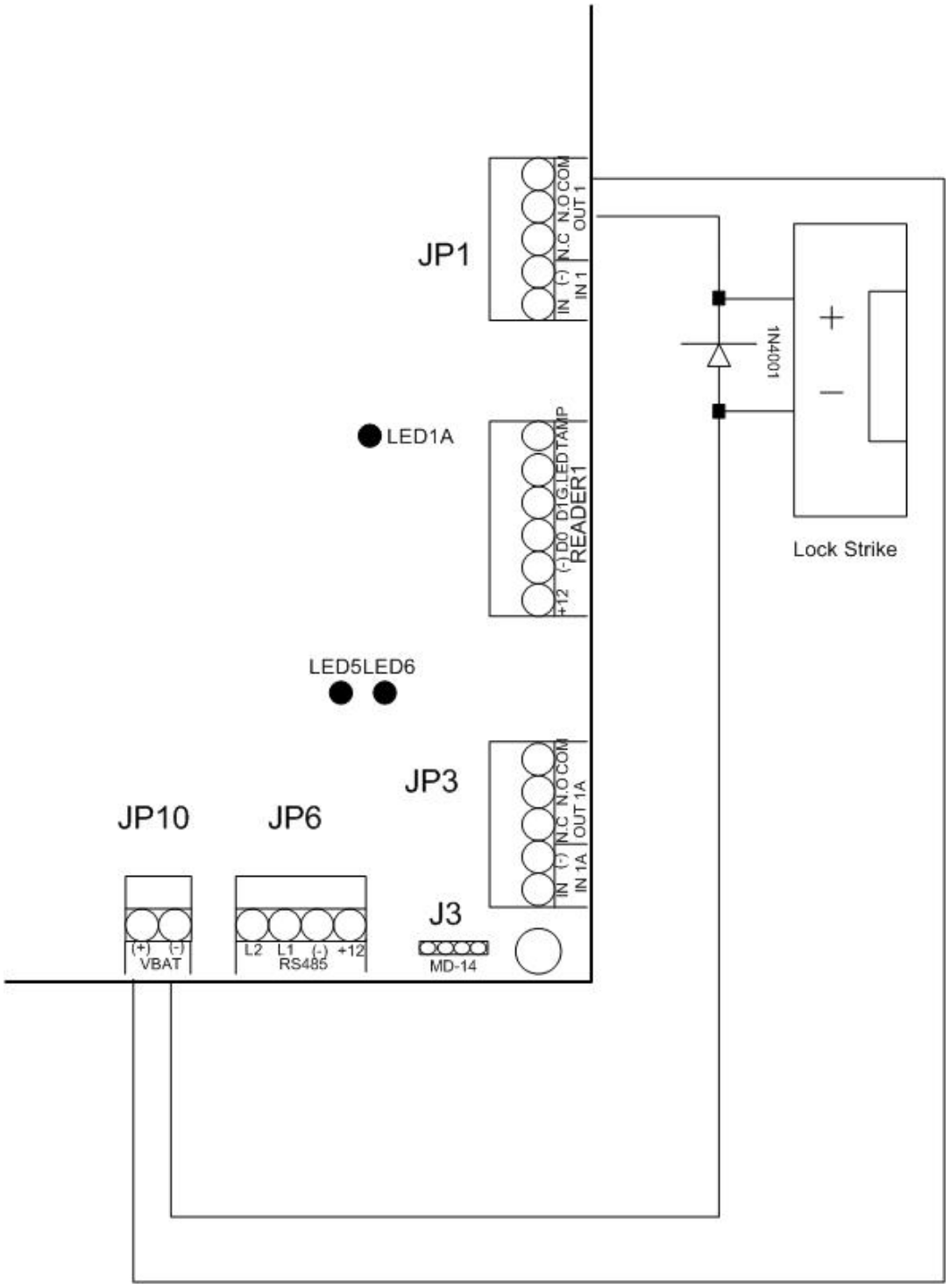


Figure 5: Door Lock – Failed Open

3.5 Power Supply

The following diagram illustrates the wiring between the AC/AC adaptor and the AC525. It is recommended to add a 12VDC lead acid backup battery if the main power supply fails.

Backup battery must be used if implementing Figure 4 and Figure 5 (connecting lock device to battery power, when more than 1A of current is required).

For further information refer to the Outputs section on page 27.

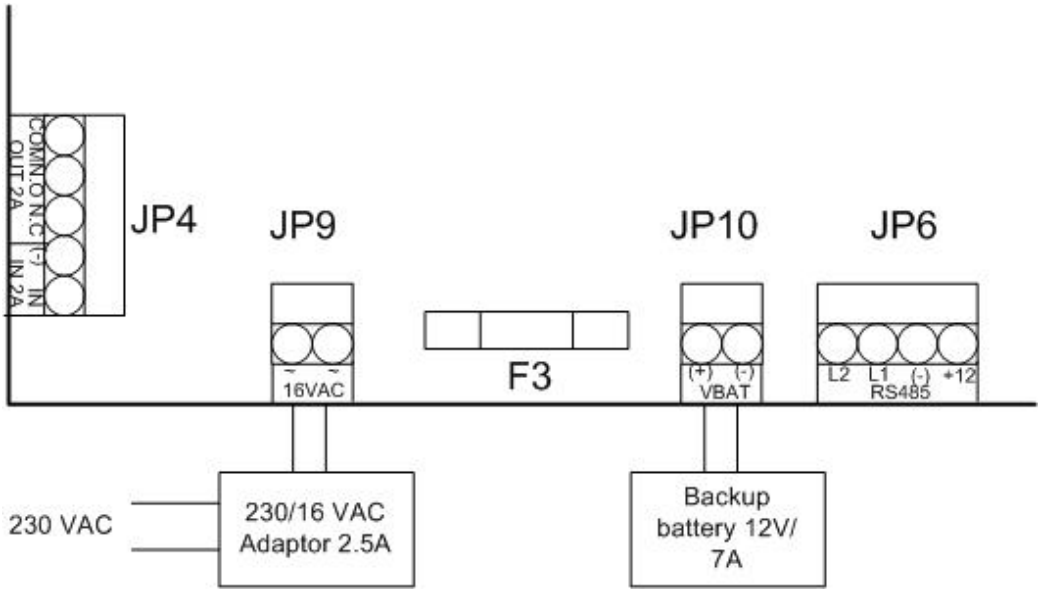


Figure 6: Wiring the Power Supply

3.6 Reader

Proximity and keypad readers are supplied with a limited cable. The color of the cable cover represents the cable's function.

Note:

When extending the cable distance, be careful with the color of the cable cover.

Refer to the reader specifications for the maximum cable length (typically 150m with an 18 AWG cable).

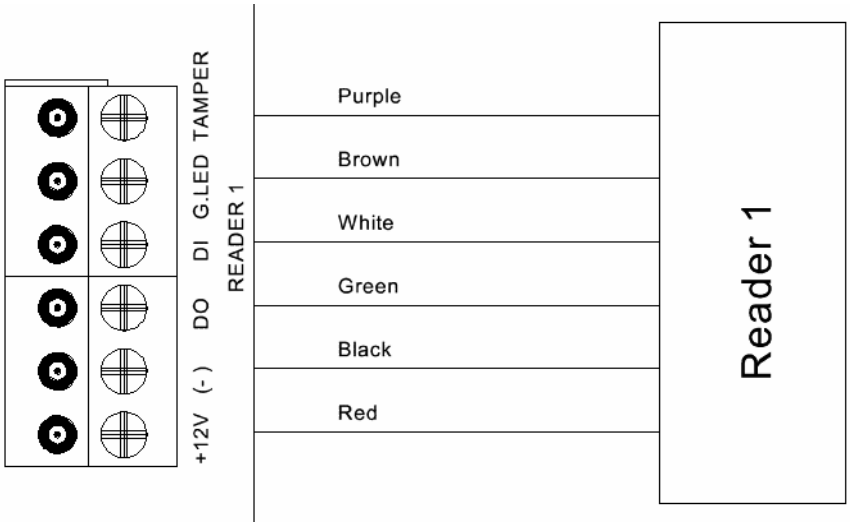


Figure 7: Wiring the Reader

3.7 Video

To connect the AC-525 to the two video cameras, a BNC to BNC cable is needed.

An Ethernet cable connects the panel (RJ45) to the Ethernet.

For each camera, there is an optional microphone in and speaker out.

For PTZ camera, add two wires, a 75 ohm BNC to BNC cable, for camera control.

