ACTpro-1500 Door Controller

Installation and Operating Instructions

VANDERBILT

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http://van.fyi?Link=ACTpro-1500_2020

ACTpro-1500

Hereby, Vanderbilt International (IRL) Ltd declares that this equipment type is in compliance with the following EU Directives for CE marking:
• Directive 2014/30/EU (Electromagnetic Compatibility Directive)
• Directive 2011/65/EU (Restriction of the use of certain hazardous substances Directive)
The full text of the EU declaration of conformity is available at: http://van.fyi?Link=DoC

Table of Contents

1 Overview

This guide describes the installation of the ACTpro-1500 controller.

The ACTpro-1500 Controller is a single door IP controller that requires an external 12V or 24V power supply.

Capabilities	
Number of Doors	1
Number of Users	60,000 (4 credentials per user)
User Groups	2000
Time Zones	250
Door Groups	1000
Log Events	20,000
Browser Compatibility	Chrome, Firefox Version 8.0 or later, Microsoft Internet Explorer 8 or later

1.1 Ordering information

Controllers	Product Code	Description
ACTpro-1500	V54502-C111-A100	Single door IP controller expandable to 32 doors with ACTpro door stations.
ACTpro-1520	V54502-C110-A100	Controller with integrated 12V 2A DC power supply.
ACTpro-1500PoE	V54502-C112-A100	Single door IP controller with PoE + PSU.
ACTpro-100	V54502-C120-A100	Door station, single door
ACTpro-120	V54502-C122-A100	Door station with integrated 12V 2A DC power supply, single door.
ACTpro-IOM	V54506-B100-A100	IO module (8 inputs and 8 outputs)

1.2 Technical specification

	ACTpro-1500
Voltage Range (Controller)	11–24V DC
Current Consumption (Controller)	350mA (Max)
Controller Dimensions (H x W x D mm)	165 x 236 x 55
Controller Weight (kg)	0.4
Operating Temperature	-10 to +55° C
Operating Environment	Surface mounting Internal use only

	ACTpro-1500
Enclosure Material	ABS
LED Status Indicators	Yes
PSU Fault Output	n/a
Lid Opening Tamper Detection (Front)	Yes
Support OSDP	Yes
Support Wiegand (VI, HID, SmarfID)	Yes
Support Clock and Data	Yes

1.2.1 Relay load

When used with inductive loads (Maglock/Strike locks) the following ratings apply.

	ACTpro-1500
Main relay	1.5A @ 30VDC / 1.5A @ 50VAC
Aux relay	400mA @ 30VDC

2 Installation

The ACTpro-1500 Controllers are for indoor installation only and must be installed as permanently connected equipment.

After installing an ACTpro controller, Vanderbilt recommend that you place the provided ferrite bead (a noise suppression device) around the Ethernet cable near the RJ45 connector to attain a desired level of electromagnetic compatibility (EMC).

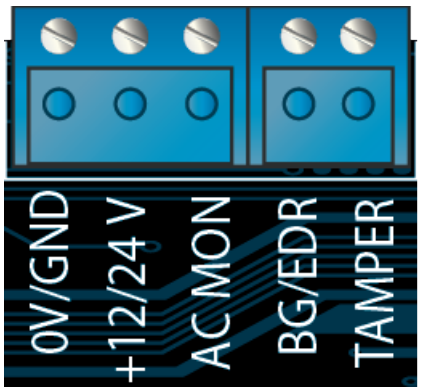
2.1 Mounting

Mount the ACTpro Controller directly on to the wall with the supplied screws.

The unit should be installed in a ventilated area that allows for accessibility after installation.

2.2 Power supply

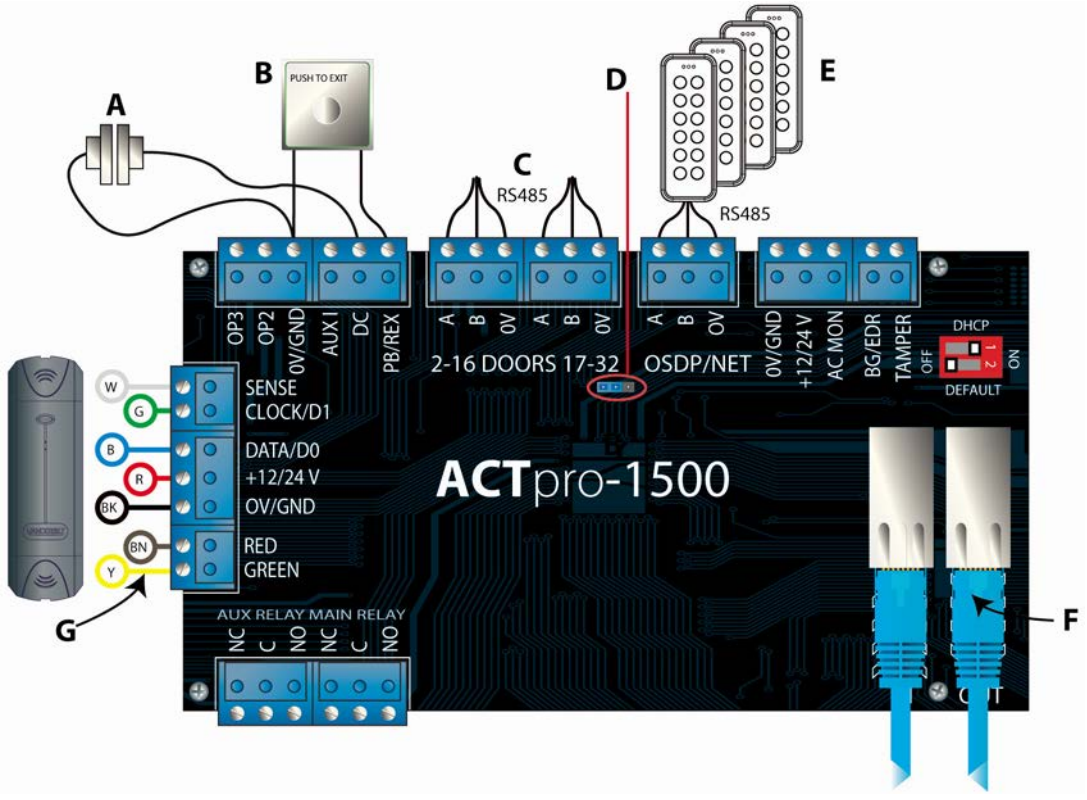
The ACTpro-1500 requires an external 12V DC or 24V DC power supply. The supply should be connected to the +12/24V DC and 0V/GND connections.



