

AC-525

Video Integrated Networked Access Controller

Hardware Installation and User Manual



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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 Flash Drive, upon a range of triggers.

The AC-525 has two RS-485 outputs to control PTZ cameras supporting Pelco-D communication protocol.

When used in combination with Rosslare's AS-525AV ViTrax and AxTrax software systems, the AC-525 provides full control over the entrances to your premises. 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.

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

Introduction

- 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
- On-Board pre-alarm and post event timers and custom recording preferences
- On-Board USB 2.0 connection for a USB 2.0 compliant Flash Drive enabling Local DVR recording
- Controls up to 4 doors using an expansion board
- Two IN/OUT readers, with tamper input and LED control, or up to 4 readers using the MD-D02 expansion board
- 4 inputs, selectable as supervised or non-supervised
- 4 Form-C heavy duty relay outputs (rated 5A)
- Optional MD-IO84 with 4 relays, 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
- 30,000 users, and 20,000 log events
- RS-485 serial communication (up to 115200 bps) that supports AC-215 and AC-225 access control panels as well
- 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.

1.2.1. 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 AC-215, AC-225, AC-225IP and AC-525, and offers scalability and flexibility in addition to a range of advanced control features.

1.2.2. 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, fire alarms, 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.

**Note:**

These features are just a selected few, refer to the AS-525 AxTrax software manual for a complete feature list and detailed explanations.

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
Door Support and I/O	2 Doors IN/OUT, 4 inputs, 4 outputs, expandable to 4 doors, 8 inputs, 8 outputs (MD-D02), or 12 Inputs, 8 Outputs (MD-IO84)

Integrated IP Characteristics

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

Video Server Characteristics

Internal A/D MPEG-4 Video Encoder	2 analog video inputs Supporting PAL and NTSC formats. Resolution of up to D1 25fps when using one camera or up to 8fps with two cameras connected. Two analogue composite (BNC x 2) – AGC (120m)
PTZ Support	2 PTZ control Channels, supports Pelco D format
Text Overlay	Time, Date, and two Custom fields
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) Two channel: 8 fps @ up to D1 Resolution (Dual Video)
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 Flash Drive for Local DVR recording.
Max Flash Drive Capacity	8 gigabytes

Access Control Characteristics

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

Technical Specifications

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 – 120.2°F (0°C - 49°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
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3. AC-525 Panel Set-Up

Every AC-525 panel controls up to four doors. The panels connect together in a network and are controlled by a central server computer, running the AS-525 AxTrax software system. The following diagram shows an example set-up for the AC-525 access control panel configuration.

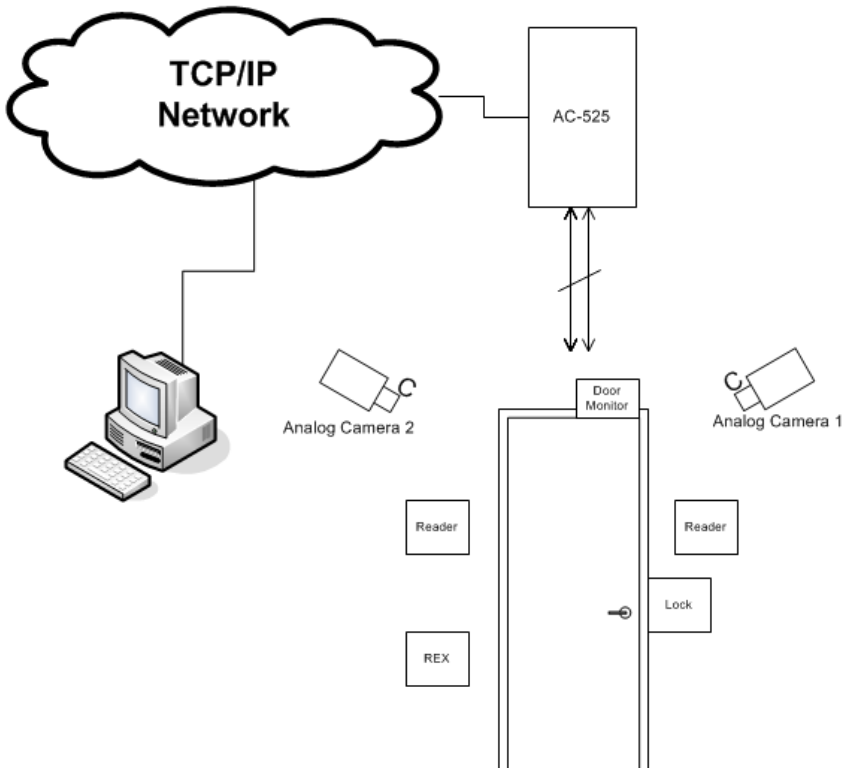


Figure 1: Sample AC-525 Configuration

3.1 AC-525 Access Control Panel Diagram

See the figure below for a complete view of the AC-525 control panel's PCB, including all connectors buttons and Led schematics. (Not to scale)