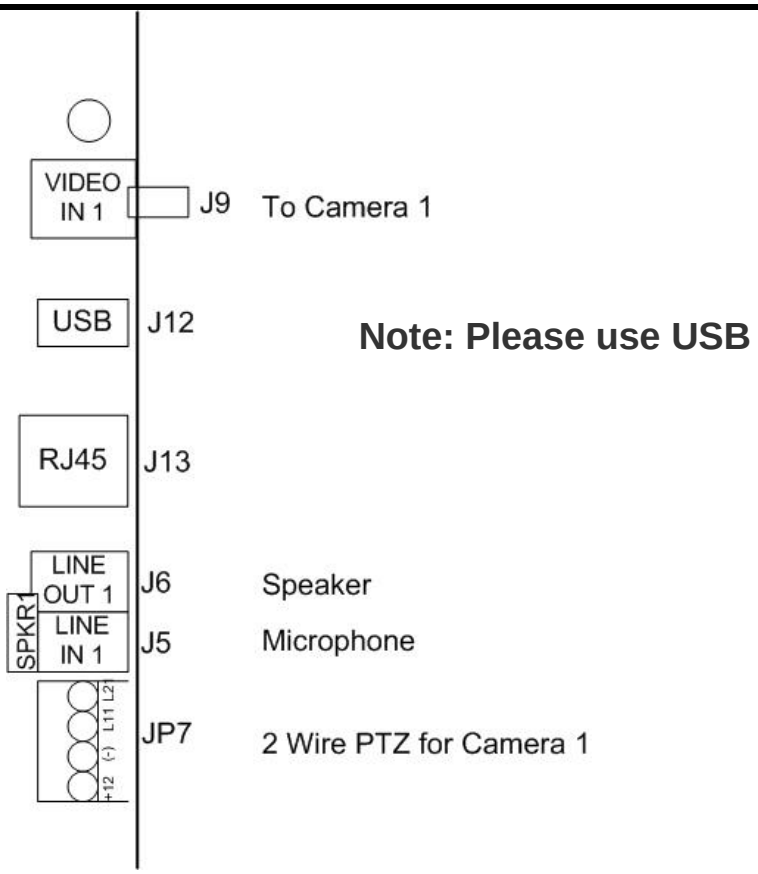


Figure 8: Wiring the Video Cameras

Video Output Characteristics	
Audio out power	0.5W
Speaker Impedance	8 Ohm
Speaker Audio	Mono
Video cables	75 Ohm shielded cable Belden 1505A or RG-59

3.8 MD-IO84

The MD-IO84 is an optional I/O expansion board which adds four relay outputs and eight supervised inputs to the Access Control Panel.

Attach the MD-IO84 to the AC-525's expansion slot.

For more information, see the MD-IO84 Installation and User Guide.

3.9 MD-D02

The MD-D02 is an optional Reader expansion board which adds 2 readers, four relay outputs and four supervised inputs to the Access Control Panel.

Attach the MD-D02 to the AC-525's expansion slot, as marked in red in the figure 9, below.

For more information, see the MD-D02 Installation and User Guide.

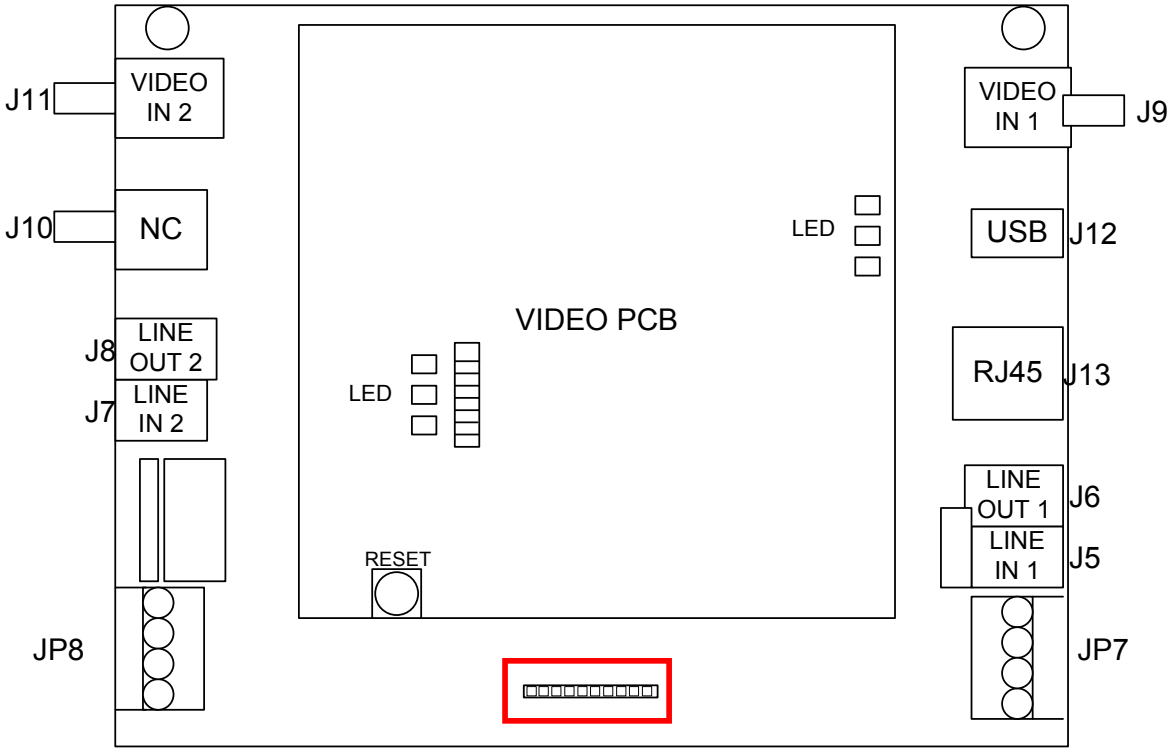


Figure 9: Connector location for MD-IO84 or MD-D02

RN1

S1

+12 (-) L13 L23

4. Input and Output Requirements

This chapter describes the AC-525 access control panel's input and output requirements.

4.1 Input Types

There are six input types – Normally Open, Normally Closed, Normally Open Supervised 1 or 2 resistors, and Normally Closed Supervised 1 or 2 resistors.

Inputs IN1, IN1A, IN2, and IN2A may be configured individually as either supervised or non-supervised inputs. Configure each input separately via the ViTrax AS-525AV system.

Non-supervised inputs have two states:

- Normal State
- Abnormal State

Supervised inputs have three states:

- Normal State
- Abnormal State
- Trouble State.

The Trouble state is caused by either tampering with the input circuit or by faulty hardware installation. Once configured as supervised input, add a resistor of 2.2K, 8.2K, or both on the input circuit. See the following diagrams.

Normally Open Input Connection:

Normally Open Input has 2 states:

- Switch Open – Normal State:

Loop resistance = Infinite (open circuit).

- Switch Closed – Abnormal State:

Loop resistance = 0 (short circuit).

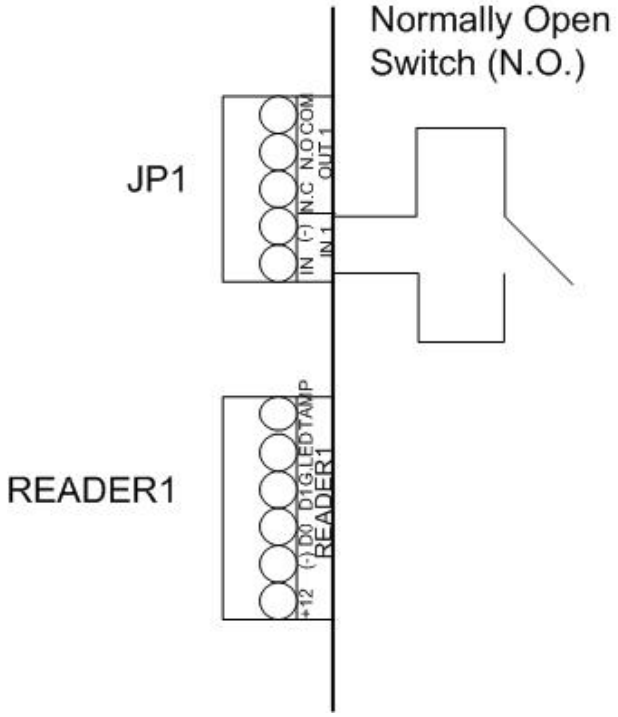


Figure 10: Normally Open Input Connection

Normally Closed Input Connection:

Normally Closed Input has two states:

- Switch Closed – Normal State:
  Loop resistance = 0 (short circuit)
- Switch Open – Abnormal State:
  Loop resistance = Infinite (open circuit)

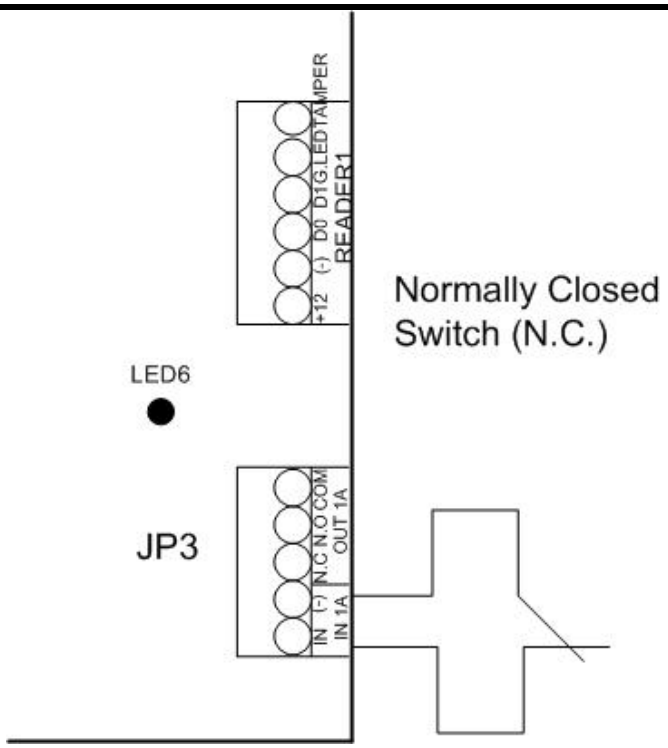


Figure 11: Normally Closed Input Connection

Normally Open Supervised Single Resistor Input Connection:

Connect an 8.2K resistor in parallel to the input switch contacts.

