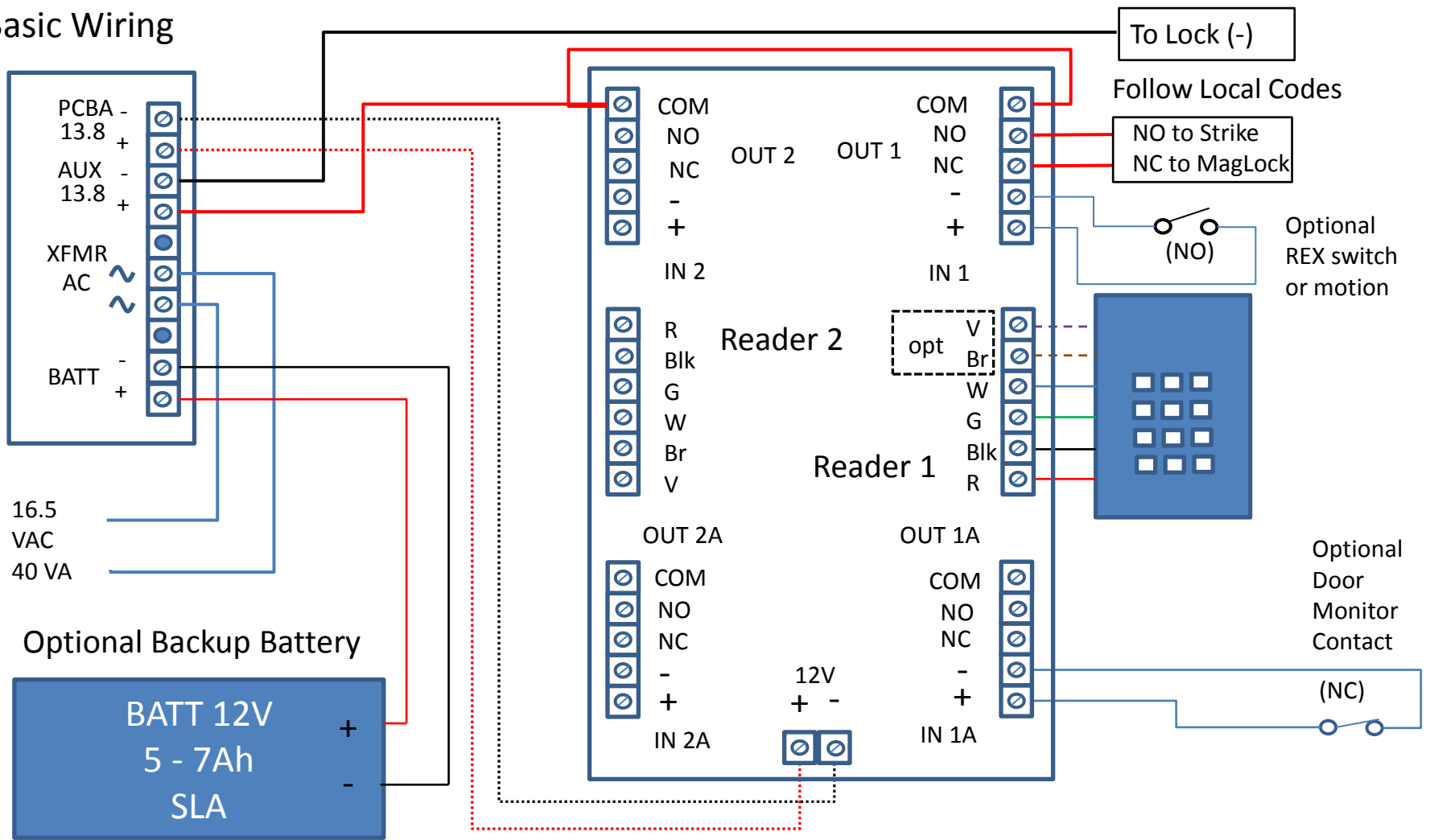


Installing AxtrexNG Hardware

Technical Support Engineering
Rosslare Security NA
For more information please see
www.axtraxng.com

- The wiring shown in the next slide is an example of typical internal wiring for 2 and 4 door panels. It is intended to show the use of the internal power supply for lock power, follow all local codes for lock wiring.
- The power supply on an AC Panel will supply up to 1.5 A at 13.8 VDC for locks, this is typically enough to power 2 maglocks or 4 electric strikes. For larger systems you must supply power externally for the locks.
- There is no Fire alarm input on the Rosslare Access panels, provisions must be made externally for Fire Alarm Door release, as above, follow local code for wiring.