3 Wiring

This section describes the following.

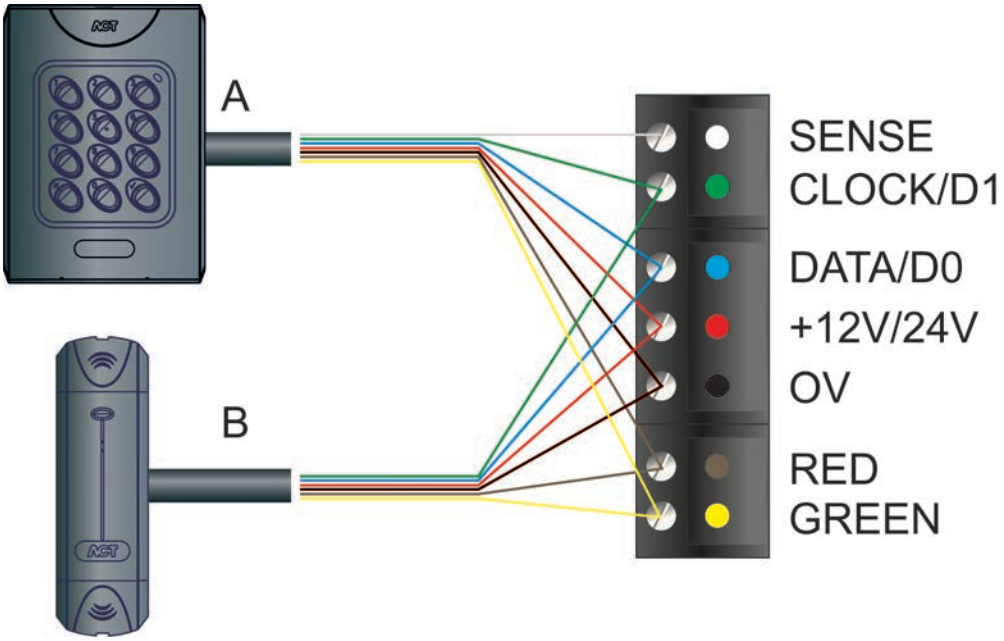
3.1 Typical wiring of the ACTpro-1500 controller



Label	Description
A	Door contact, normally closed
B	Push to exit, normally open
C	Door networks RS485
D	OSDP EOL

Label	Description
E	OSDP/Controller network (Max. 4 OSDP readers
F	Ehternet switch RJ45. **NOTE:** All IP devices must have a valid IP address.
G	Vanderbilt reader wire colour coding (Wiegand / Clock&Data interface).

3.2 Wiring Clock&Data entry and exit readers



For Clock&Data readers, wire exit readers in parallel with entry readers, but leave the sense line unconnected for exit readers.

Max length: 100m with 12V DC

Cable: 8 core screened Belden 9504 (24 AWG) or equivalent.

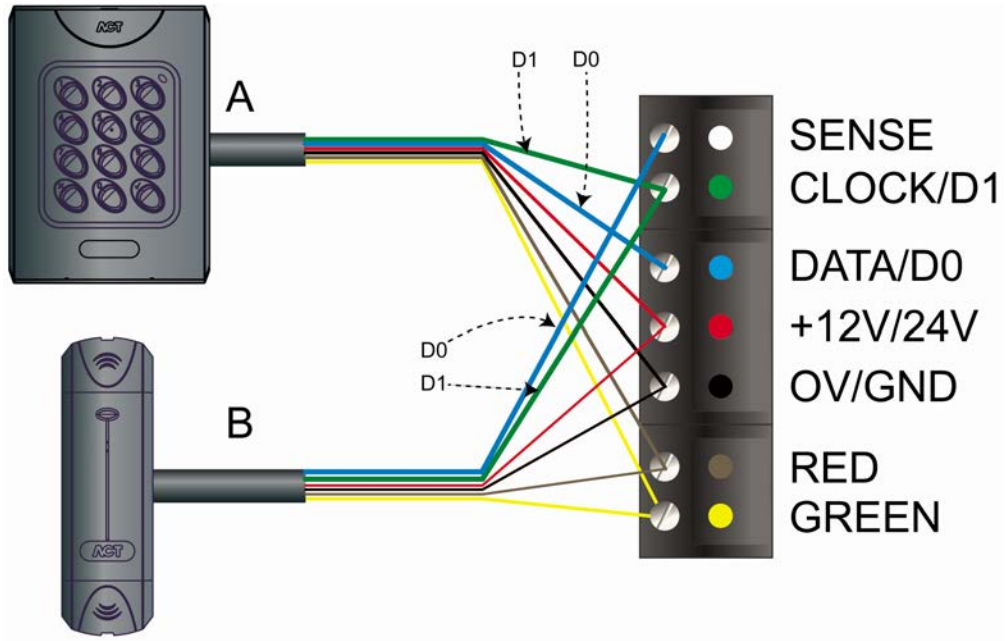
Label	Description
A	Entry reader. ACTpro-1050 PIN and Proximity reader (EM1050, MF1050, EV1050).
B	Exit Reader. ACTpro-1030 Proximity reader (EM1030, MF1030, EV1030).

3.2.0.1 Terminal block wiring

Reader Terminal Block	Recommended Wiring colour	Controller Input PIN	Signal Information
SENSE	White	SENSE	For Entry readers connect the reader SENSE cable or terminal to the SENSE input pin. For Exit readers, do not use this input.
CLOCK/D1	Green	CLOCK/D1	This is the clock or strobe signal input on the ACTpro controller or door stations. Connect the reader CLOCK/D1 cable or terminal on the reader to CLOCK/D1 input pin.
DATA/D0	Blue	DATA/D0	This is the Data input. Connect the reader DATA/D0 cable or terminal on the reader to DATA/D0 input pin.
+12V/24V	Red	+12V/24V	Positive +12V DC Supply voltage for the reader.