Normally Open Supervised Input has 3 states:

- Switch Open – Normal State:
  Loop resistance = 8.2K
- Switch Closed – Abnormal State:
  Loop resistance = 0 (short circuit)
- Open circuit across input terminals – Trouble State:
  Loop resistance = Infinite (open circuit)

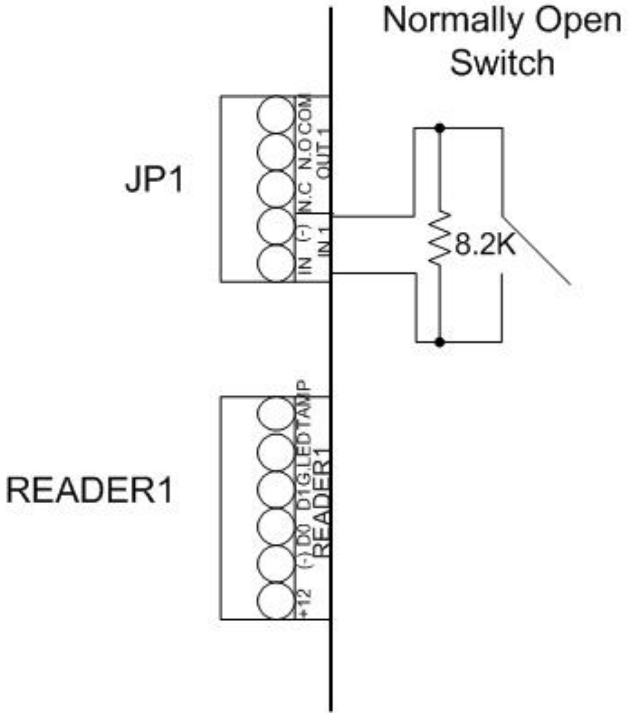


Figure 12: Normally Open Supervised Input (Single Resistor)

Normally Open Supervised Double Resistor Input Connection:

Connect a 2.2K resistor in series to the input switch contacts.

Connect an 8.2K resistor in parallel to the input switch contacts.

Normally Open Supervised Input has 3 states:

1) Switch Open – Normal State:

Loop resistance = 8.2K

2) Switch Closed – Abnormal State:

Loop resistance = 2.2K

3) Open circuit (Infinite loop resistance) or short circuit (0 resistance) across input terminals – Trouble State

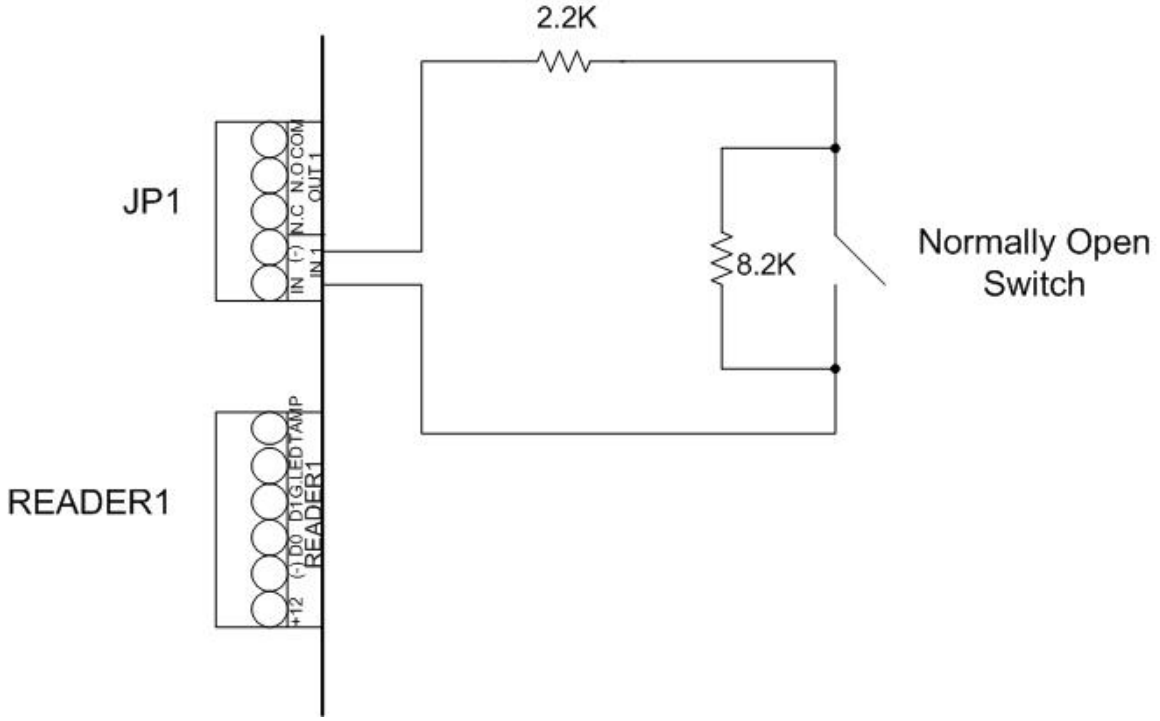


Figure 13: Normally Open Supervised Input (Double Resistor)

Normally Closed Supervised Single Resistor Input Connection:

Connect a 2.2K resistor in series to the input switch contacts.

Normally Closed Supervised Input has 3 states:

- Switch Closed – Normal State:
  Loop resistance = 2.2K
- Switch Open – Abnormal State:
  Loop resistance = Infinite (open circuit)
- Short circuit across input terminals – Trouble State:
  Loop resistance = 0 (short circuit)

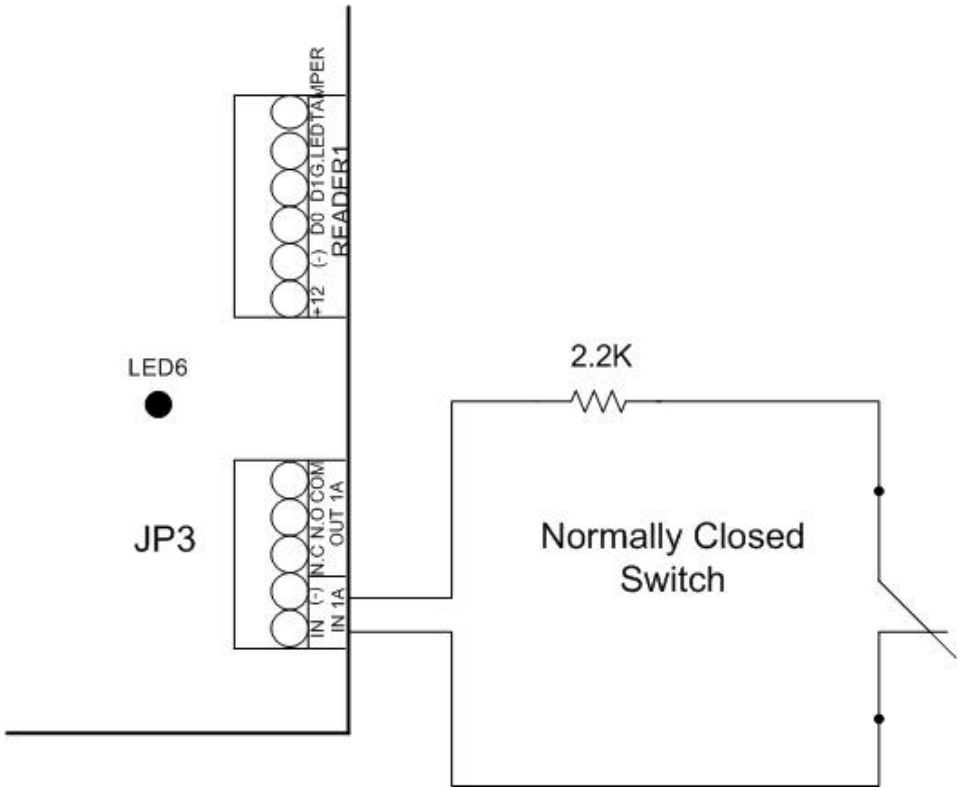


Figure 14: Normally Closed Supervised Input (Single Resistor)

Normally Closed Supervised Double Resistor Input Connection:

Connect a 2.2K resistor in series to the input switch contacts.

Connect an 8.2K resistor in parallel to the input switch contacts.

