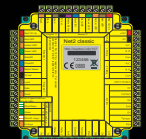




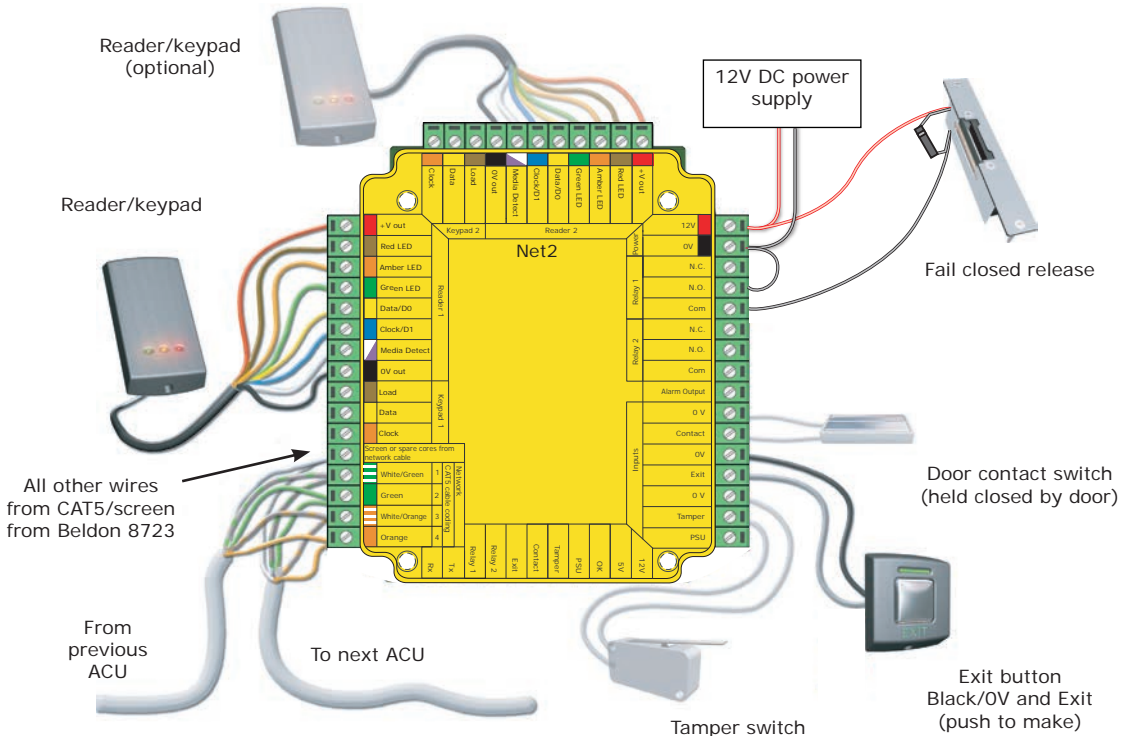
Ins-40000-US Net2 classic control unit - UL



Technical help is available: Monday - Friday from 02:00 AM - 8:00 PM (EST)

Documentation on all Paxton products can be found on our web site - <http://www.paxton-access.com/>

If power is provided via a separate supply, a UL Listed Access Control (or Burglar Alarm), Class 2, Power-Limited, power source capable of 4 hours standby must be employed.



For a fail open lock (Maglock), wire 0V to the "N.C." terminal instead of "N.O."

BEFORE CONNECTING THE READER.

Keypad 1 and Keypad 2 inputs are only used for 5v keypads as per list below.

600-628 TOUCHLOCK membrane keypad and 485-374 TOUCHLOCK keypad stainless steel (not evaluated by UL)

K series keypads are wired to Reader port 1 or 2 as required.

RS485 dataline

90% of installation faults are caused by wiring errors on the RS485 data line.

Special attention to this area can save time and effort.

End of Line Termination.

- These must be wired across each data pair at the beginning AND end of the data line.
- Resistor rating must be 120 ohm.