Reader Terminal Block	Recommended Wiring colour	Controller Input PIN	Signal Information
0V/GND	Black	0V	0V Supply Voltage for the reader.
RED	Brown	RED	Red LED control output from the ACTpro controller or door stations. Connect the reader brown cable to the terminal marked RED on the controller.
GREEN	Yellow	GREEN	Green LED control output from the ACTpro controller or door stations. Connect the reader green cable or terminal marked GREEN on the ACTpro controller.

3.3 Wiring Wiegand entry and exit readers



Label	Description
A	Entry reader. ACTpro-1050 PIN and Proximity reader (EM1050, MF1050, EV1050).
B	Exit Reader. ACTpro-1030 Proximity reader (EM1030, MF1030, EV1030). Do not connect the reader to the SENSE pin on the controller.

For Wiegand Entry Readers: Wire D0 to the DATA/D0 Pin on the ACTpro controller and D1 to the CLOCK/D1 pin on the ACTpro controller.

For Wiegand Exit readers: Wire the D0 of the exit reader to the SENSE pin on the ACTpro controller and D1 to the CLOCK/D1 pin on the ACTpro controller.

Max length: 100m with 12V DC

Cable: 8 core screened Belden 9504 (24 AWG) or equivalent

3.3.0.1 Terminal block wiring

Reader Terminal Block	Recommended Wiring colour	Controller Input PIN	Signal Information
SENSE	White	SENSE	For Entry readers connect the reader SENSE cable or terminal to the SENSE input pin. For Exit readers, do not use this input.
CLOCK/D1	Green	CLOCK/D1	This is the clock or strobe signal input on the ACTpro 1520/1500.
DATA/D0	Blue	DATA/D0	This is the Data input.
+12V/24V	Red	+12V/24V	Positive +12V DC Supply voltage for the reader.
0V/GND	Black	0V	0V Supply Voltage for the reader.
RED	Brown	RED	Red LED control output from the ACTpro 1520/1500. Connect the reader brown cable to the terminal marked RED on the controller.
GREEN	Yellow	GREEN	Green LED control output from the ACTpro 1520/1500. Connect the reader green cable or terminal marked GREEN on the ACTpro controller.

3.4 Wiring OSDP readers

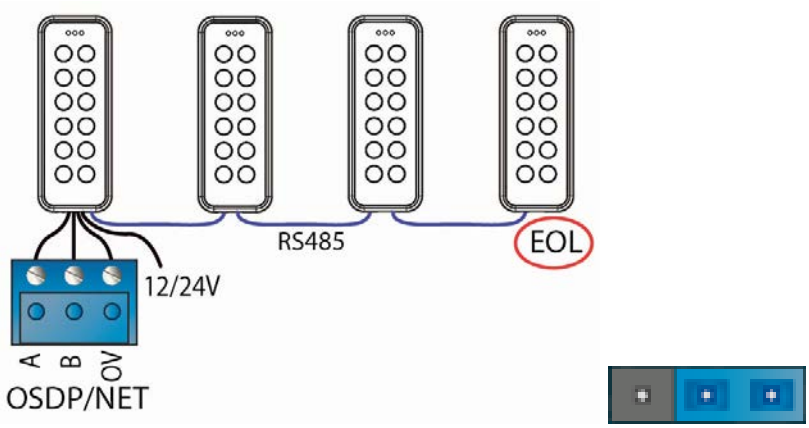
When connecting OSDP readers to the ACTpro-1500 family of controllers, ensure that the EOL jumper is on the last two pins (EOL position) on the last reader only.

Jumper position if controller is in the middle of the OSDP-bus.

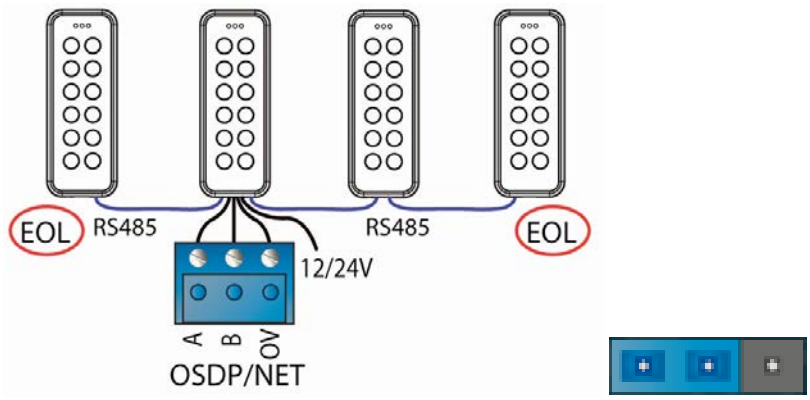
Jumper position if controller is EOL(End Of Line) for the OSDP-bus.

You cannot network ACTpro-1500 controllers via RS485 when OSDP readers are attached. When connecting controllers via RS485, move the jumper to the first two pins (standard operation).

Some examples of connecting OSDP readers:



Example 1



Example 2

The EOL Resistor/Jumper must be ON for the devices at the ends of the bus.

Example 1: EOL ON in the Controller and the fourth Reader. OFF in all other readers.

Example 2: EOL ON in Reader one and four, and EOL OFF in the controller and reader two and three.

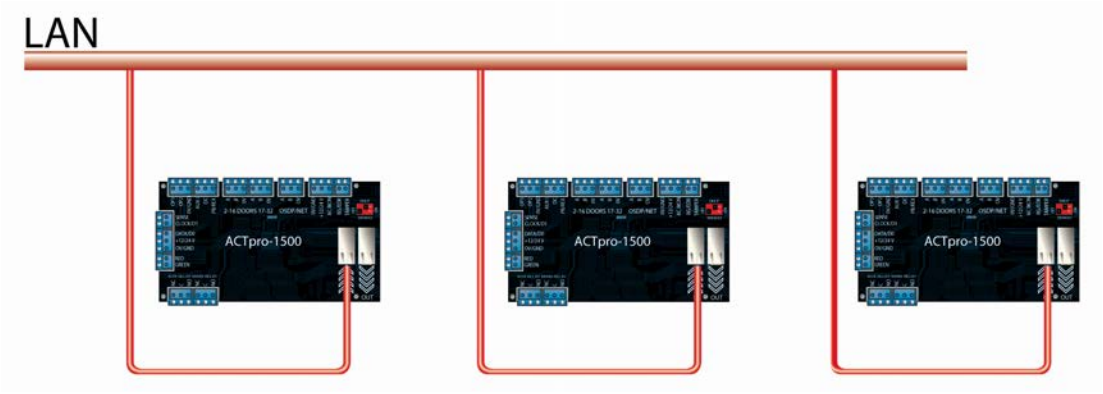
3.5 Wiring controller

Each ACTpro controller can be connected directly to the customer network.