Normally Closed Supervised Input has 3 states:

- Switch Closed – Normal State:
  Loop resistance = 2.2K
- Switch Open – Abnormal State:
  Loop resistance = 10.4K
- Open circuit (Infinite loop resistance) or short circuit (0 resistance) across input terminals – Trouble State

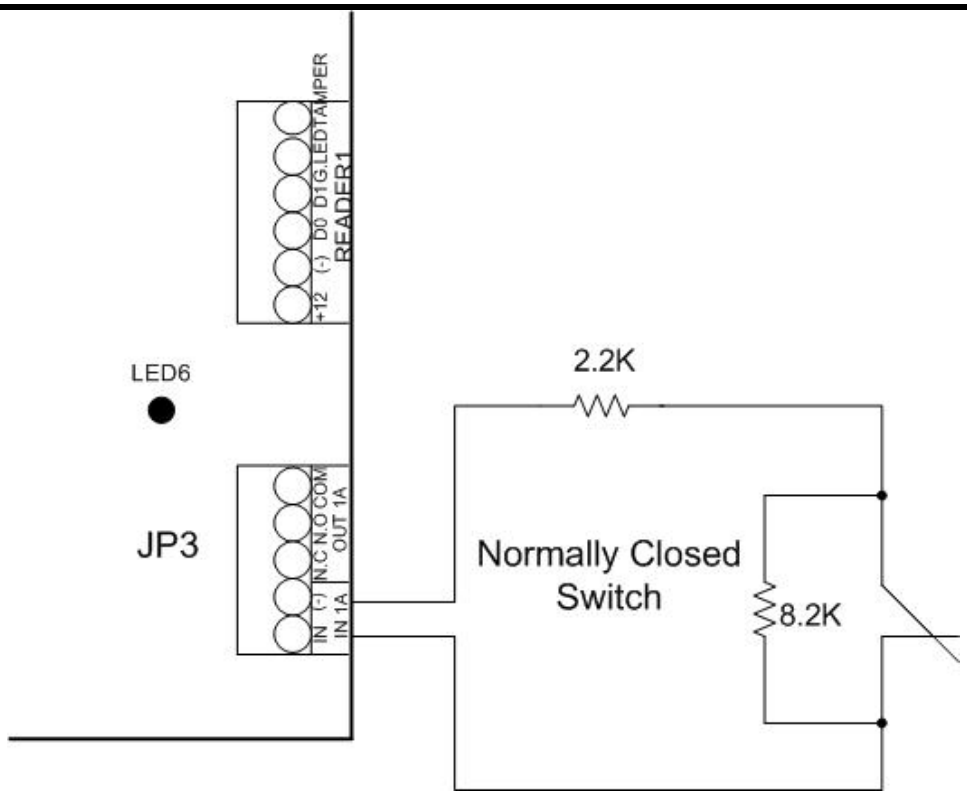


Figure 15: Normally Closed Supervised Input (Double Resistor)

4.2 Inputs Description

Request to Exit Button (REX) Input

Use the REX Input to open a door directly. Typically, the REX input is connected to a Normally Open push button that is located inside the premises. The push button is generally located in an easy-to-access position and opens a door without reading a proximity card or PIN code.

Single door controller:	Door 1 - IN1
Double door controller:	Door 1 - IN 1
	Door 2 - IN 2

REX Inputs functions when using MD-D02:

Double door controller:	Door 1 - IN1
(each door has two readers)	Door 2 - IN5
Four door controller:	Door 1 - IN1
(each door has one reader)	Door 2 -IN2
	Door 3 -IN5
	Door 4 -IN7

Door Monitor Input

The Door Monitor Input typically connects to a Normally Closed door sensing micro-switch for door status monitoring. Using Door Monitor enables many advanced options such as door forced alarm, door held open warnings, interlocking doors and more. The following should be defined:

Single door controller:	Door 1 - IN1A
Double door controller:	Door 1 - IN 1A
	Door 2 - IN 2A

Dedicated Inputs functions when using MD-D02:

Double door controller: (each door has	Door 1 - IN1A
two readers)	Door 2 - IN6
Four door controller:	Door 1 - IN1A
IN1 - REX door1	Door 2 -IN2A
	Door 3 -IN6
	Door 4 -IN8

General Purpose Inputs

These are free inputs that can be used for various functions. The following should be defined:

Single door controller:	Door 1 – IN 2
	Door 1 – IN 2A
Double door controller:	(no general purpose inputs available)

General purpose inputs are suitable for most uses. For example, they might be used to detect tampering, to activate alarm sensors or for monitoring power supply failure.

General purpose inputs functions when using MD-IO84 or MD-D02:

MD-IO84:	IN5 to IN12
MD-D02:	IN5 to IN8 except the dedicated inputs

4.3 Outputs

Rosslare Security recommends the use of suppression diodes for all outputs that activate an inductive load.

Door Lock

There are two types of door locking devices:

- Fail open (fail secure)
- Fail close (fail safe)

The following should be defined:

Single door controller:	Door 1 – OUT1
Double door controller:	Door 1 – OUT1 Door 2 – OUT2

Door outputs when using MD-D02:

Double door controller:	OUT1 = door1
(each door has two readers)	OUT5 = door2
Four door controller:	OUT1 = door1
	OUT2 = door2
	OUT5 = door3
	OUT7 = door4

The output can sink current from any power supply (see page 16).

An AC-525 output can provide 12 VDC power up to 1A for external door locks. For higher rated door locks an external UL 294 Listed power supply must be used to provide power to the door lock.

This restriction does not affect standard AC-525 models.

Note:

For UL installations, the installer must configure the system as fail-safe to comply with NFPA (National Fire Protection Association) regulations.

4.4 Card Readers and Keypads

Each access control panel can be connected to a maximum of two readers or 4 readers when using MD-D02. There are three available types of reader:

- Card readers
- Keypads
- Dual keypad card readers

A keypad is required for any reader mode that requires PIN code entries, such as "Card or PIN", "PIN Only" or "Card and PIN (Secured mode)".

When connecting a reader, the following should be defined:

Single door controller:	Door 1 – Reader 1 IN/OUT
	Door 1 – Reader 2 IN/OUT
Double door controller:	Door 1 – Reader 1 IN/OUT
	Door 2 – Reader 2 IN/OUT

When using theMD-D02, the following should be defined:

Double door controller:	Reader1 - door1 IN/OUT
(each door has two readers)	Reader2 - door1 IN/OUT
	Reader3 - door2 IN/OUT
	Reader4 - door2 IN/OUT
Four door controller:	Reader1 - door1 IN/OUT
(each door has two readers)	Reader2 - door2 IN/OUT
	Reader3 - door3 IN/OUT
	Reader4 - door4 IN/OUT

Use the AxTrax AS-525 software to set the readers for IN or OUT use and to set the data transmission format for each reader.

The reader's tamper output connects to the access control panel's Reader-Tamper input. If the reader is interfered with, an alarm can be generated.

The panel's Reader G.LED output activates the reader's green LED input when operating in "Card and PIN" secure mode. While this mode is in force, users must enter a PIN on the keypad immediately after entering the card.

The controller activates the LED control for 2 seconds when an access granted event occurs.

4.5 Video Card

On the left of the video card, there are three LEDs. The upper one is green. The bottom two are red. When the green LED is on, the system finished set-up and is ready. The upper red LED indicates the status of Camera 2 and the lower red LED indicates the status of Camera 1. If the red LED is off, the camera is not being used. If the LED is flashing, the camera is sending information to the card. When it is on, the card is recording to the USB. When it finishes recording, it resumes flashing.

On the right of the video card are three green LEDs. If the top one is on, the power is on. The second one is usually off. If it is on, there is a functional problem. The third one is on when there are no functional problems.

Next to the LEDs on the left, there are eight Dipswitches. The top six are not used.

- Dipswitch 1: For the manufacturer. Must always be off.
- Dipswitch 2: Off – Normal Operation. On – Reset for functional default.

On the bottom of the video card is a reset button for the video.

5. AC-525 Hardware Settings

Each AC-525 panel controls an entrance. The behavior of the panel is controlled by Dipswitch settings.

Select the appropriate Dipswitch setting to operate the panel as either a single door, a double door, or four doors. See below Access Control Panel Type, page 33.

Access control panels configured as either single door or double door controllers have two readers, IN or OUT. Access control panels configured with the MD-D02 expansion as either double door or four-door controllers have four readers.

Single Door:

Outputs	Door Lock output	(OUT 1)
	General purpose output	(OUT 1A)
	General purpose output	(OUT 2)
	General purpose output	(OUT 2A)
Inputs	Request to exit	(IN 1)
	Door monitor input	(IN 1A)
	General purpose input	(IN 2)
	General purpose input	(IN 2A)
Readers	Reader1	(IN/OUT)
	Reader2	(IN/OUT)

Double door:

Outputs	Door1 Lock output	(OUT 1)
	General purpose output	(OUT 1A)
	Door2 Lock output	(OUT 2)
	General purpose output	(OUT 2A)
Inputs	Door1 Request to exit	(IN 1)
	Door1 monitor input	(IN 1A)
	Door2 Request to exit	(IN 2)
	Door2 monitor input	(IN 2A)
Readers	Reader1	(Door1 IN/OUT)
	Reader2	(Door2 IN/OUT)

Double door with 4 readers (MD-D02):

Outputs	Door1 Lock output	(OUT 1)
	General purpose output	(OUT 1A)
	General purpose output	(OUT 2)

	General purpose output	(OUT 2A)
	Door2 Lock output	(OUT 5)
	General purpose output	(OUT 6)
	General purpose output	(OUT 7)
	General purpose output	(OUT 8)
Inputs	Door1 Request to exit	(IN 1)
	Door1 monitor input	(IN 1A)
	General purpose input	(IN 2)
	General purpose input	(IN 2A)
	Door2 Request to exit	(IN 5)
	Door2 monitor input	(IN 6)
	General purpose input	(IN 7)
	General purpose input	(IN 8)
Readers	Reader1	(Door1 IN/OUT)
	Reader2	(Door1 IN/OUT)
	Reader3	(Door2 IN/OUT)
	Reader4	(Door2 IN/OUT)

Four door with 4 readers (MD-D02):

Outputs	Door1 Lock output	(OUT 1)
	General purpose output	(OUT 1A)
	Door2 Lock output	(OUT 2)
	General purpose output	(OUT 2A)
	Door3 Lock output	(OUT 5)
	General purpose output	(OUT 6)
	Door4 Lock output	(OUT 7)
	General purpose output	(OUT 8)
Inputs	Door1 Request to exit	(IN 1)
	Door1 monitor input	(IN 1A)
	Door2 Request to exit	(IN 2)
	Door2 monitor input	(IN 2A)
	Door3 Request to exit	(IN 5)
	Door3 monitor input	(IN 6)
	Door4 Request to exit	(IN 7)
	Door4 monitor input	(IN 8)
Readers	Reader1	(Door1 IN/OUT)
	Reader2	(Door2 IN/OUT)
	Reader3	(Door3 IN/OUT)
	Reader4	(Door4 IN/OUT)

5.1 Dipswitch Configuration

The access control panel Dipswitch controls a number of operating parameters including the device address and baud rates for serial communication.