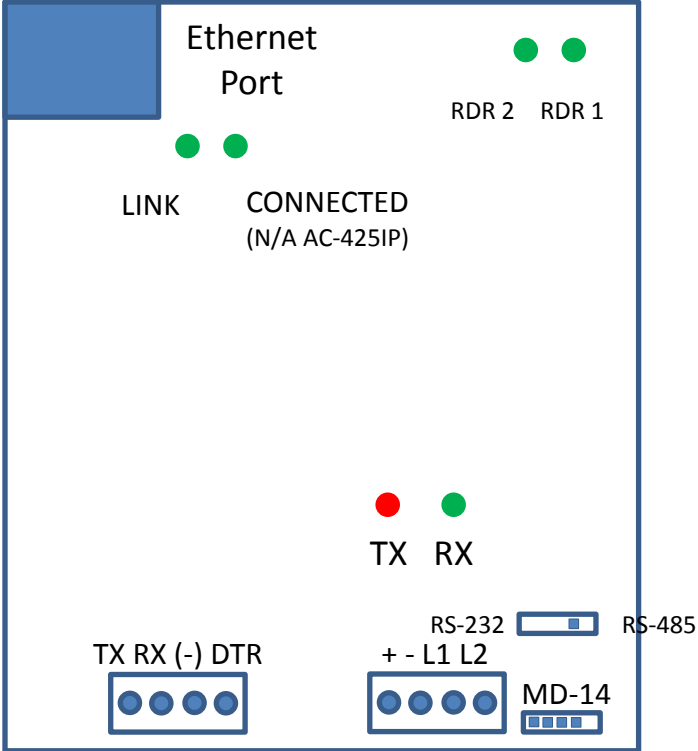
Basic Wiring



- The network interface is a separate module from the access control processor. It communicates with the access controller over the RS485 network on the board. This is why the BAUD rate must be set on the network configuration to match the dipswitches on the board and why you must “find” the panel after creating the network.
- If the RS-232 – RS-485 switch is in the RS-232 position the network interface will not be able to communicate with the access controller, you will not “find” the panel. The only time this switch should be in the RS-232 position is when connecting to the RS-232 terminals, when using an MD14(U) cable it must be in the RS-485 position even though this is referred to as a “serial” connection, it is an RS-485 connection.