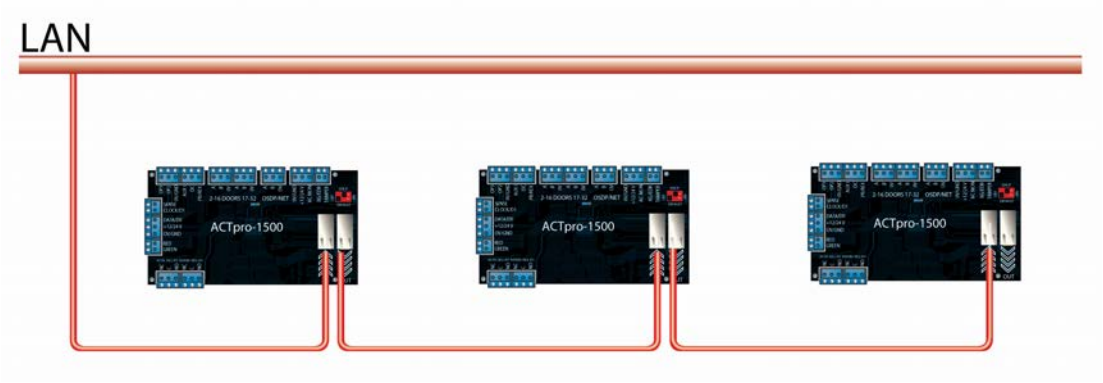
3.5.0.1 Connecting single doors over Ethernet

Connect each controller directly on the customer's LAN.

Each controller must be configured with a unique IP address.



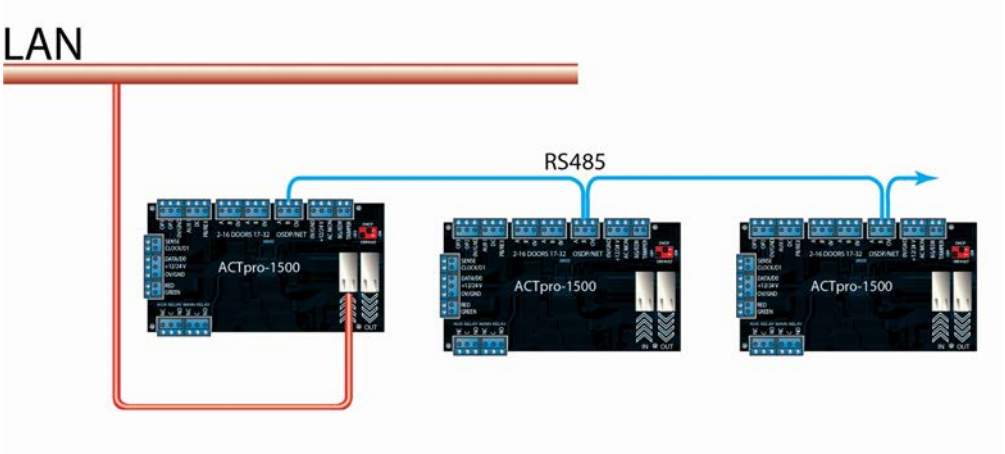
3.5.0.2 Connecting over an IP switch



Connect a controller directly on the Customers LAN and network the remaining controller via the onboard Ethernet switch (maximum 4 controllers).

Each controller must be configured with a unique IP address.

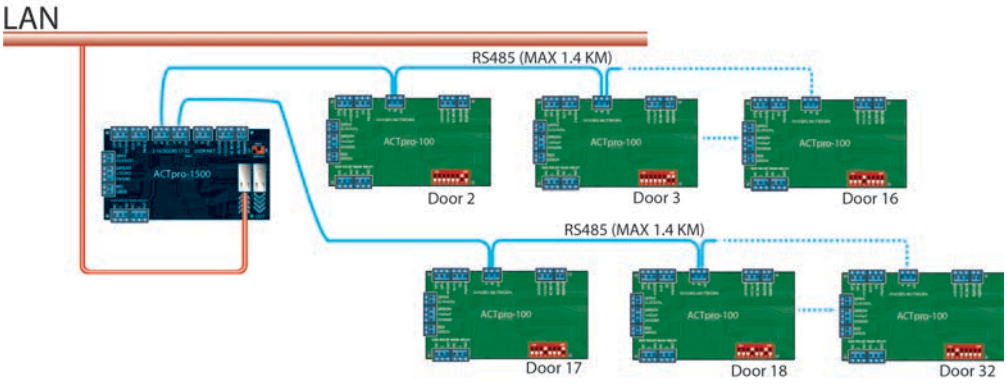
3.5.0.3 Connecting controllers over RS485



Connect a controller directly on the customer's LAN and network the remaining controller via RS485 network (maximum 4 controllers).

The main controller must be configured with a unique IP address.

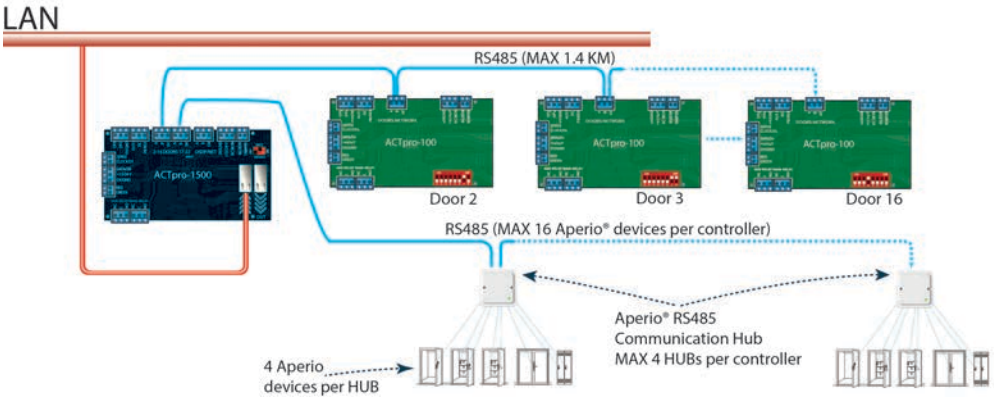
3.5.0.4 Connecting single doors with ACTpro-100s



Door stations (ACTpro-100 or ACTpro-120) can be connected via RS485 network.