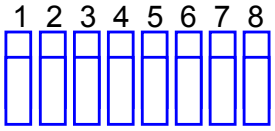


Figure 16: Dipswitch

The following is a list of Dipswitch numbers and their functions:

Dipswitch	Function
1	The panel's communication baud rate.
2	
3	The panel type: Panel with one reader per door or panel with two readers per door
4	The access control panel's address within the RS-485 network.
5	
6	
7	
8	

Note:

Power down the access control panel before changing the Dipswitch settings. After changes have been made, restart the panel. The new settings are automatically defined after power up.

Panel power up time is 1 to 2 minutes long due to the Video Module start-up duration.

5.2 Access Control Panel Baud Rate

The Access control panel serial port baud rate, set in dipswitches one and two, defines the communication speed for connecting with a PC in a network connection.

The default baud rate is set to 9600 bits per second.

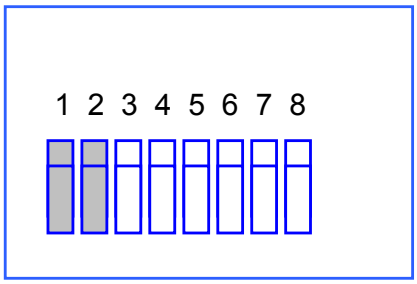
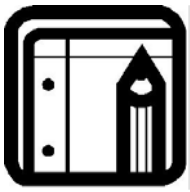


Figure 17: Dipswitch with Baud Rate Setting

The following lists switch 1 and 2 status and baud rate:

Switch 1	Switch 2	Baud Rate
Off	Off	9600
Off	On	19200
On	Off	115200
On	On	57600



Note:

The access control panel baud rate must be identical to the host computer's serial port baud rate.

5.3 Access Control Panel Type

The access control panel type is defined using the third Dipswitch. There are two panel types, a panel with one reader per each door or a panel with two readers per each door. This Dipswitch setting influences the number of doors in the panel.

The default access control panel setting is for two readers per each door.

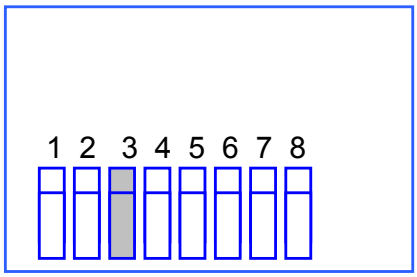


Figure 18: Dipswitch with Single Door Setting

Dipswitch position	MD-D02	Panel Type
Off	No	2 readers, 1 door
On	No	2 readers, 2 doors
Off	Yes	4 readers, 2 doors
On	Yes	4 readers, 4 doors

5.4 Access Control Panel Addressing

The last 5 Dipswitches are used to select the binary coded access control panel internal network address.

The default access control panel address is “1”.

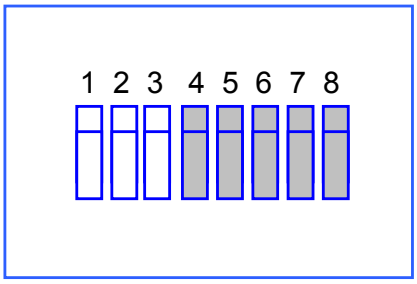


Figure 19: Dipswitch with Internal Network Address Setting

Note:

For successful communications, the Dipswitch must match the address set in the AS-525 software.

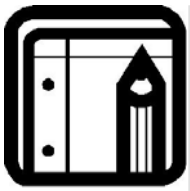
The following table displays the 32 Dipswitch settings available:

Address	Switch 4	Switch 5	Switch 6	Switch 7	Switch 8
1	Off	Off	Off	Off	Off
2	Off	Off	Off	Off	On
3	Off	Off	Off	On	Off
4	Off	Off	Off	On	On
5	Off	Off	On	Off	Off
6	Off	Off	On	Off	On
7	Off	Off	On	On	Off
8	Off	Off	On	On	On
9	Off	On	Off	Off	Off
10	Off	On	Off	Off	On
11	Off	On	Off	On	Off
12	Off	On	Off	On	On
13	Off	On	On	Off	Off
14	Off	On	On	Off	On
15	Off	On	On	On	Off
16	Off	On	On	On	On
17	On	Off	Off	Off	Off
18	On	Off	Off	Off	On
19	On	Off	Off	On	Off
20	On	Off	Off	On	On
21	On	Off	On	Off	Off
22	On	Off	On	Off	On
23	On	Off	On	On	Off
24	On	Off	On	On	On
25	On	On	Off	Off	Off
26	On	On	Off	Off	On
27	On	On	Off	On	Off
28	On	On	Off	On	On
29	On	On	On	Off	Off
30	On	On	On	Off	On
31	On	On	On	On	Off
32	On	On	On	On	On

6. Communications

Communication lines are used to upload and download information between the access control panel and the AS-525 software. When the access control panel and the computer are communicating, the system's two LEDs flash accordingly.

- The RX LED flashes when the controller receives data
- The TX LED flashes when the controller transmits data



Note:
The access control panel address is defined in the AS-525AV software.
It is important that the Dipswitch and the software are set to the same address.

There are three connection modes:

- Serial Network (RS485)
- Modem Network
- TCP/IP Network

6.1 Serial Network Connection

The computer serial port controlling the access control panel is set from within the ViTrax AS-525AV software. The default is 9600bps for direct connection to the computer using standard RS232/RS485 adaptor (or Rosslare MD-14).

Only one access control panel can be linked to each communication port on the computer. Additional panels connect by daisy chaining. See Daisy Chain on page 37.

RS485 Connection to the Computer

Up to 32 access control panel's can be linked together and connected to a single communication port on the computer.

Use the RS485 interface for situations where there will be multiple controllers connected. The serial port used to control the access control panel is assigned within the AS-525 software.

Access control panel supports the two-wire RS485 interface. RS485 interface enables the distance between the Access control panel and PC to be extended up to 4000 feet (~1300meters). The data line wiring must be in daisy chain formatting with one control unit following another. The first Access control panel connecting to the PC must use the MD-14 RS485 to RS232 adaptor.

Daisy Chaining

Daisy chaining allows many panels to connect to the computer along a single serial line.

The first panel is connected directly to the computer and a second panel connects to the first panel. Additional panels connect in the same way, one after another.

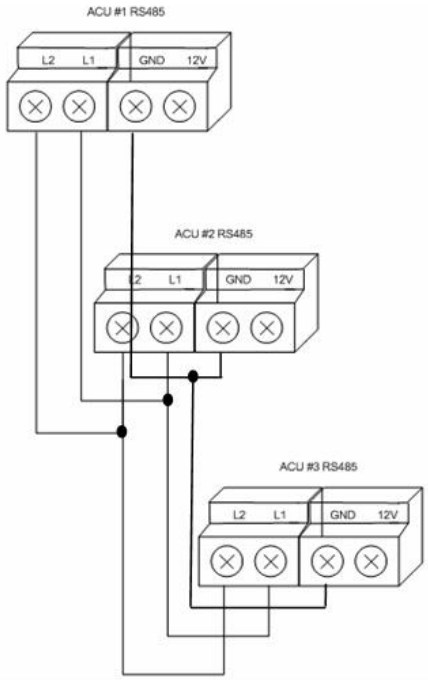


Figure 20: Daisy Chaining

At each end of the data line, both where the panel connects to the computer and on the last panel in the network, a termination resistor of 120Ω may be required. Apply the resistor across the L1 and L2 connections.

These termination resistors are especially important in long cable runs.

Note:

Other connections can optionally be used in addition to L1 and L2 for communication reference.

6.2 TCP/IP Network Connection

The computer running the AS-525 software can communicate with the access control panels via a TCP/IP network. The connection settings are controlled within the AS-525 software.

AC-525 panels connect to the TCP/IP network (LAN or WAN) directly, using the video module.

6.3 Modem Network Connection

Access control panels can be controlled by using MD-N33 modems, one on the PC side and the others on each panel Network at the remote locations. The modem is assigned from within the AS-525 software.

Use a modem when the access control panel is too far from the computer to use a serial connection and an alternative RS485 network or TCP/IP network is unavailable.

The following diagram illustrates remote site modem configuration with AC-525.