Network Connections and Indicators

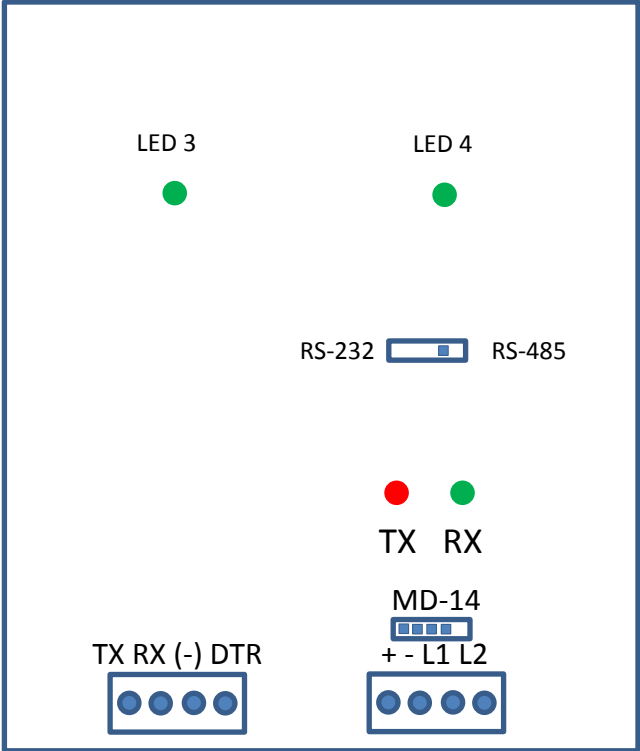
AC-215IP, AC225U/IP



RS-232

RS-485

AC-215U

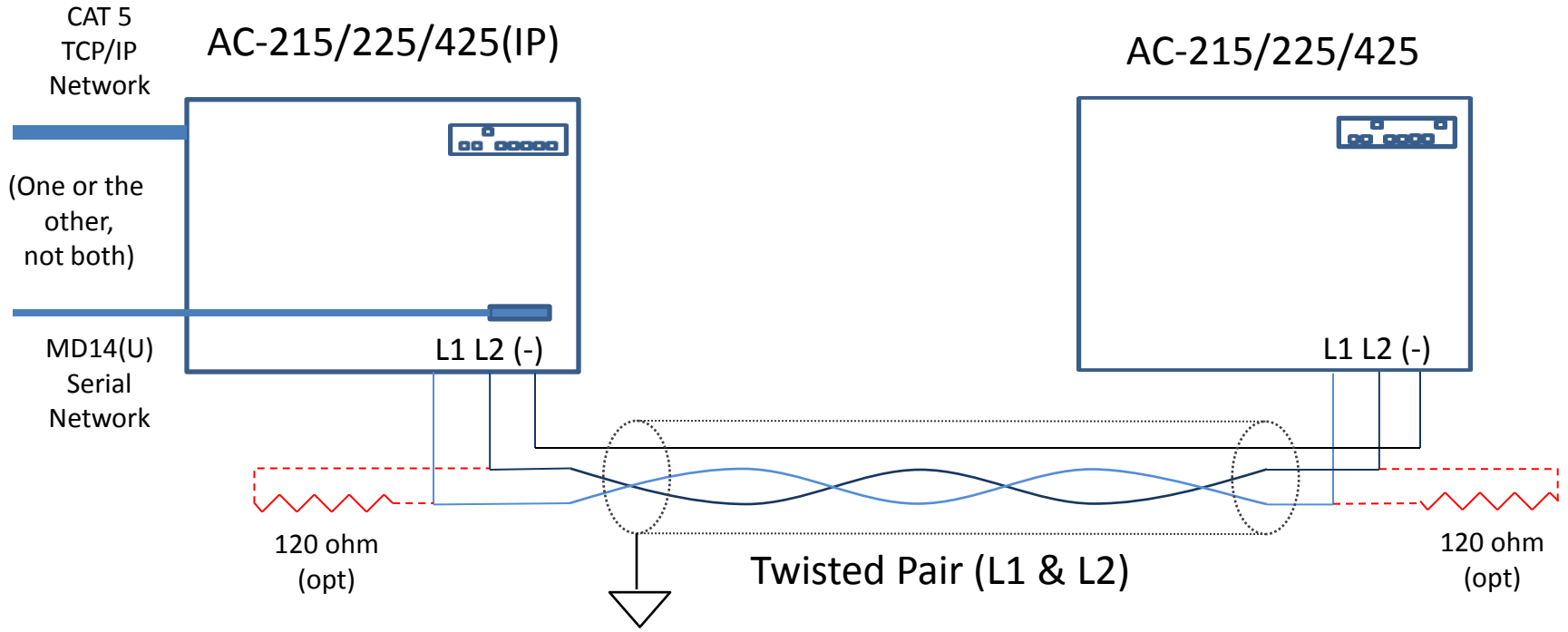


RS-232

RS-485

- This slide shows the detail of the proper wiring for the RS-485 connection between panels.
- Each RS-485 “Network” may contain up to 32 panels. Each panel must have a unique address set on the dip switch.
- The RS-485 network is limited to a total length of 2000’. For reliable operation we advise running the network at 9600 BAUD and installing 120 ohm termination resistors on each end of the network when the total length is over 100’.
- Proper cable is required for reliable operation, you may “get by” with CAT 5 for short runs (less than 10’) but for reliable operation and for technical support in the event of communications problems you must use a cable designed for RS-485 that meets the specs for RS-485, 22-24 gauge shielded twisted pair, 120 ohm impedance. An example of a true RS-485 cable is Belden 3106A Multi-Conductor
<http://www.belden.com/products/industrialcable/eia-485.cfm>