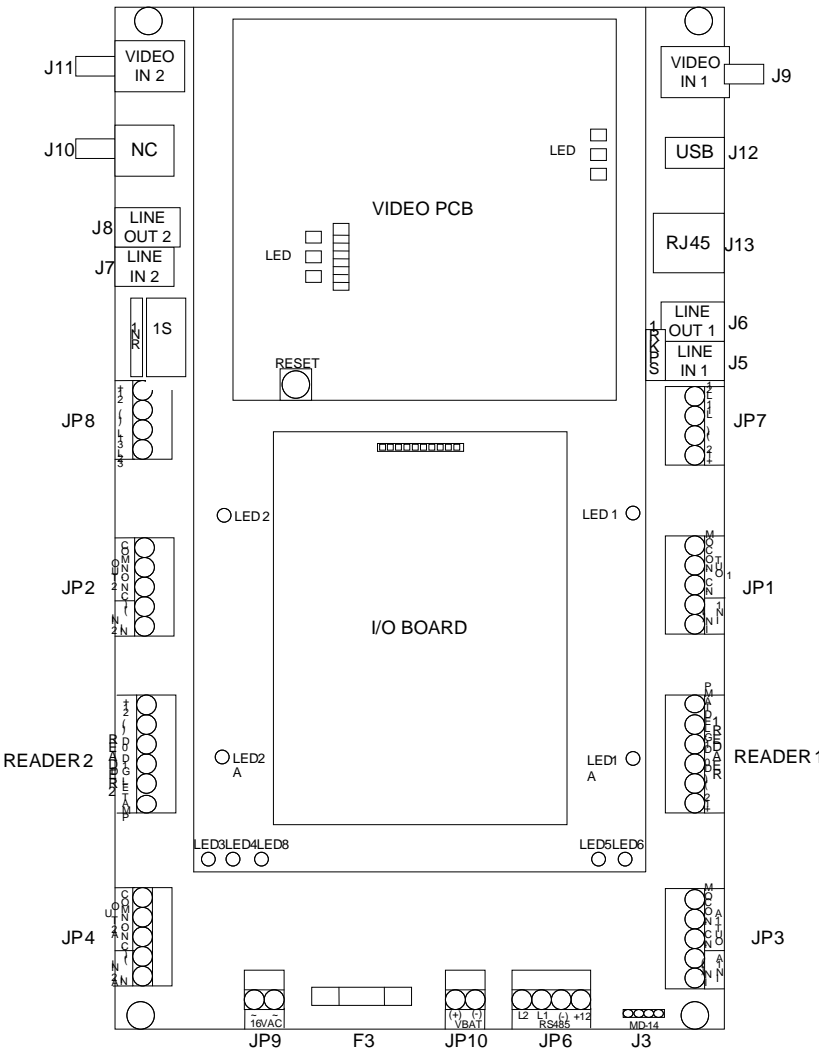


Figure 2: AC-525 Access Control Panel

3.2 Inputs Wiring – Non-Supervised Inputs

See the figure below for a detailed view of the non-supervised inputs and there connection options.

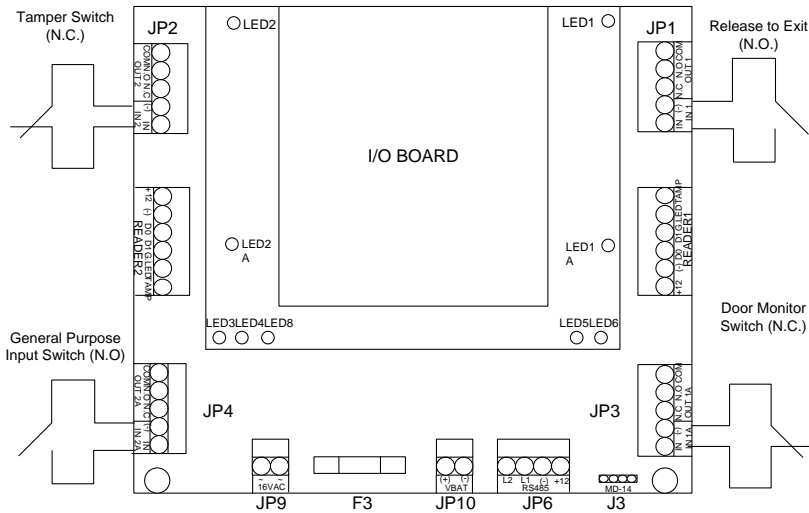


Figure 3: Inputs Wiring – Non-supervised Inputs

3.3 Inputs – 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 17.

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.