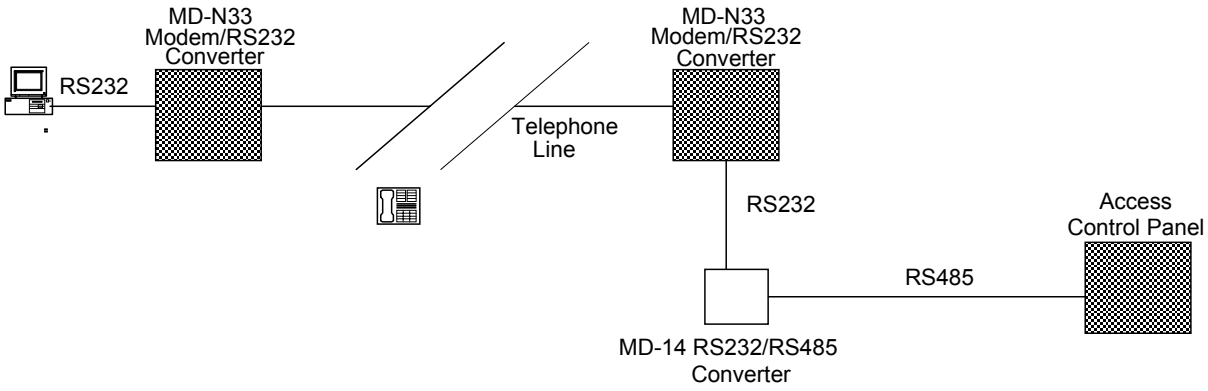


Figure 21: Remote Site Modem Configuration

Note:

For more information on modem connections, refer to the MD-N33 User Manual.

Appendix A. AS-525 Web Server

The AC-525 comes with a video server that enables the installation technician to control settings of the video cameras and set defaults for the recordings.

To access the AS-525 Video Server:

1. Type the AC-525's panel IP address into the browser. The Admin Login screen appears.

Figure 22: AS525 Video Server Admin Login Screen

2. Type in the password: admin.
3. Click **Login**. The Admin change password screen appears.

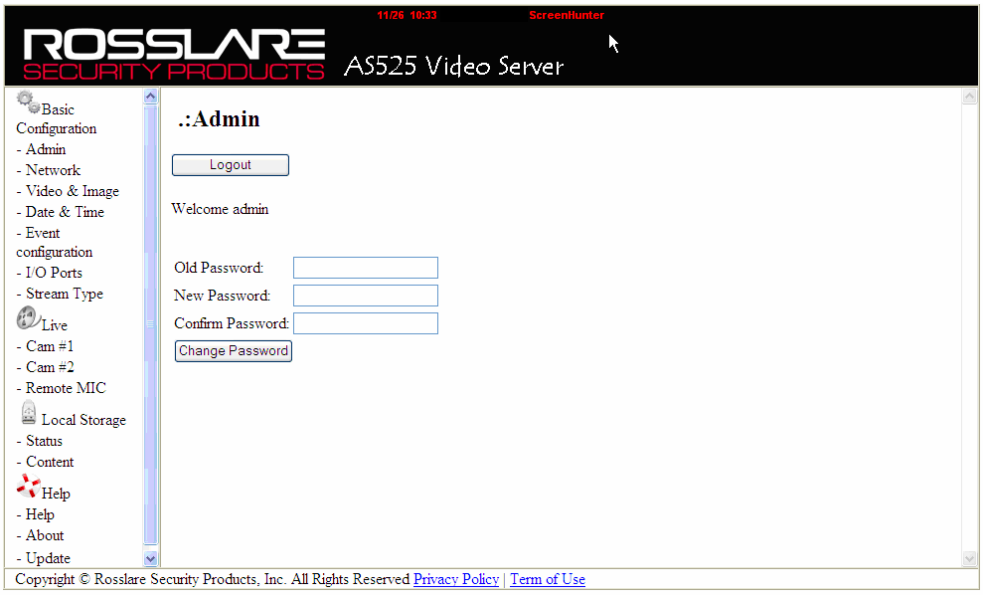


Figure 23: Admin Change Password Screen

4. To change the password, enter old password, new password, and confirm password. Click **Change Password**.

5. From the menu on the left side of the screen, click **Network**. The Network screen appears.

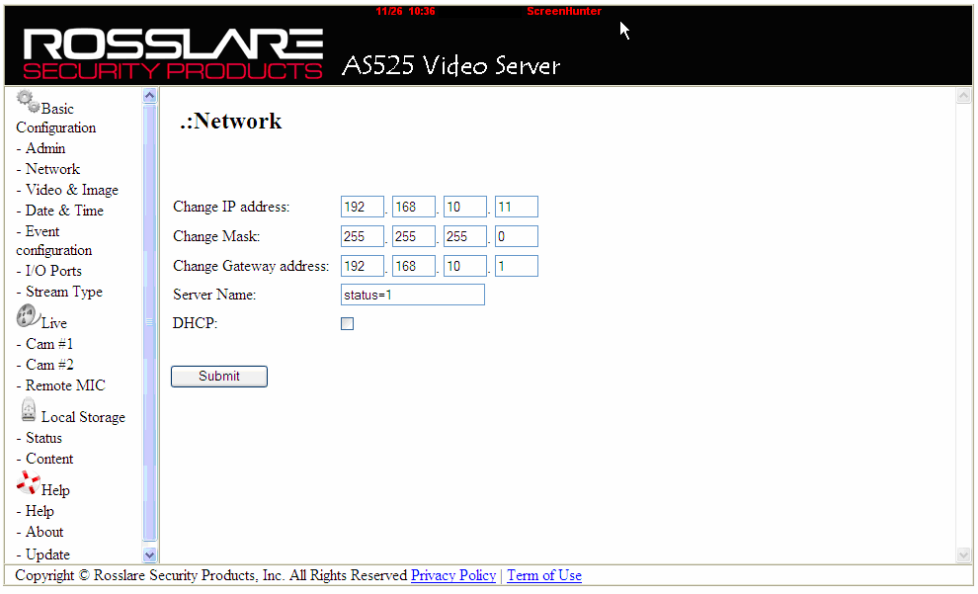


Figure 24: Network Screen

6. Type in any changes to the IP address, mask, gateway address, server name and DHCP. Click **Submit** for any of these changes to take effect.

7. From the menu on the left side of the screen, click on Video & Image. The Video & Image screen appears.

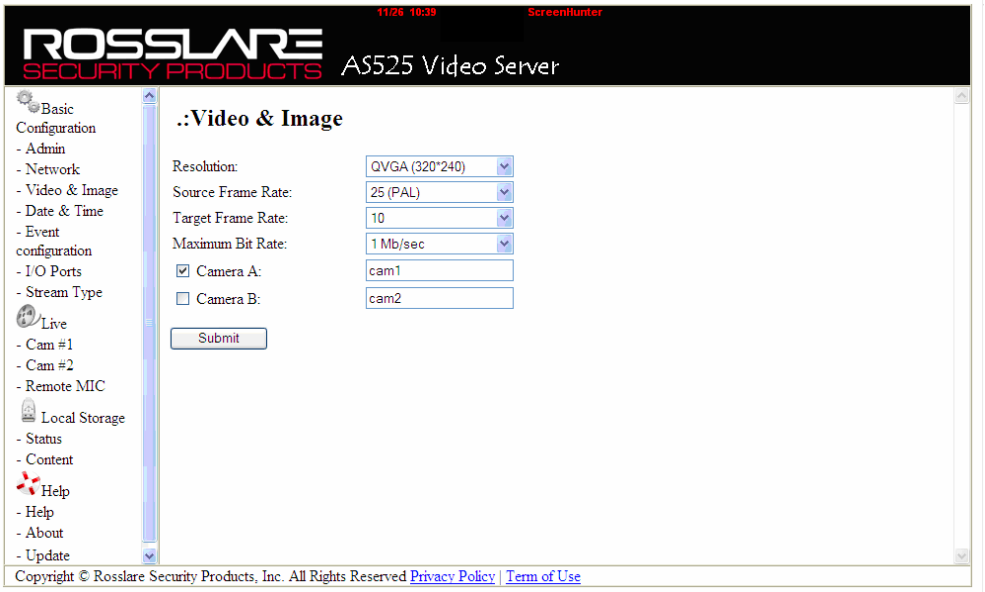


Figure 25: Video & Image Screen

8. Adjust resolution, source frame rate, target frame rate, and maximum bit rate.

- **Resolution: (default is D1)**
  - D1 (720*576), VGA (640*480),QQVGA (160*120),QCIF (176*144)
- **Source Frame Rate: (default is 25 PAL)**
  - In case of one camera: 25 PAL, 30 NTSC
  - Two cameras selected: 8.3 PAL, 10 NTSC
- **Target Frame Rate: (default is 24 PAL)**
  - In case of one camera
    - Selection b/t 1 to 25 PAL
    - Selection b/t 1 to 30 NTSC
  - Two cameras selected:
    - Selection b/t 1 to 8 PAL
    - Selection b/t 1 to 10 NTSC
- **Maximum Bit Rate: (can be selected only when working with one camera; when two cameras are selected, the rate is 1 Mb/Sec)**
  - 1 Mb/Sec
  - 2 Mb/Sec
  - 4 Mb/Sec (default)
- **Select Camera A or Camera B**

Click **Submit** for the changes to take effect.

9. From the menu on the left side of the screen, click **Date & Time**. The Date & Time screen appears.

Figure 26: Date & Time Screen

10. Set the current date and time.

Click **Submit** for the changes to take effect.