- The RS-485 bus must be daisy chained from one panel to the next, operation in a star or other topologies is not supported. See the diagram on the following slide provided by Texas Instruments. If using the bus with stubs shown in the following diagram, insure the stubs are less than 5’.

RS-485 Wiring

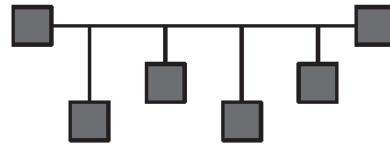


RS-485 Network Topologies (courtesy Texas Instruments)

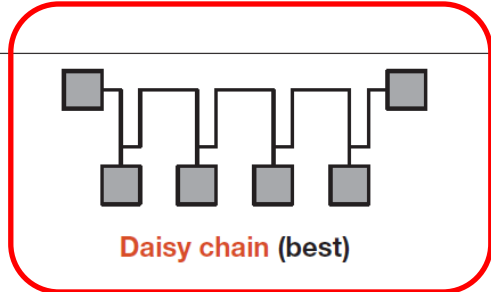
Preferred

→ Network Topology

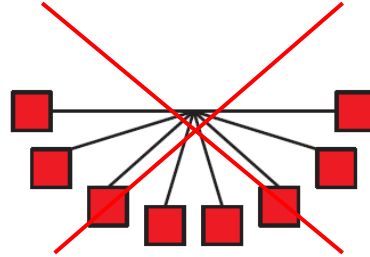
RS-485 suggests its nodes to be networked in a daisy-chain, or bus topology. In this topology, the participating drivers, receivers, and transceivers connect to a main cable trunk via short network stubs. The interface bus can be designed for full-duplex or half-duplex transmission.



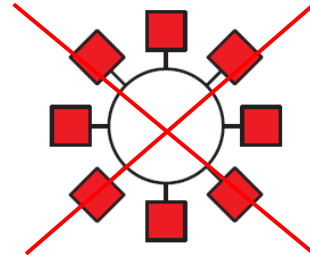
Backbone with stubs (works)



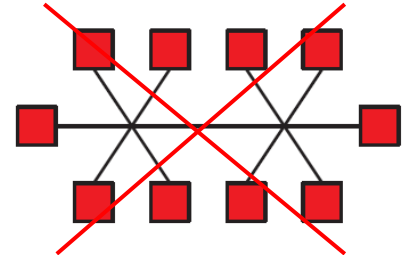
Daisy chain (best)



Star network (avoid)

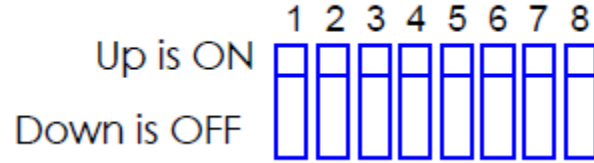


Ring network (avoid)



Backbone with stars or clusters (avoid)