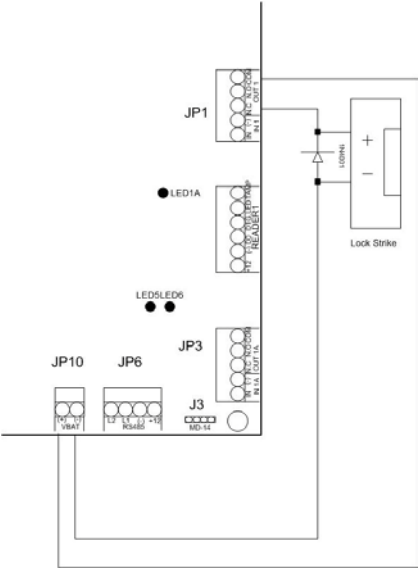


Figure 4: Door Lock – Failed Close

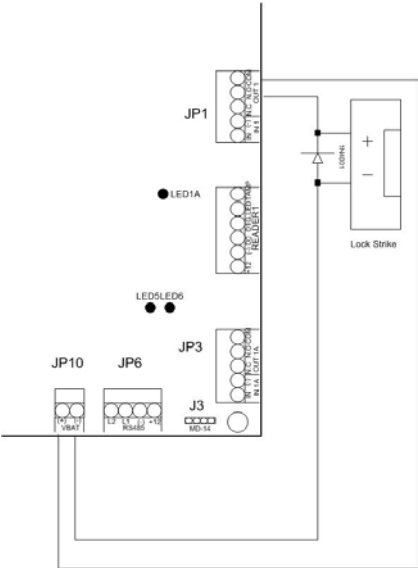


Figure 5: Door Lock – Failed Open

3.7 Video

To connect the AC-525 to the two video cameras, a BNC to BNC cable is needed.
For each camera, there is an optional microphone in and speaker out.
For PTZ camera, add two wires, RS-485 cable, for camera control.

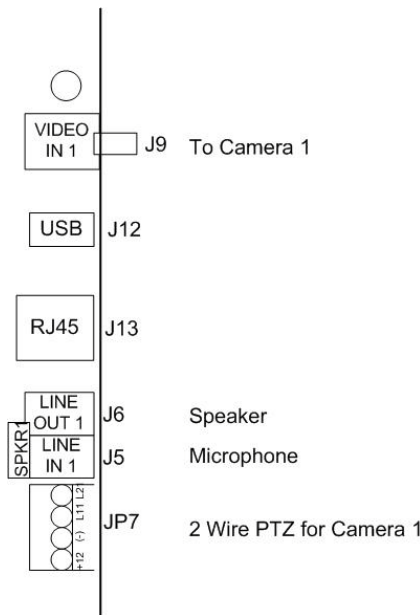


Figure 8: Wiring the Cameras

Video / Audio 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.

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

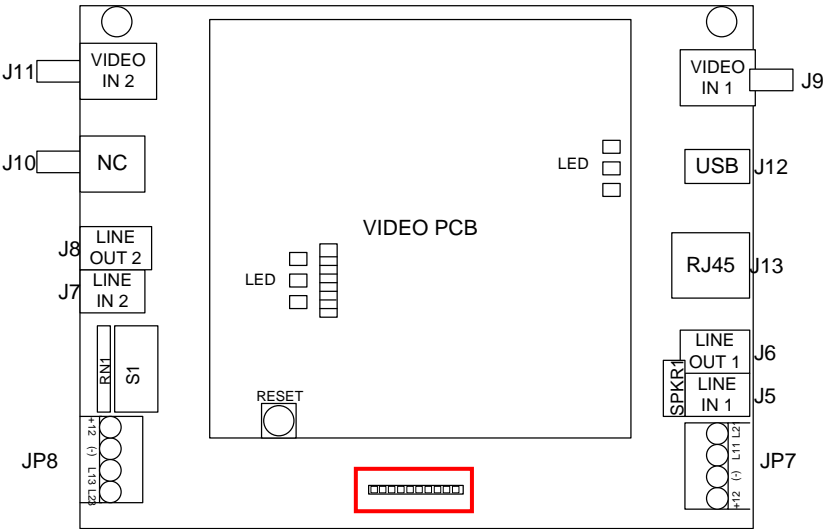


Figure 9: Connector location for MD-IO84 or MD-D02

4. Input and Output Requirements

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

4.1 Input Types

Each input can be set as one of 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 AS-525 AxTrax PC software.