11. From the menu on the left side of the screen, click **Event Configuration**. The Event Configuration screen appears.

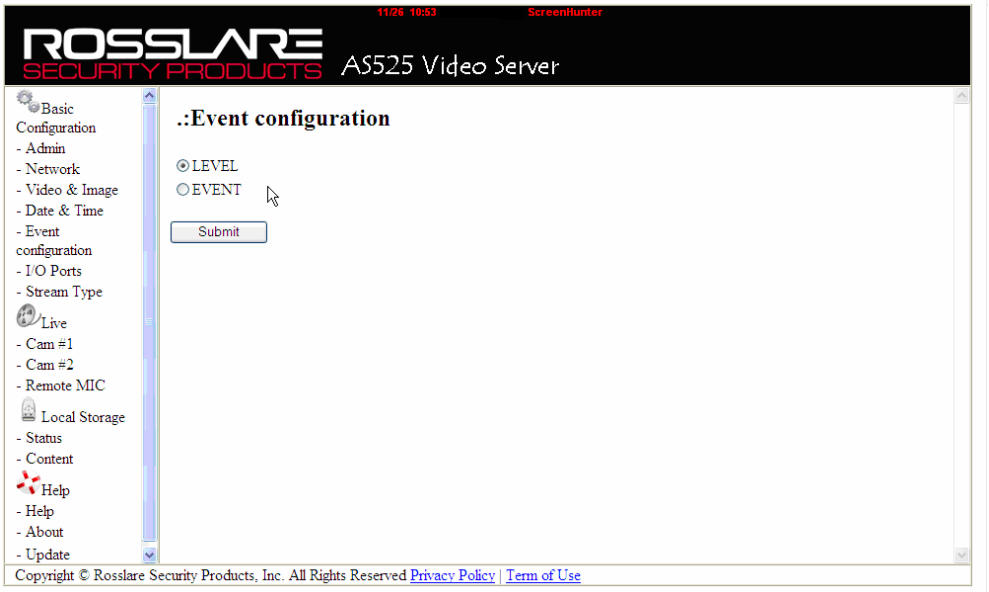


Figure 27: Event Configuration Screen

12. Select either the Level or Event radio button.

- **Level records on the USB according to the input level that was programmed via the ViTrax.**
- **Event records on the USB for 10 sec pre-event and 10 sec post-event in a preprogrammed input via the ViTrax.**

Click **Submit** for the changes to take effect.

13. From the menu on the left side of the screen, click **I/O Ports**. The I/O Ports screen appears.

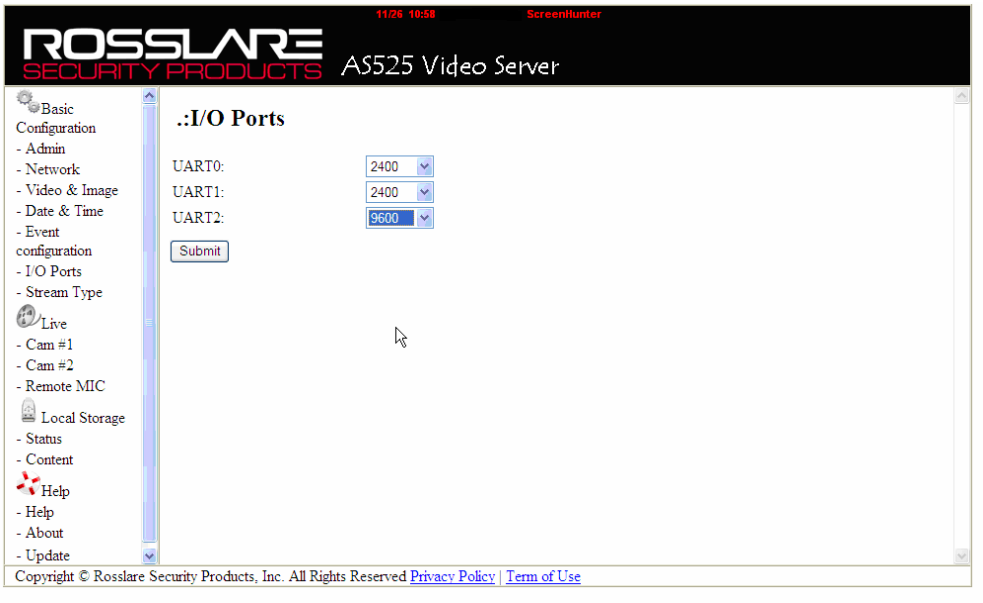


Figure 28: I/O Ports Screen

14. Set the values for UART0, UART1, and UART2.

- **UART0 is the baud rate for communication between Camera 1 and the AC-525.**
- **UART1 is the baud rate for communication between Camera 2 and the AC-525.**
  - ♦ UART0 and UART1 are only applicable for the PTZ camera (which is not relevant for this version).
- **UART2 is for AxTrax access control (should be set like Dipswitch No. 1 and 2).**

All three UART options have:

- **110**
- **300**
- **600**
- **1200**
- **2400**
- **4800**
- **9600 (default for UART2)**
- **14400**
- **19200**
- **38400**
- **57600**
- **115200 (defaults for UART0 and UART1)**

Click **Submit** for the changes to take effect.

15. From the menu on the left side of the screen, click **Cam #1**. The Camera #1 screen appears.

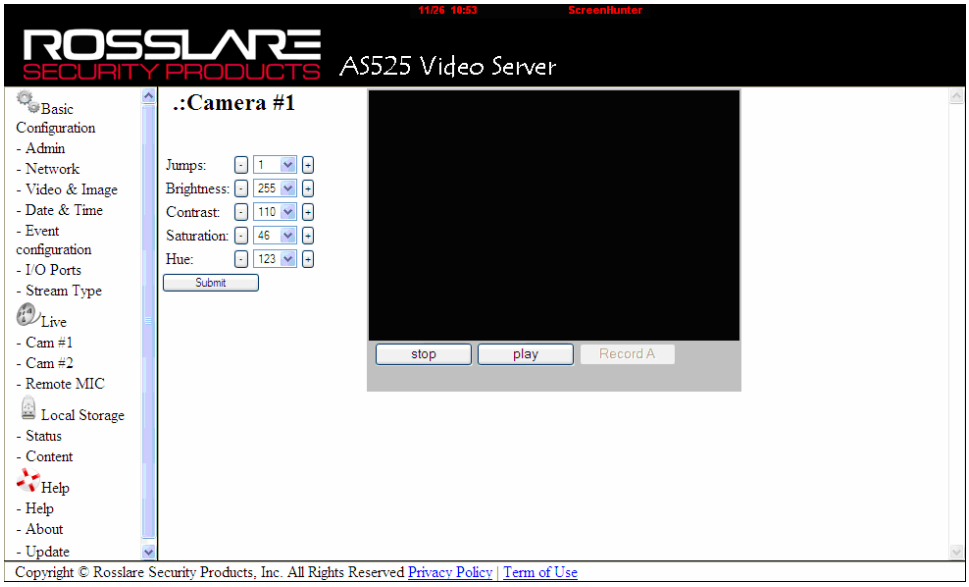


Figure 29: Camera #1 Screen

16. From this screen, the number of jumps, brightness, contrast, saturation, and hue of the video recorded on Camera #1 can be adjusted. Click **Submit** for the changes to take effect.
17. From the menu on the left side of the screen, click **Cam #2**. The Camera #2 screen appears.

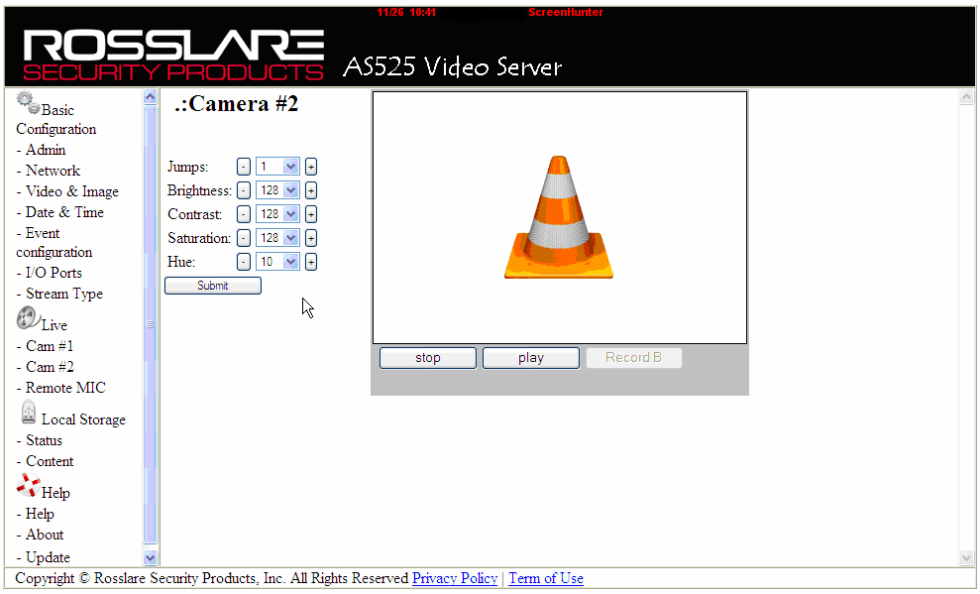


Figure 30: Camera #2 Screen

18. From this screen, the number of jumps, brightness, contrast, saturation, and hue of the video recorded on Camera #2 can be adjusted.
    - **Click Stop to stop recording.**
    - **Click Play to playback the recording.**
    - **Click Record A or Record B to record on the USB device.**
    - **Click Submit for the changes to take effect.**
19. From the menu on the left side of the screen, click **Remote MIC**. The Remote MIC screen appears.

Figure 31: Remote MIC Screen

20. Type in the IP address of the remote microphone.
21. Click **Play** to begin the conversation through the intercom or **Stop** to end the conversation.

Click **Submit** for any adjustments to take effect.

22. From the menu on the left side of the screen, click on Local Storage Status. The Local Storage Status screen appears.