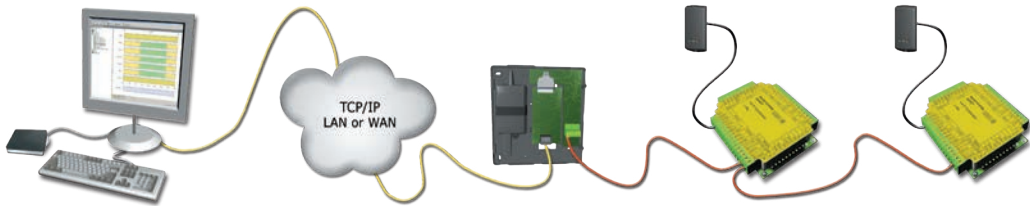
Reader & Data Cable Screens.

- Data cable screens and spare cores **MUST** be connected throughout.
- Reader and keypad screens where provided, should be connected to the Black 0V terminal.

The ACU's will continue to operate in a 'standalone' mode if the PC is shut down or the dataline is disconnected. Any Events that occur during this period are stored in the ACU and the PC is updated when it comes back on line.

The PC must be running for any 'server based' functions to operate. (Antipassback, Time and Attendance, etc).

The data line must be wired in a single daisy chain. The data converter may be located anywhere along the data line. 120 ohm terminating resistors must be linked across each data pair at the beginning AND end of the line. This can be done on many units with a switch or jumpers. If not, free resistors are provided with the converter. The example below requires terminating at the RS232 converter and also the final ACU.



RS485 data line resistance check

- Power down all TCP/IP, USB and RS232 converters (individual and Net2 plus).
- Check the resistance across each data pair is 60-80 ohms.
- Check that there are no data line to screen shorts.
- Check the screen of the data cable is continuous - this provides the 0V DC system reference.

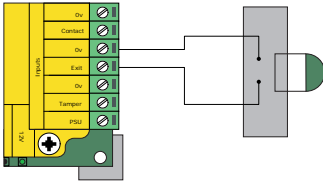
INPUT / OUTPUT WIRING

Exit button

Where fitted, a 'push to make' button is required.
(See Specification table for ratings)

The Exit LED will be ON when the switch is closed. - Button Pushed.

When the Exit terminal is shorted to 0V, the Exit LED will illuminate and the ACU will operate Relay 1. The reader/exit button Green LED will flash during this period. More than one exit button can be wired in parallel. Relay 1 will remain transferred while the short to 0V remains.

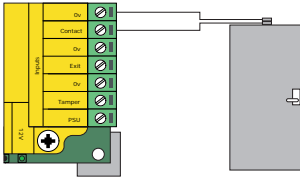


Door Contact

A NO switch may be fitted so that it is held closed while the door is shut.

The Contact LED will be ON when the switch is closed. - Door Closed.

When connected, Net2 will check the door position during access activity and will raise an Alarm in the event of a 'Door Forced' or 'Door left open' condition.

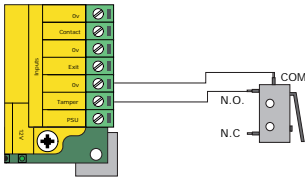


Tamper switch

The ACU supplied in a plastic housing has a NO Tamper switch fitted and pre-wired into the circuit board.

A control unit purchased as a circuit board requires a tamper switch fitted to the case. The switch is wired as per the diagram and must be UL Listed.

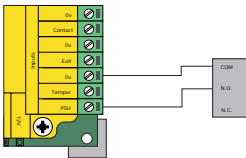
The Tamper LED will be ON when the switch is closed. Net2 will monitor the switch position and will raise an Alarm in the event of a 'Tamper' condition.



PSU monitoring

The PSU LED will be ON when the NO Relay contacts are closed. - Power OK.

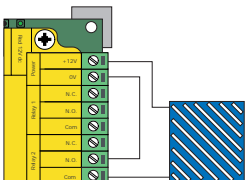
The Net2 software will monitor the relay contacts and will raise an Alarm in the event of a 'Power Fail' condition.