Non-supervised inputs have two states:

- Normal State – N.C. or N.O.
- Opposite State – N.O. or N.C.

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.



Note:

The panel comes supplied with the required resistors.

4.1.1. 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).

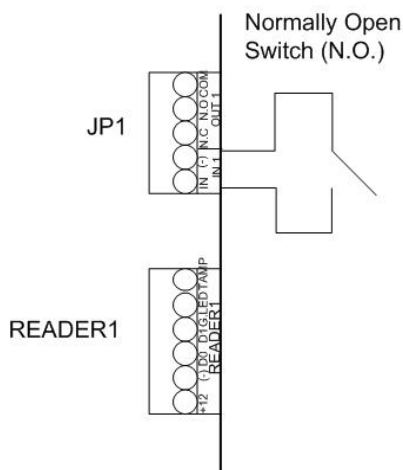


Figure 10: Normally Open Input Connection

4.1.2. 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)

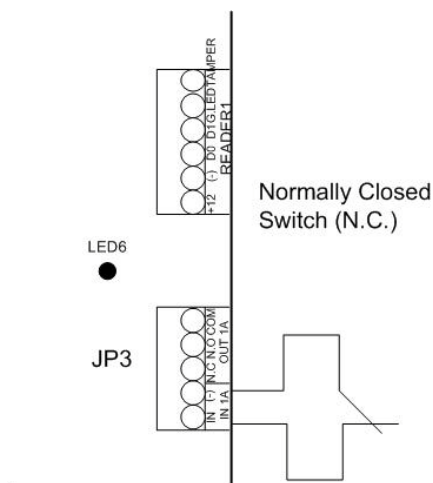


Figure 11: Normally Closed Input Connection

Input and Output Requirements

4.1.3. 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)

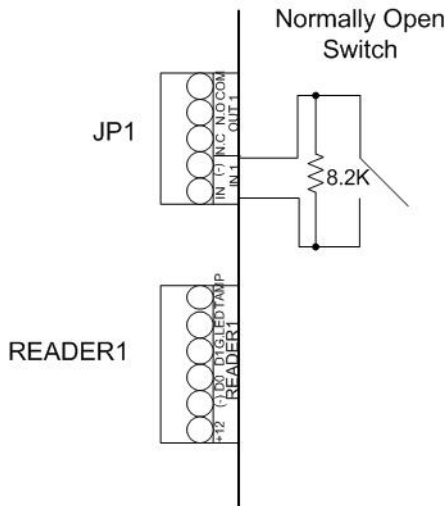


Figure 12: Normally Open Supervised Input (Single Resistor)

4.1.4. 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

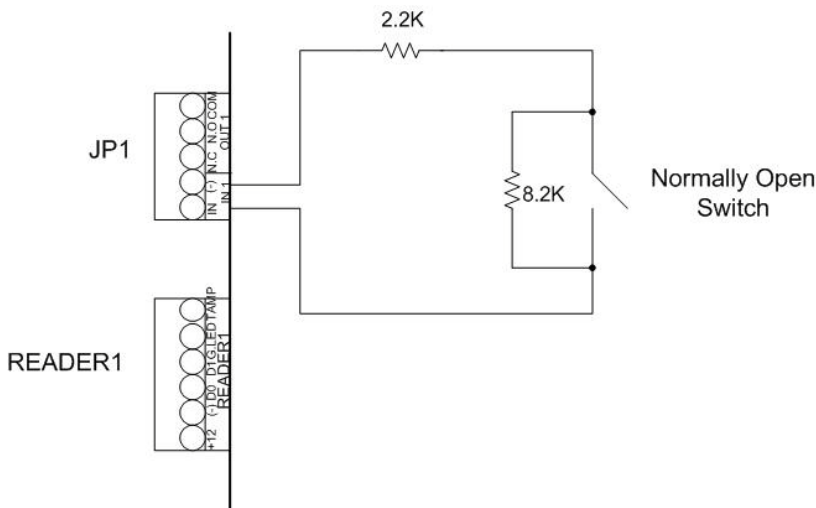


Figure 13: Normally Open Supervised Input (Double Resistor)