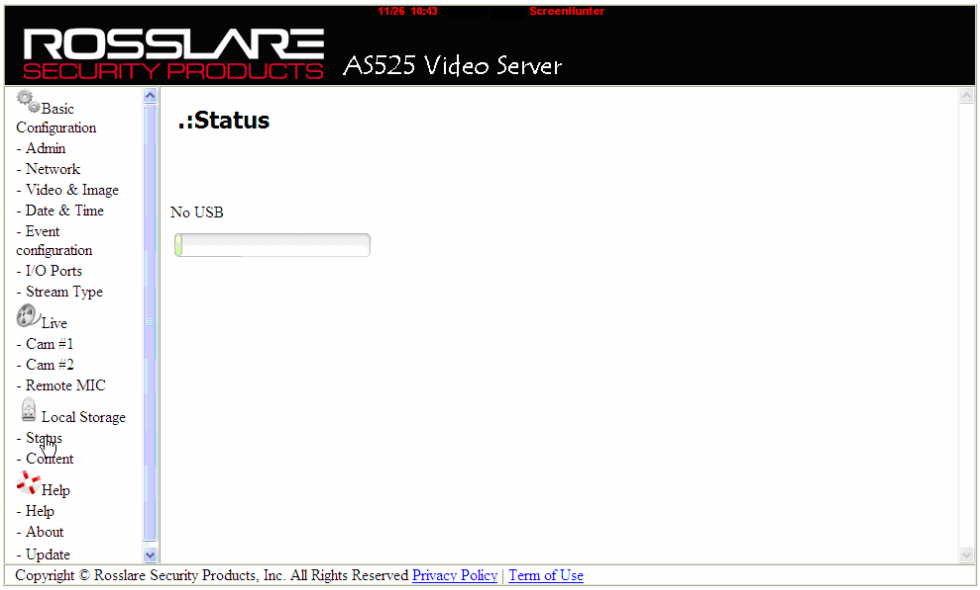


Figure 32: Local Storage Status Screen

23. This screen displays the percentage of used, unused and freed space of the USB. In this case, there is no USB being used.
24. From the menu on the left side of the screen, click **Local Storage Content**. The Local Storage Content screen appears.

Figure 33: Local Storage Content Screen

25. This screen displays the content of the USB, including file name, date start, date end, size, resolution, frame rate, and bit rate. Use the buttons on the bottom to download, delete, or delete all files.

26. To update the firmware of the processor of the video panel, click **Update** from the menu on the left side of the screen. The Update - Step 1 Screen appears.

Figure 34: Update Step 1 Screen

27. Browse for the firmware file that is to be uploaded. Click **Upload File**. The Update – Step 2 screen appears.

Figure 35: Update Step 2 Screen

28. Confirm that the correct file was chosen. Click **Update**. The Update-Step 3 screen appears. The word Finished confirms that the file was successfully uploaded.

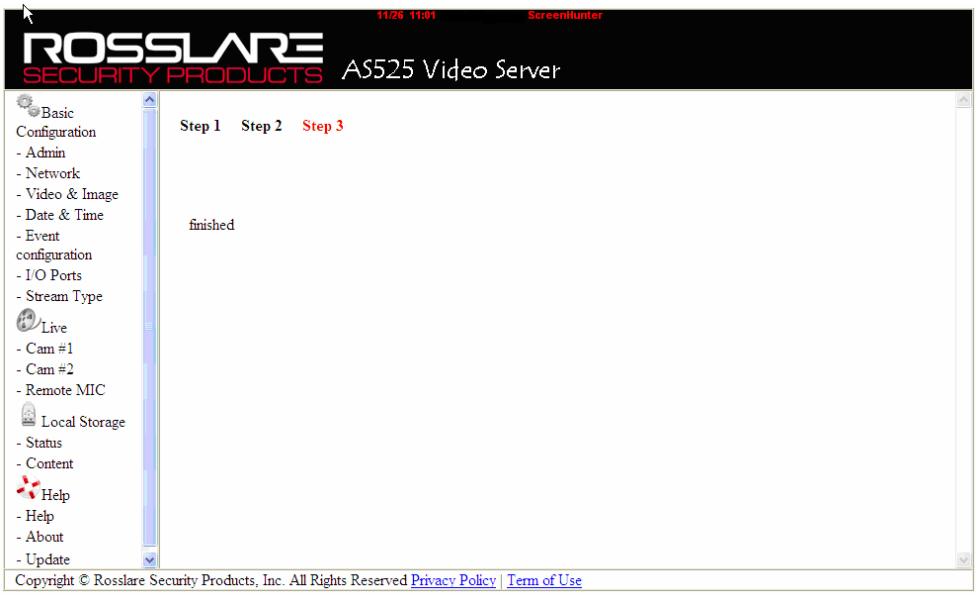


Figure 36: Update Step 3 Screen

Note:

The AC-525 video panel has to be rebooted in order for the new firmware to take effect.

Appendix B. Limited Warranty

ROSSLARE ENTERPRISES LIMITED S (Rosslare) TWO YEARS LIMITED WARRANTY is applicable worldwide. This warranty supersedes any other warranty. Rosslare's TWO YEARS LIMITED WARRANTY is subject to the following conditions:

Warranty

Warranty of Rosslare's products extends to the original purchaser (Customer) of the Rosslare product and is not transferable.

Products Covered By This Warranty and Duration

ROSSLARE ENTERPRISES LTD. AND / ORSUBSIDIARIES (ROSSLARE) warrants that the AC-525 Video Integrated Access Control Panel, to be free from defects in materials and assembly in the course of normal use and service. The warranty period commences with the date of shipment to the original purchaser and extends for a period of 2 years (24 Months).

Warranty Remedy Coverage

In the event of a breach of warranty, ROSSLARE will credit Customer with the price of the Product paid by Customer, provided that the warranty claim is delivered to ROSSLARE by the Customer during the warranty period in accordance with the terms of this warranty. Unless otherwise requested by ROSSLARE ENTERPRISES LTD. AND / OR SUBSIDIARIES representative, return of the failed product(s) is not immediately required.

If ROSSLARE has not contacted the Customer within a sixty (60) day holding period following the delivery of the warranty claim, Customer will not be required to return the failed product(s). All returned Product(s), as may be requested at ROSSLARE ENTERPRISES LTD. AND /OR SUBSIDIARY'S sole discretion, shall become the property of ROSSLARE ENTERPRISES LTD. AND /OR SUBSIDIARIES.

To exercise the warranty, the user must contact Rosslare Enterprises Ltd. to obtain an RMA number after which, the product must be returned to the Manufacturer freight prepaid and insured

In the event ROSSLARE chooses to perform a product evaluation within the sixty (60) day holding period and no defect is found, a minimum US$ 50.00 or equivalent charge will be applied to each Product for labor required in the evaluation.

Rosslare will repair or replace, at its discretion, any product that under normal conditions of use and service proves to be defective in material or workmanship. No charge will be applied for labor or parts with respect to defects covered by this warranty, provided that the work is done by Rosslare or a Rosslare authorized service center.

Exclusions and Limitations

ROSSLARE shall not be responsible or liable for any damage or loss resulting from the operation or performance of any Product or any systems in which a Product is incorporated. This warranty shall not extend to any ancillary equipment not furnished by ROSSLARE, which is attached to or used in conjunction with a Product, nor to any Product that is used with any ancillary equipment, which is not furnished by ROSSLARE.

This warranty does not cover expenses incurred in the transportation, freight cost to the repair center, removal or reinstallation of the product, whether or not proven defective.

Specifically excluded from this warranty are any failures resulting from Customer's improper testing, operation, installation, or damage resulting from use of the Product in other than its normal and customary manner, or any maintenance, modification, alteration, or adjustment or any type of abuse, neglect, accident, misuse, improper operation, normal wear, defects or damage due to lightning or other electrical discharge. This warranty does not cover repair or replacement where normal use has exhausted the life of a part or instrument, or any modification or abuse of, or tampering with, the Product if Product disassembled or repaired in such a manner as to adversely affect performance or prevent adequate inspection and testing to verify any warranty claim.

ROSSLARE does not warrant the installation, maintenance, or service of the Product. Service life of the product is dependent upon the care it receives and the conditions under which it has to operate.

In no event shall Rosslare be liable for incidental or consequential damages.

Limited Warranty Terms

THIS WARRANTY SETS FORTH THE FULL EXTENT OF ROSSLARE ENTERPRISES LTD. AND IT'S SUBSIDIARIES'S WARRANTY

THE TERMS OF THIS WARRANTY MAY NOT BE VARIED BY ANY PERSON, WHETHER OR NOT PURPORTING TO REPRESENT OR ACT ON BEHALF OF ROSSLARE.

THIS LIMITED WARRANTY IS PROVIDED IN LIEU OF ALL OTHER WARRANTIES. ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE SPECIFICALLY EXCLUDED.

IN NO EVENT SHALL ROSSLARE BE LIABLE FOR DAMAGES IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT, OR FOR ANY OTHER INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF USE, LOSS OF TIME, COMMERCIAL LOSS, INCONVENIENCE, AND LOSS OF PROFITS, ARISING OUT OF THE INSTALLATION, USE, OR INABILITY TO USE SUCH PRODUCT, TO THE FULLEST EXTENT THAT ANY SUCH LOSS OR DAMAGE MAY BE DISCLAIMED BY LAW.

THIS WARRANTY SHALL BECOME NULL AND VOID IN THE EVENT OF A VIOLATION OF THE PROVISIONS OF THIS LIMITED WARRANTY.

Appendix C. Technical Support

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