Maximum of 15 door stations on network1 and 16 door stations on network 2.

3.5.0.5 Connecting to ACTpro-100 and Aperio locks



Door stations (ACTpro-100 or ACTpro-120) can be connected via RS485 network on doors network 1 and Aperio hubs can be connected via RS485 to doors network 2.

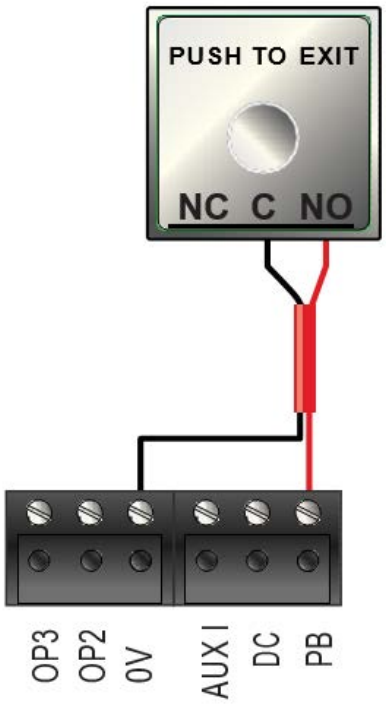
Maximum of 4 hubs and 16 Aperio wireless locks is supported per controller.

From	To	Network Type	Cable Type
LAN	ACTpro controller	TCP/IP	CAT 5/6
ACTpro controller	ACTpro readers	ACT protocol	8 Core screen (Example Belden 9504 (24 AWG) or equivalent)
ACTpro-1500	ACTpro controllers	TCP/IP	Cat 5/6
ACTpro-1500	ACTpro controllers	RS485	Belden 9501 (24 AWG)

3.6 Wiring Push Button (PB)

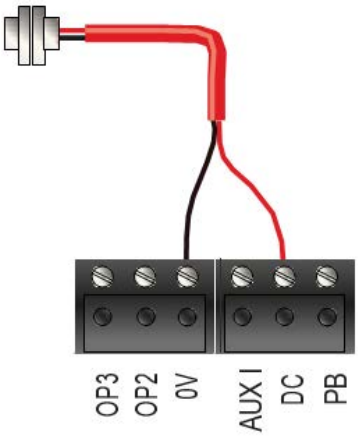
Push button is connected between PB input and 0V. When push button is pressed the main relay is activated for the configured time.

Push button is also referred to as exit button, egress button, request to exit.



3.7 Wiring Door Contact

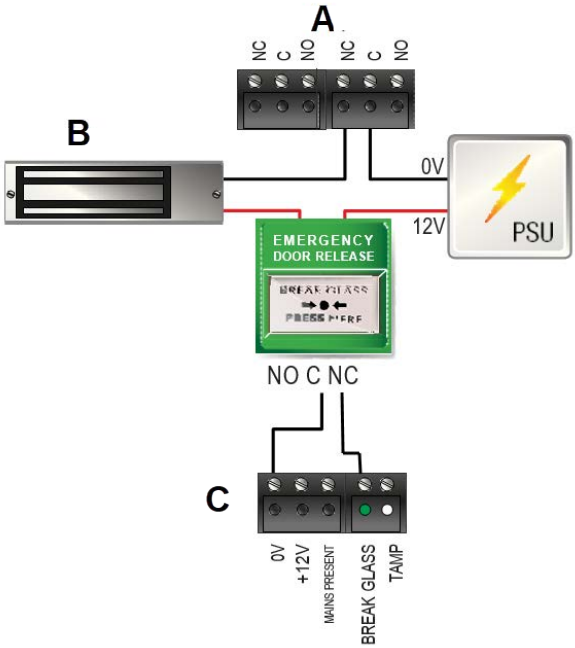
Connect door contact between DC input and 0V.



3.8 Break Glass monitoring only

The break glass monitoring features only monitors the break glass status and does not remove power from the lock. Vanderbilt assumes a double pole break glass unit is used, one pole to disrupt the power to the lock the second pole for monitoring.

When the break glass is not activated the B/GL input pin is held low at 0V. When the break glass device is activated the B/GL input pin will lose the 0V (goes high) and report a break glass event. The lock should be wired such that when the break glass is activated power to the lock is removed.

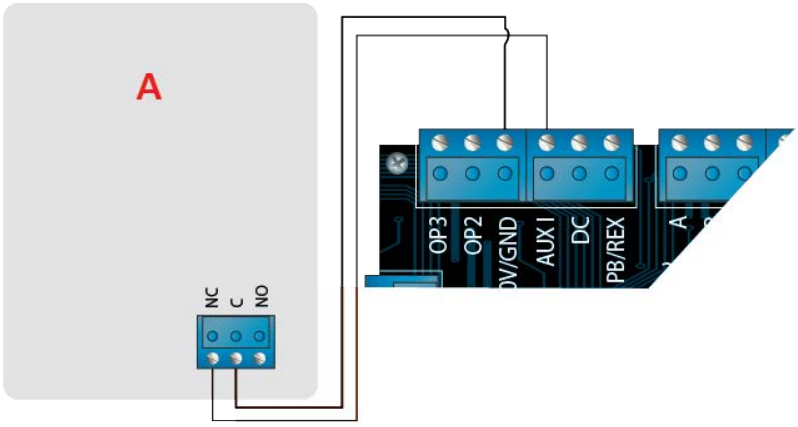


Label	Description	Label	Description
A	Relay	C	Break glass monitoring
B	Magnetic lock		

3.9 Fire override configuration

To release doors on fire alarm activation:

1. In **ACT Manage > Manage > Door Group**, create a new door group that contain all of the doors that should unlock in the event of a fire alarm activation.
2. Assign the new door group to **Settings > Doors > Fire Override Doors** in the drop-down list.
3. Wire the fire alarm panel (A) to the ACTpro-1500 as shown below.
   NOTE: The fire panel must be connected to all controllers:



While the 0V signal is maintained at the AUX input on Door 1 of each controller, the doors in the **Fire Doors** group continue normal operation.