4.1.5. 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)

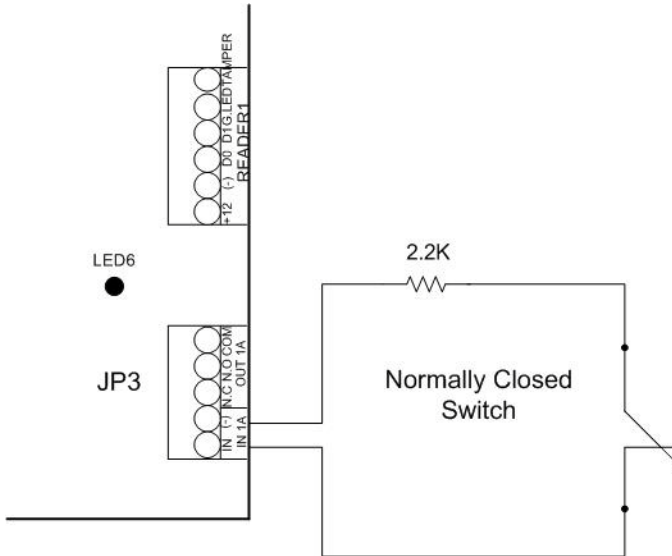


Figure 14: Normally Closed Supervised Input (Single Resistor)

4.1.6. 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

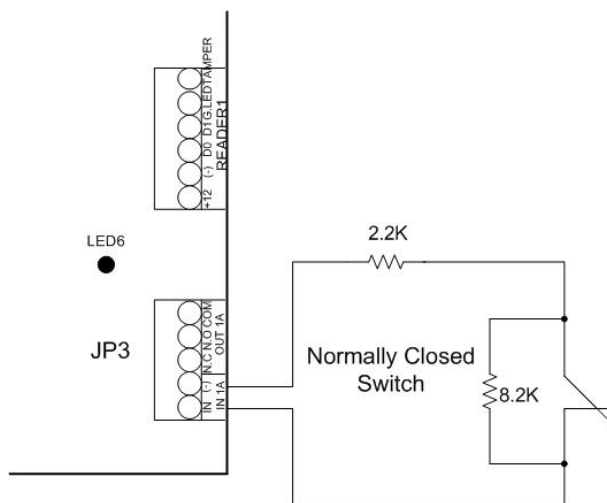


Figure 15: Normally Closed Supervised Input (Double Resistor)

4.2 Inputs Description

This chapter describes the inputs default operation.

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

4.2.2. 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 two readers) Door 1 - IN1A
Door 2 - IN6
- Four door controller: Door 1 - IN1A
Door 2 -IN2A
Door 3 -IN6
Door 4 -IN8

4.2.3. 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 Description

This chapter describes the inputs default operation. Rosslare Security recommends the use of suppression diodes for all outputs that activate an inductive load.

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

The output can sink current from any power supply (see Power Supply on page 14).

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 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)".

Input and Output Requirements

When connecting a reader, the following should be defined:

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

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

Double door controller: (each door has two readers)	Reader1 - door1 IN/OUT Reader2 - door1 OUT/IN Reader3 - door2 IN/OUT Reader4 - door2 OUT/IN
Four door controller: (each door has one reader)	Reader1 - door1 IN/OUT 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 is generated. The panel's Reader G.LED output activates the reader's green LED input when access is granted. The controller activates the LED control for 2 seconds when an access granted event occurs.

4.5 Video Card

The video card has 6 LED indicators, a dipswitch and a reset button as detailed below.

4.5.1. Video Card Indication LED's

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.

4.5.2. Video Card Dipswitch Settings

Next to the LEDs on the left, there are eight Dipswitches, currently only three (3) are used.



Note:

The Dipswitch is in off state when it is set to the right.

These Dipswitches are sampled on board power on reset or after pressing reset button.

- Dipswitch 1: Reserved. Must always be Off.
- Dipswitch 2: Off – Normal Operation. On – Reset setting to default factory settings. Default IP address is 192.168.1.111.
- Dipswitch 3: Off – Camera type is PAL. On – Camera type is NTSC.
- Dipswitch 4: Off – Video stream type is UNICAST. On – Video stream type is MULTICAST.
- Dipswitch 5: Reserved. Must always be Off.
- Dipswitch 6: Reserved. Must always be Off.
- Dipswitch 7: Reserved. Must always be Off.
- Dipswitch 8: Reserved. Must always be Off.