Dipswitch Settings



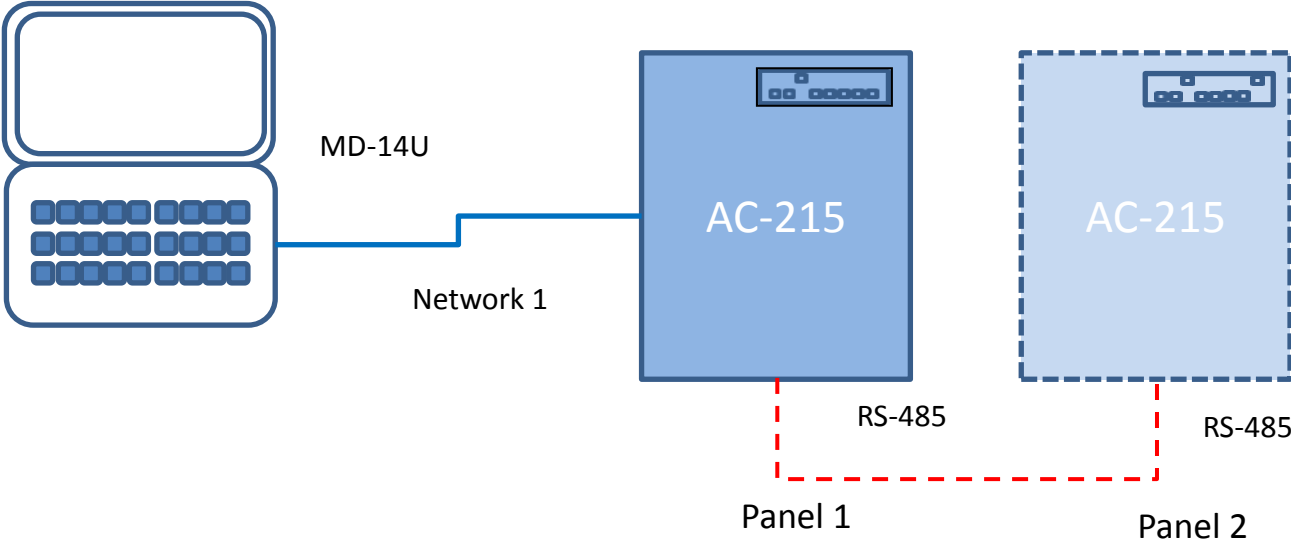
Switch - 1-2 Baud Rate	off off	9600
	off on	19200
	on off	115200
	on on	57600
Switch – 3 Reader/Door	off	2 Reader/1Door
	on	1 Reader/2Door
Switch 4 – 8 Address (binary)	off off off off off	1
	off off off off on	2
	on on on on on	32

- The following slides show sample network configurations.
- The first is a simple serial (RS-485) network shown with the option of expanding by adding a second panel on the RS-485 bus.
- The second shows a simple TCP/IP network using a direct connection from the PC to the panel. This is often used during installation when the customer LAN is not available for use.
- The next slide shows a simple LAN network with an optional expansion utilizing the RS-485 bus with a non IP panel and an optional Client only PC.
- The last slide shows an example of a remotely managed access control panel where the PC is located at a remote site, also shown is an optional expansion via the RS-485 bus with a non IP panel.