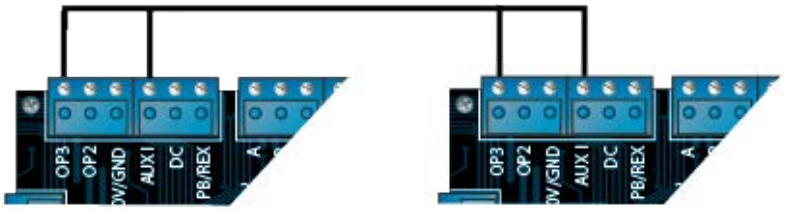
When the 0V signal is removed from any controller, the doors in the Fire Doors group on that controller are unlocked. The fire doors remain unlocked until the 0V signal is restored.

3.10 Interlock/airlock configuration

To allow only one door to open at a time:

1. Wire the interlock doors.

   Link OP3 and AUX I for each new door. For example, the following diagram shows how to interlock two doors: when the first door is open, the second door is locked, and vice versa.



   To interlock additional doors, continue linking OP3 and AUX I for each new door.

2. In ACT Install, for each interlock door, click **Advanced Setup > Doors > <*Door name*> > Operations**, select the **Interlock** check box, then click **Save**.

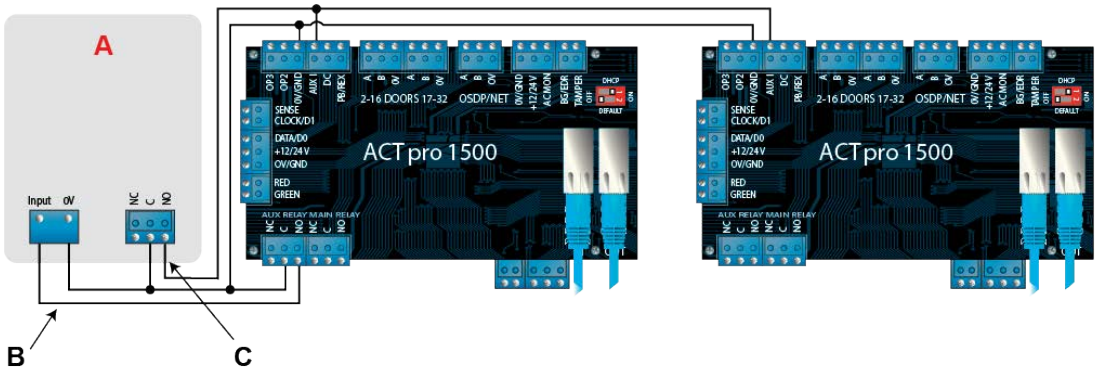
When **Interlock** is enabled on a door, the door is locked when the AUX input is active.

When the door is open, OP3 is active and pulls Aux I low (0V) on all interlock doors.

3.11 Intruder panel wiring

To arm/disarm an intruder panel:

1. Wire the intruder alarm panel to the ACTpro-1500 as shown:



A	Intruder alarm panel
B	Connect the AUX Relay output from the controller to arm input on alarm panel. The AUX Relay can be set to pulse or toggle. Toggle by programming the AUX Relay time to zero.
C	(Optional) Connect a signal from the alarm panel to indicate armed or disarmed status. If 0V is connected to AUX Input, the panel is armed.

2. Wire the door from which the system will be armed/disarmed.
3. Program the ACTpro controller:
   a. In ACT Install, click **Advanced Setup > Doors > <*Door name*> > AUX Relay**, select the **Arm Intruder Panel** check box, then click **Save**.
   b. If the alarm panel provides a signal to indicate its armed/disarmed status, then in ACT Install click **Advanced Setup > Doors > <door#> > Operations**, select the **Intruder Panel** check box, then click **Save**.
   c. In ACT Manage, for each user that will be allowed to arm and disarm the panel, click **Manage > Users > <*User name*> > Options**, select the **Arm/Disarm** check box, then click **Save**.

      Note: Make sure the user is enabled.
4. To arm the system, a user with arm/disarm rights should press the tick key on the keypad then present their card. Once the intruder panel is armed (as monitored by the AUX I PIN), the Door will lock.
5. To disarm the system, a user with arm/disarm rights should press the tick key on the keypad then present their card.

If multiple doors should lock when the intruder panel is armed then each door must monitor the alarm status.

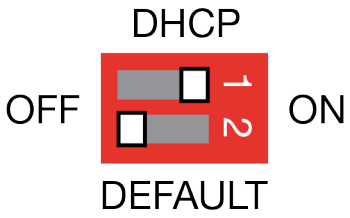
If the intruder panel is not being monitored then only the door that is wired to control the intruder panel will lock.

4 Defaulting the controller and configuring the IP address

This section describes the following.

4.1 Defaulting the Controller and IP Address Configuration

The ACTpro-1500 has two DIP switches.



- DIP switch 1: DHCP

  Enables DHCP or Static IP address mode.

- DIP switch 2: DEFAULT

  Defaults the controller or the Static IP address.

4.1.1 Factory default the Controller (DIP switch 2)

The ACTpro Controller may be defaulted to factory settings. This will completely erase the controller memory. All information including card details will be erased and the static IP address will be reset to 192.168.1.60.

To default the ACTpro Controller:

1. Power down the ACTpro Controller.
2. Set the **DEFAULT** DIP switch 2 to **ON**.
3. Hold down the Tamper spring.
4. Apply power to the ACTpro Controller.
5. Wait approximately 5 seconds, until the controller confirms default completed by sounding the buzzer.
6. Release the Tamper.
7. Power down the ACTpro Controller.
8. Set the **DEFAULT** DIP switch to **OFF**.
9. Re-apply power.

4.1.2 DHCP/static IP addressing (DIP switch 1)

The ACTpro Controller is shipped with the DHCP enabled and can be configured to obtain an IP address from a DHCP server or use a static IP address.

1. Power down the ACTpro Controller.
2. Set the DIP switch to its new position.
   a. DHCP IP addressing: Move DIP switch 1 to **ON**
   b. Static IP addressing: Move DIP switch 1 to **OFF**

   Note: Default static IP address is **192.168.1.60**.
3. Re-apply power to the board.