Note:

Dipswitch 3 (PAL/NTSC settings) must conform to the actual camera type connected to the system during video card reset. The video card scans both the Dipswitch and the camera only upon full video board reset.

4.5.3. Video Card Reset Button

On the bottom left side of the video card is a reset button, used to reset the default parameters of the video board.

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 30. 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.

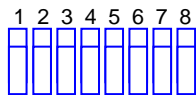



Figure 16: Dipswitch

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	<div><div>Note: Normal usage recommends that the AC-525 panel will be the first panel in the network and connected to it will be other AC-215 or AC-225 panels, it is therefore recommended to set the AC-525 address to 1.</div></div>



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.

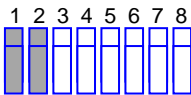


Figure 17: Dipswitch with Baud Rate Setting

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.

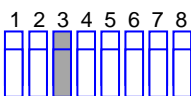


Figure 18: Dipswitch with Single Door Setting

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".

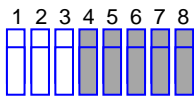


Figure 19: Dipswitch with Internal Network Address Setting



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

AC-525 Hardware Settings

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 AxTrax 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-525 AxTrax 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

RS-485 terminal is used to connect other AC-215 and/or AC-225 panels to the AC-525 panel in an internal serial network.

6.1.1. RS-485 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 RS-485 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 AxTrax software.

Access control panel supports the two-wire RS-485 interface. RS-485 interface enables the distance between the Access control panel and PC to be extended up to 4000 feet (~1300 meters). The data line wiring must be in daisy chain formatting with one control unit following another.

6.1.2. 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.

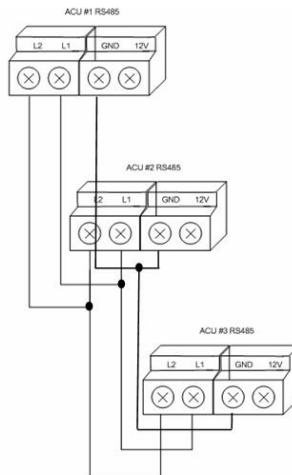


Figure 20: Daisy Chaining



Note:

It is important to connect the Ground between all the connected panels. The purpose of this connection is to have a single reference line.

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

Appendix A. AS-525 Web Server

The AC-525 features a built-in web server accessible using Microsoft Internet Explorer 7 and higher. The web server allows the installer to control basic settings of the video card. In most cases it is not necessary to use the web browser in order to perform such settings. The only exception is updating the video card firmware, which can only be done via the web server.

**Note:**

It is recommended not to change settings from the web browser while the video card is connected to the AS-525AV ViTrax server.

To access the AC-525 Video Server:

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

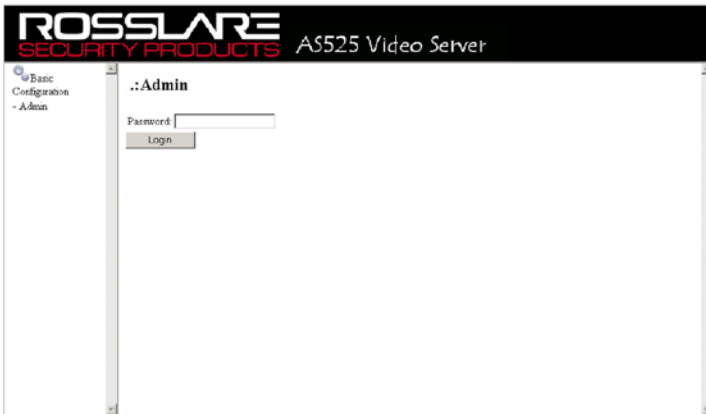


Figure 21: AS525 Video Server Admin Login Screen

2. Type in the default password: admin.
3. Click **Login**. The Admin page appears.

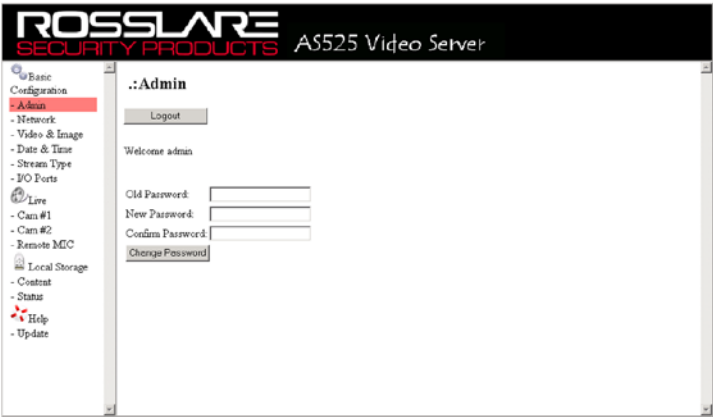


Figure 22: Admin Change Password Screen

- 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.