Network Configurations

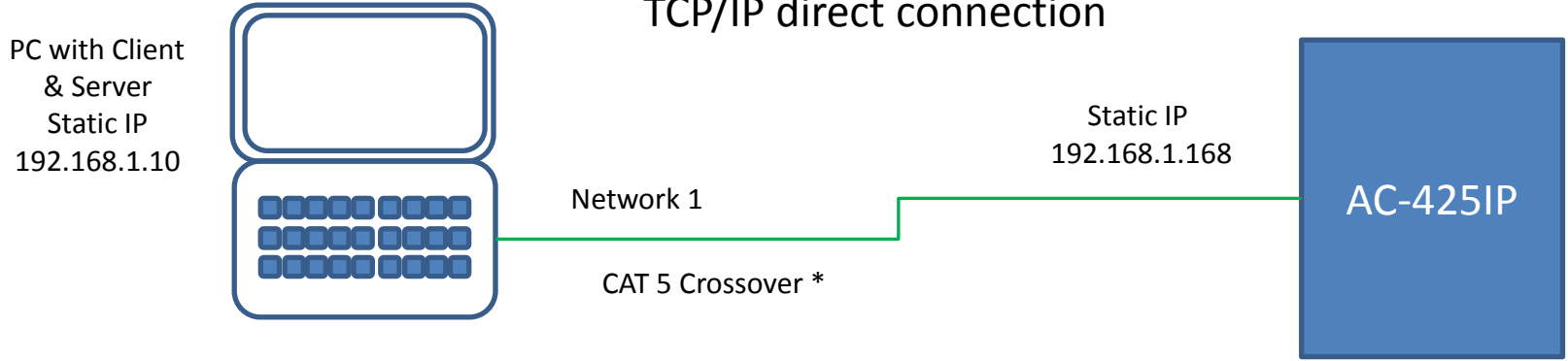
Serial Connection

PC with Client
& Server



Network Configurations

TCP/IP direct connection



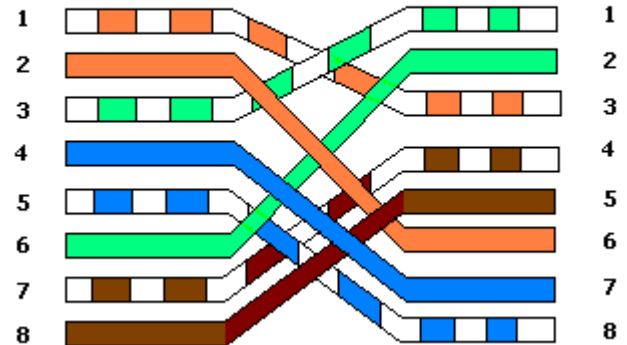
PC Configuration;

In this configuration of the LAN port on the PC must be setup as a static IP since there is no router or LAN to provide an IP address for the PC.

CAT 5 Crossover

A cross over cable is required on most desktop PC's while most newer laptops may be connected with a standard CAT 5 patch cable. Only experimentation will determine if a particular machine does or does not require a crossover cable.

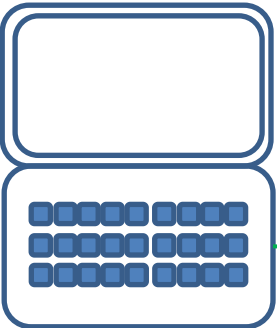
TIA/EIA 568B Crossed Wiring



Network Configurations

TCP/IP (LAN) Network

PC with Client
& Server
(DHCP)

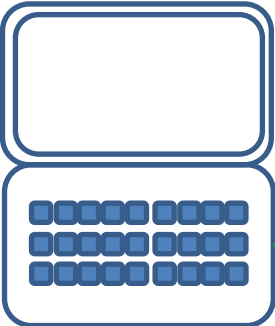


CAT 5

Ethernet Switch/Router
LAN provides DHCP service



OPTIONAL
PC with Client Only
Or Guard Screen
(must be on LAN with Server)

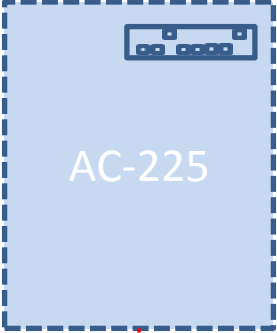


Network 1

Panel 1



Panel 2



RS-485

RS-485



- The next slide shows an example of a remotely managed access control system where the PC with the AxtraxNG software is located at a remote location and the network is connected over the internet.
- The network interface on the panel must be configured locally, this can be done with a laptop using the AxtraxNG software and connecting over the local LAN or by using the direct connect method.
- The IP address, Subnet Mask and local gateway must be configured on the panel for proper operation on the local LAN. For example, if the local subnet is 192.168.1.0 then the IP address of the panel must be configured in the range of 192.168.1.2 – 250 (in my example I used 192.168.1.20) and the local gateway address, usually 192.168.1.1, must be set, the local port by default is 1000, this may be left at the default.
- The router must now be configured to forward port 1000 from the internet or WAN side to the local LAN IP address (192.168.1.20) of the panel. Configuration of the network in AxtraxNG will be covered in the AxtraxNG quick guide.

Local & Remote Network Configuration