4.1.3 Defaulting the static IP address

The static IP address can be reset to the default value of 192.168.1.60.

1. Power down the ACTpro Controller.

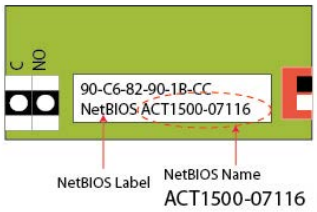
Ensure nothing is connected to the tamper input terminal and the tamper spring is not pressed, otherwise the following steps will factory default the controller losing all information.

2. Set the DHCP DIP switch 1 to **OFF**.
3. Set the DEFAULT DIP switch 2 to **ON**.
4. Re-apply power.
5. Wait approximately 5 seconds, until the controller confirms default completed by sounding the buzzer.
6. Remove power.
7. Set the DEFAULT DIP switch 2 to **OFF**.
8. Re-apply power.

   Note: The static IP address can be changed via the web interface or using ACT Software.

4.1.4 Changing static IP address on the ACTpro Controller

1. Connect ACTpro Controller to the IP network.
2. Open a web browser on a PC (for example, Microsoft Internet Explorer, Google Chrome, etc.).
3. Enter http://<NetBIOS address>, e.g. http://ACT1500-07116



4. Logon details:

   Username: *installer*

   Password: *999999*

5. Choose Communication menu and set the following:
   - **Static IP Address**
   - **Network Mask**
   - **Default Gateway**
6. Press **Save**.

   Note: Use the new IP address when connecting to the controller.

Controller Address	1
Static IP	192.168.1.60
Network Mask	255.255.255.0
Default Gateway	192.168.1.254
MAC Address	90:c6:82:90:1b:cc
NetBIOS Name	ACT1500-07116
TCP Port Num 1	10001
TCP Port Num 2	10003
DHCP Enabled	Enabled
DHCP Address	172.27.1.82

5 Configuring a lock with a deadbolt

This section describes the following.

5.1 Configure a lock with a deadbolt

ACT Enterprise 2.11 and later supports the operation and monitoring of door locks with deadbolts. The system can be configured so that deadbolts are withdrawn on an access/exit granted event, and are optionally held withdrawn for a specified timezone. Deadbolt position can be monitored, and OP2/OP3 used to trigger, for example, an alarm if the door is held ajar, or the deadbolt is unexpectedly unsecured.

- Locks with deadbolts are supported on the ACTpro-1500 family of controllers, and the ACTpro-100 family of door stations.
- Supported firmware versions:
  - v1.09.03 or later on ACTpro-1500 family controllers
  - v1.26 or later on ACTpro-100 door stations

This guide is written for installers who will install deadbolt locks on a customer site and configure the locks to work with the customer installation of ACTpro-1500 Door Controller. Detailed instructions are provided for the wiring and configuration of the following lock types:

- ASSA ABLOY Hi-O door control unit (e.g. DAC-564)
- ASSA ABLOY monitored deadbolt lock (e.g. EL573)

Other lock types are supported similarly. Refer to the manufacturer documentation for hardware and wiring specifications to establish the appropriate connections.

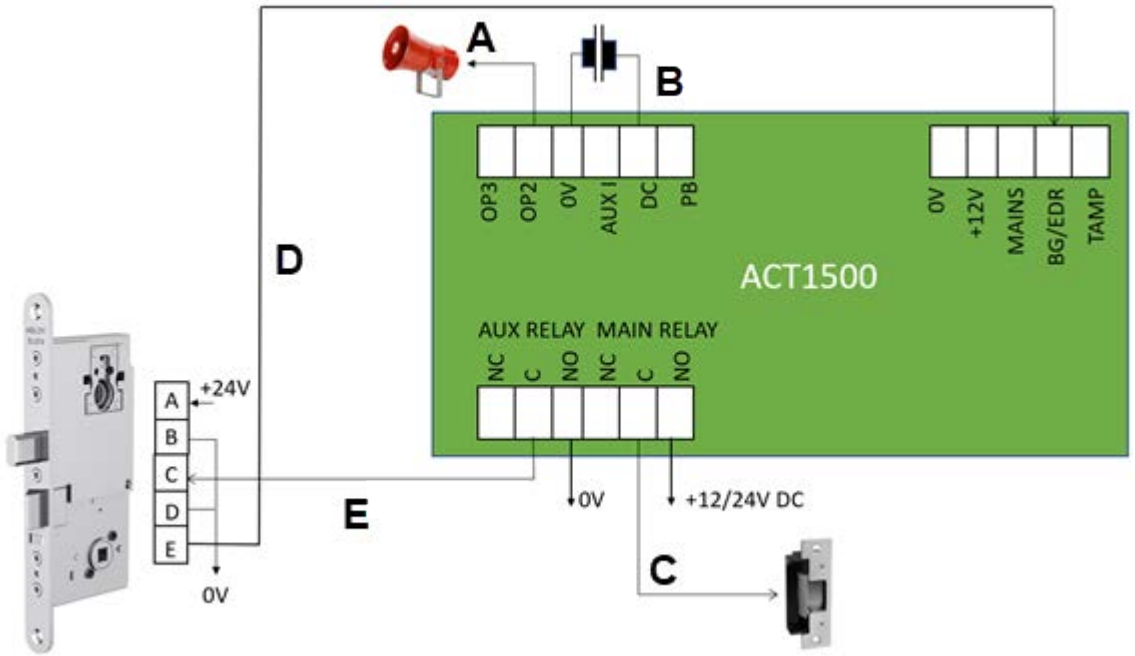
5.1.1 Prerequisites

- Verify that the ACT controller supports deadbolt functionality. To do this, in ACT Install, click **Advanced Setup > Controllers/Hub Groups**, click the controller name, then click the **Capabilities** tab. **Supports deadbolt** should have a value of **True**.
- The ACT controller/door station must be installed and wired as follows:

ACTpro 1500 connection	ACTpro 100 connection	Connected to	
		ASSA ABLOY Hi-O door control unit (e.g. DAC-564)	ASSA ABLOY monitored deadbolt lock (e.g. EL573)
BG/EDR	B/GL	REL-1 NO (To detect if the deadbolt is extended or retracted.)	E (Low when bolt out, secured.)