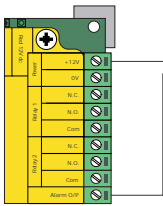
Door Bell - Relay 2

Pressing the bell button on the keypad will result in Relay 2 being energized for 1 second. A bell sounder can be controlled by wiring one of the bell feeds across COM / NO on the relay.

See Specification table for Output Ratings



All interconnecting devices must be UL Listed.

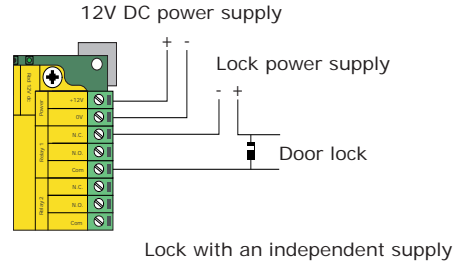
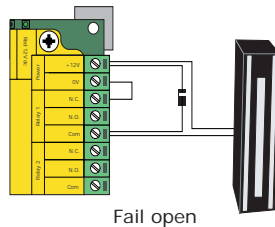
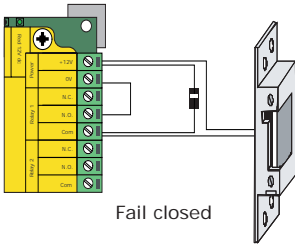


Alarm sounder

This local alarm has a transistor 'open drain' output, (not a dry contact relay) and will switch 1A at 12V DC for a bell, light etc.

This local output can be turned on or off for each type of alarm and can be configured to sound continuously or intermittently to distinguish between different alarm types.

Lock Wiring - Relay output

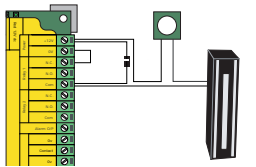


This is a ONE door controller using a dry contact relay.

The lock is wired across 12V and COM. A link (0V to NO or NC) is required, depending on lock type (Fail Closed / Open). Fit the supplied diode across 12V and COM (Silver end to 12V) to protect the relay contacts.

The dry relay contacts can be used to switch the power from an independent lock power supply. Wire the 0V to NC or NO and the lock to COM; the +VCC supply is wired directly to the lock.

Panic hardware

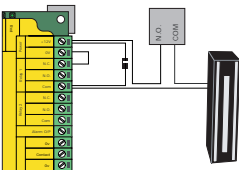


Break Glass fitted

A break glass should be fitted, in conjunction with a fail open release to ensure a reliable egress method in the event of an emergency. This is fitted on the 12V supply wire to the lock and drops the power ensuring that the lock opens.

The diagram shows how to include the break glass in the Net2 lock wiring circuit.

Fire Door Interface



External Fire Door relay fitted

A fire alarm system must be used to release all fire doors. External relay contacts are held closed by the fire alarm's interface and will be dropped during an alarm condition. The system is fail safe as the door will release even if the cable burns through.

Mounting

The ACU shall be installed within the protected premises as both the power and lock wiring is present at the PCB. A Tamper alarm input is provided on the PCB - See Input/Output Wiring

The ACU is supported on mounting posts located at the corners.

If the unit is supplied in a plastic housing, this housing should be fixed to the surface with suitable fasteners; screws and wall plugs are provided for this in the fitting kit. Also provided are cable ties to secure the cabling and two smaller screws for the lid.

Altronix - AL300ULX (2.5A / 12V DC)

If the unit is supplied as a PCB, it may be mounted inside this UL listed power supply. A mounting plate (571-395-US) may be purchased separately to provide a suitable fixing for the AL300ULX mounting studs.

Mount the four corner f/f mounting posts to the plate with four of the machine screws and then secure the circuit board to their tops using the remaining four screws.

Cable use	Max length	Cable Type
RS485 Data Line	3000 feet	2 x twisted pairs - Belden 8723, Cat5 or General Cable C1352A
Reader / Keypad	500 feet	8 core, shielded - Beldon 9538, Alpha 1298C (22AWG) General Cable C0744A
Input / Output	500 feet	2 conductor - Alpha 1172C (22AWG) or equivalent

Where selected, any equivalent cabling / wire must be ' UL Listed '

Wiring methods shall be in accordance with the National Electrical Code (ANSI/NFPA70), local codes, and the authorities having jurisdiction.