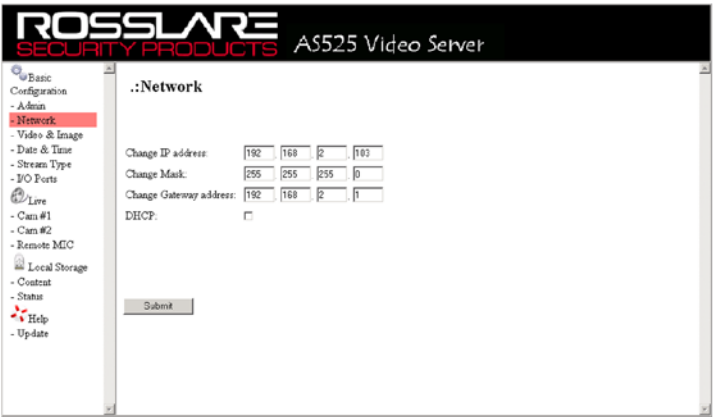


Figure 23: Network Screen

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



Note:

Changing the IP address require that you log in once again using the new IP address set.

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



Figure 24: Video & Image Screen

8. Adjust resolution, source frame rate, target frame rate, and maximum bit rate.
 - **Resolution: (default is D1)**
 - ◆ D1 (720*576), QVGA (320*240), QQVGA (160*120), CIF (352*288), QCIF (176*144)
 - **Source Frame Rate: (default is 25 PAL)**
 - ◆ One camera enabled: 25 PAL, 30 NTSC
 - ◆ Two cameras enabled: 8.3 PAL, 10 NTSC



Note:

The camera type (PAL or NTSC) is hardware selectable by Dipswitch #3 see Video Card Dipswitch Settings, on page 26

- **Target Frame Rate: (default is 25 PAL)**
 - ◆ PAL
 - Using one camera limit the fps to 25
 - Using two cameras limit the fps to 8
 - ◆ NTSC
 - Using one camera limit the fps to 30
 - Using two cameras limit the fps to 10

- **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 and / 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 25: Date & Time Screen

10. Display current Date and Time, Time zone and Daylight Saving, these settings cannot be changed via the web server application.
11. Display the Stream Type, either Unicast or Multicast.



Note:

The stream type Unicast or Multicast is hardware selectable by Dipswitch #4. It must be set to "Unicast" (OFF position) see Video Card Dipswitch Settings, on page 26

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

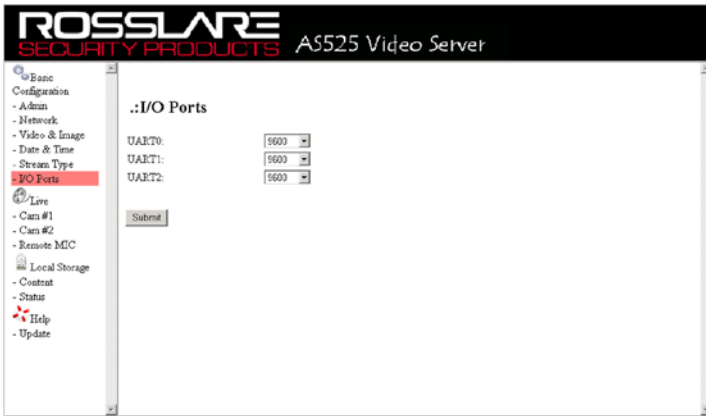


Figure 26: I/O Ports Screen

13. Set the values for UART0, UART1, and UART2.
 - UART0 is an RS485 type serial interface used to send PTZ commands to Camera 1. This is useful only for PTZ (Pan Tilt Zoom) type cameras.
 - UART1 is an RS485 type serial interface used to send PTZ commands to Camera 2. This is useful only for PTZ (Pan Tilt Zoom) type cameras.
 - UART2 is an RS485 type serial interface used as a TCP/IP to Serial interface between the AxTrax access control application and access control panels, the AC-525 panel as well as any other panel that may be connected to the same network. (Should be set like Dipswitch No. 1 and 2, see Figure 17: Dipswitch with Baud Rate Setting, on page 30).