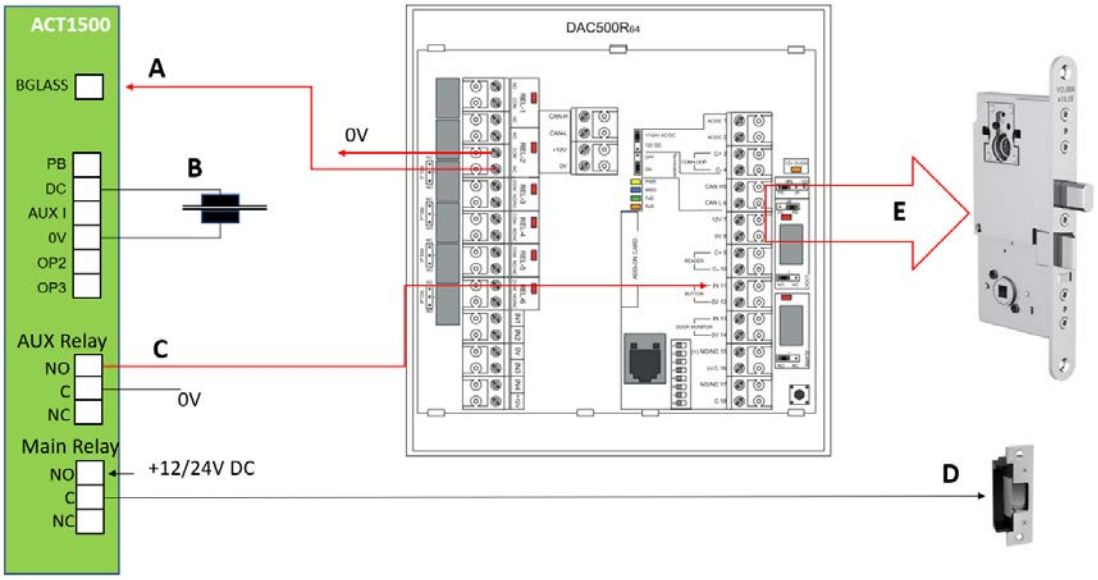
ACTpro 1500 connection	ACTpro 100 connection	Connected to	
		ASSA ABLOY Hi-O door control unit (e.g. DAC-564)	ASSA ABLOY monitored deadbolt lock (e.g. EL573)
AUX RELAY **Note:** This relay will fire on an access/exit granted event.	AUX RELAY **Note:** This relay will fire on an access/exit granted event.	BUTTON IN (To trigger the deadbolt.)	C - Deadbolt lock (0V applied retracts deadbolt.)
MAIN RELAY	MAIN RELAY	Door strike (To control the latch.)	Door strike (To control the latch.)
OP2 OP3	OP2 OP3	(**Optional**) Connect to an external device that should be triggered if there is a deadbolt problem such as door ajar, door forced or deadbolt unsecured.	

Wiring diagrams for connecting an ASSA ABLOY monitored deadbolt lock and an ASSA ABLOY Hi-O control unit to an ACTpro-1500 controller are shown below for illustrative purposes. Other lock types are supported similarly. Refer to the manufacturer documentation for hardware and wiring specifications to establish the appropriate connections.



ASSA ABLOY monitored deadbolt lock wiring to ACTpro-1500

A	Alarm (optional)	**D**	Monitor deadbolt position
B	Door contact (optional)	**E**	Trigger the deadbolt
C	Door strike (controls latch)		



ASSA ABLOY Hi-O deadbolt lock wiring to ACTpro-1500

A	Monitor deadbolt position	**D**	Door strike (controls latch)
B	Door contact (optional)	**E**	Connect Hi-O lock to terminals 5, 6, 7 and 8
C	Trigger the deadbolt		

- The ACT controller/door station should already be installed and configured in ACT Install.

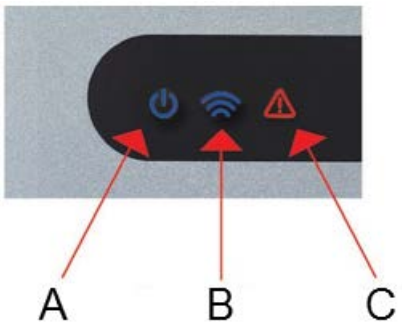
5.1.2 Operation notes

- In the event of a fire, both the main relay and the aux relay fire until the fire condition is cleared. If the system is wired as recommended, both the deadbolt and the door strike are energised while the fire condition is active, allowing free access through the door.

6 Status Indicators

6.1 ACTpro-1500

Status indicators appear on the front of the ACTpro-1500 Door Controller.



The meaning of each indicator is described below.

(A) Power / System Running

This indicates that the ACTpro controller has power.

(B) Communications

Constant illumination indicates that all enabled door stations are online.

Flashing indicates that one or more door stations are offline.

(C) Fault

Illuminates to indicate a fault on the system.

Possible causes are:

- Tamper open: ACTpro controller housing is not closed.
- Break Glass: ACTpro controllers provide a method to monitor an Emergency break glass switch via the B/GL input. The Fault LED illuminates if the Emergency break glass switch is activated.
- ACFault: ACTpro-1500 controller accept an AC present signal from a PSU . This is wired into the AC MON input on the PCB. When the PSU has no AC supply the fault is active.
- Door Station offline: When one or more enabled door stations are not communicating with the ACTpro controller the Fault LED illuminates and the appropriate network green LED on the PCB flashes.
- Low Supply Voltage: When voltage to the +12V/24V terminal is less than +9V.
- Fuse Blown: The +12V output on the READER terminals is current limited to provide short circuit protection. The Fault LED illuminates if too much current is drawn from this connection.

7 Troubleshooting

7.1 Unknown card

The card has not been assigned on the system.

7.2 Access denied

Ensure that the user is enabled and that they have the appropriate access rights.

7.3 Cannot connect to ACTpro-1500 controller

On the controller PCB ensure that the green LINK LED on the Ethernet jack is active. If the LED is is inactive, check that the network point is connected to a switch.

- Ensure that the IP address is set correctly.
- Ping the controller using the following settings:
  - NetBIOS name, for example: `ping act1500-07116`
  - IP address for example: `ping 192.168.1.60`

Data and design subject to change without notice.

Supply subject to availability.

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