Unit installation / test / Maintenance

This unit is for Indoor use only

Wire the components to the Access Control Unit (ACU) as shown on the first page.

Press the exit button or in the absence of an exit button short the 0V and exit terminals to test the relay function. The lock Relay LED will come on and the lock should release.

Ensure that all the LED's are lit on the reader/keypad.

Test each reader by presenting a token and the unit should beep and display a single flashing red or green LED.

The Net2 ACU is designed to take input from Clock and Data readers through its two (In/Out) reader ports. It can also be configured for Wiegand (26 / 50 bits).

It has an RS485 communications port that is used for uploading firmware and user information as well as providing Event information to the PC.

Following the completed installation of this equipment, no further maintenance or testing is required.

It is advisable to ensure that any third party backup power supplies or recovery procedures are checked regularly to ensure that the operation of the Paxton system is not compromised.

Software installation

The current specification for compatible PC hardware, network and operating systems is available on our website at the following link: <http://paxton.info/720>

Once all the ACU's have been tested and the data line connected, the Net2 software must be installed:

- Install the Net2 software.

Net2 software configures the system to use a Net2 RS232/485 converter by default.

For TCP/IP connect: AN1006 - *Installing remote sites using TCP/IP.* < <http://paxton.info/105> >

For modem connect: AN1007 - *Installing remote sites using modems.* < <http://paxton.info/106> >

- Run the Net2 software and detect ACU's in the Doors screen
- Check that all ACU's have been found. The firmware in the ACU's will be automatically updated
- Each ACU must be configured

Door name: Name the Door.
Door open time: Set the door open time.
Unlock the Door during: Holds the door unlocked during this timezone. - Set to 'At No Time' for normal user operation.

Reader 1: Settings for Reader 1 and Keypad 1 on the ACU.
Reader 2: Settings for Reader 2 and Keypad 2 on the ACU.
Alarm: Contains settings for the different types of alarm.
Codes: Valid codes can be viewed, added and removed. (Can only be viewed when a keypad is active).
Events: Shows the events for the control unit selected.

Name: Each reader can be named individually if required.
Reader type: Set the reader type, if applicable.
Keypad type: Set the keypad type, if applicable.
Token data format: Select the type of cards being used on the system. (New formats can be created).

Reader operating mode: Set the operating mode.
Timed operating modes: A different operating mode can be configured within a time window.

Reader action: Set the action required when access is granted.

System checks

- Present a token at each reader. All events should appear in the Events screen.
- Change the default password for the System Engineer.
- Set up other operators & departments, if required.
- Set up time zones & access levels.
- Users can be added and assigned to the required access level.

The Net2 CD can assist here with detailed application notes.

Electrical	Min	Max	
Input Voltage			12V DC
Input Current	110 mA	3A	
Relay switchable voltage		24V DC	
Relay switchable current		4A	
Alarm output current		1A	
Combined reader port output current		500 mA	
Reader port voltage		11.5V DC	
Environment	Min	Max	
Operating temperature - Battery limits	0°C (32°F)	55°C (131°F)	
Waterproof			No
Features	Min	Max	
ACU per dataline		200	
Datalines per PC		50	
Readers per port		2	
Keypads per port		2	
Reader ports per ACU		2	
Doors per ACU		1	
Maximum door open time	1 sec	999,999 sec	
Number of Cards		10,000	
Number of PIN's		10,000	
Number of Codes		50	
Access Levels		250	
Time Zones		64	
Data retention after total power loss		2,454	
Events stored in ACU with no server connection		9 hours	
Dimensions	Width	Height	Depth
PCB only	4 inch	4 1/2 inch	1 inch
Plastic housing (option)	7 inch	7 inch	2 inch

Enclosure options

Sales Code	Description
489-334-US	Net2 access control unit
385-527-US	Net2 access control unit in plastic housing

Class B digital devices.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Class A digital devices.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This product is not suitable for retail sale. All warranties are invalid if this product is not installed by a trained technician.