Supported baud rate speeds are:

- | | |
|--------|------------------|
| ◆ 110 | ◆ 9600 (default) |
| ◆ 300 | ◆ 14400 |
| ◆ 600 | ◆ 19200 |
| ◆ 1200 | ◆ 38400 |
| ◆ 2400 | ◆ 57600 |
| ◆ 4800 | ◆ 115200 |

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

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



Figure 27: Camera #1 Screen

15. 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.
16. From the menu on the left side of the screen, click **Cam #2**. The Camera #2 screen appears.



Note:

In order to view the camera's video stream on the web browser, a VLC player is required.



Figure 28: Camera #2 Screen

17. 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.
18. From the menu on the left side of the screen, click **Remote MIC**. The Remote MIC screen appears.

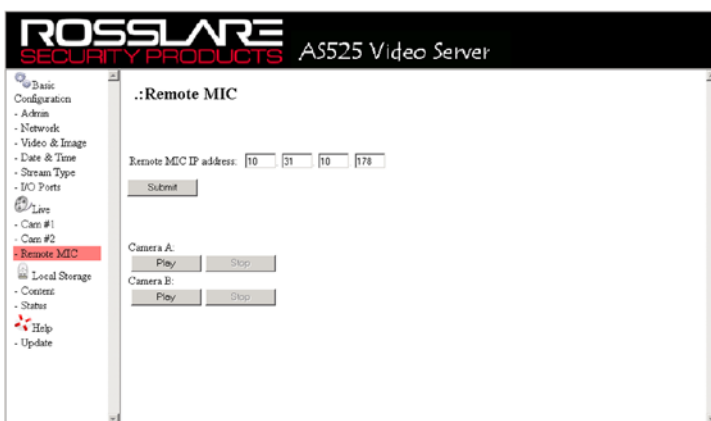


Figure 29: Remote MIC Screen

19. Type in the IP address of the remote microphone.
20. Click **Play** to begin the conversation through the intercom or **Stop** to end the conversation.
Click **Submit** for any adjustments to take effect.
21. From the menu on the left side of the screen, click on **Local Storage Status**. The Local Storage Status screen appears.

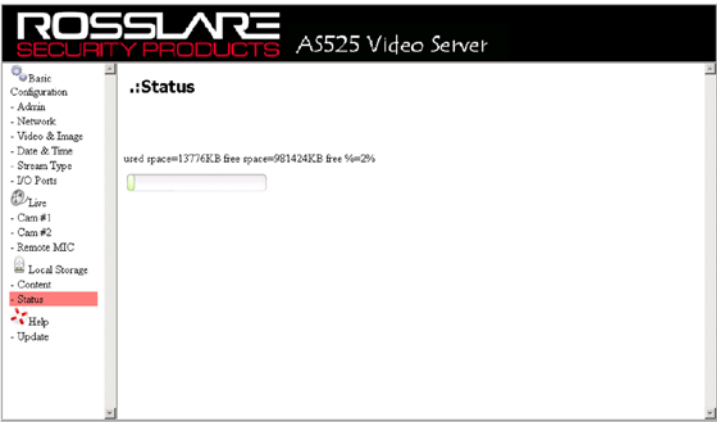


Figure 30: Local Storage Status Screen

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



Figure 31: Local Storage Content Screen

24. 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.

25. 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 32: Update Step 1 Screen

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



Figure 33: Update Step 2 Screen

27. 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.

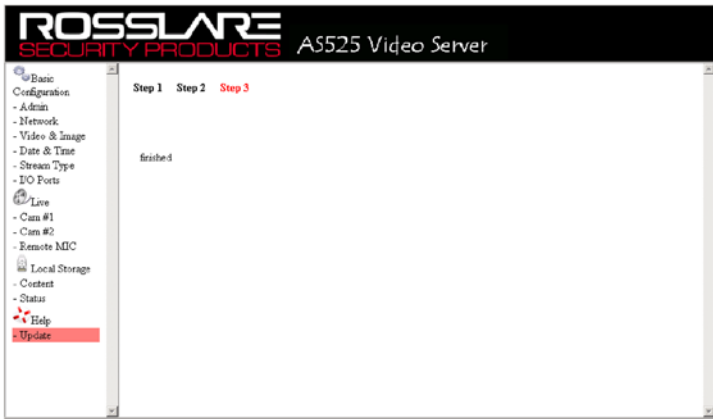


Figure 34: Update Step 3 Screen



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 / OR SUBSIDIARIES (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.

Limited Warranty

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

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

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