INSTALLATION GUIDE

TechPoint Network Door Controller - PoE

Revision 1.27

TechSolutions creates value-adding integrated solutions for the security business systems and is a solution partner for systems integrators to create network-based surveillance and innovative door controllers that are interoperable with different systems and devices.

PREFACE 3
Other guidelines 4
HISTORY 4
GENERAL 4
POWER SUPPLY 5
PoE 5
24VDC out – TechIO2 5
VDC out – TechIO4 6
External Power supply 7
Vin - TechIO2 7
Vin – TechIO4 7
HARDWARE OVERVIEW 8
Terminal Connector – TechIO2 8
Terminal Connector – TechIO4 9
CPU board 10
Jumpers 11
Buttons 12
Function Button 12
Led Indicators 13
CABLE 13
INPUTS 14
2-state 14
3-State 14
4-State 15
OUTPUT TECHIO2 15
RELAY OUTPUT – TECHIO4 16
READER CONNECTIONS 17
Conlan 17
Set the OSDP address 17
Cidron 18
HID 19
STid 20
Reader Led Indicators 22
STARTUP 24
TechTool 24
Assign the IP Address manually. 26
Calculate Fall back IP address 27
TechPoint Web Login 28
YOUR FIRST CONFIGURATION 29
Create a Door 29
Create a Reader 31
Set Door Contact to Normally Open 35
CARD READER KEYPAD DOOR COMMANDS 36
TECHNICAL SPECIFICATION 38

Preface

This guide gives guidance on installing the Network Door Controller TechPoint.

TechPoint is an innovative IP PoE door controller and exists in two editions:

- TP-1, TechPoint integrated, Compatible with Thor / ThorGuard installations.
- TechPoint Complete, with built-in web-based management and configuration software.

Remark
Both TechPoint Integrated and TechPoint Complete are available in a four relays edition.

This manual refers to the:
- two relay version as TechIO2 and
- four relay version as TechIO4

TechPoint is scalable for any type and size of business and organization.

TechPoint can work as an intelligent Access Controller for up to 16 wireless locks/doors:
- Aperio ® or
- SimonsVoss SmartIntego

While being a controller for wired doors with connected card readers.

Select among following market leading suppliers of OSDP card readers:
- Conlan
- Cidron
- HID
- Deister
- Vanderbilt
- phg
- Idesco
- STid
- Security Engineering
- SystemHouse Solutions

Technical specifications and availability subject to change without notice.

On TechDisk you can find the latest firmware, documentations and tools e.g. TechTool for finding a TechPoint on the network.

https://Techdisk.techsolutions.dk
User: TechNode
Password: !Techsolutions

Other guidelines

Following TechPoint Guidelines are available at TechDisk:

1. TechPoint Userguide GB
2. TechPoint Userguide DK
3. TechPoint Guide Integrated Elevator configuration.
4. TechPoint Guide Discover on a network Rev 1.0
5. Installation guide TechPoint Master-Slave Rev 1.1

History

1.22	New Section Card reader keypad commands
1.23	List of other TechPoint guidelines
1.24	STid Reader connections
1.25	STid version 07 connections.
1.26	TechIO4 – 4 doors connections board Applicable to items numbers: TP-I4, TP-C4 and TP-TN
1.27	TechIO4 – REMARK Vin description edited.

General

TechPoint must be placed on the secure side of the door.

Power Supply

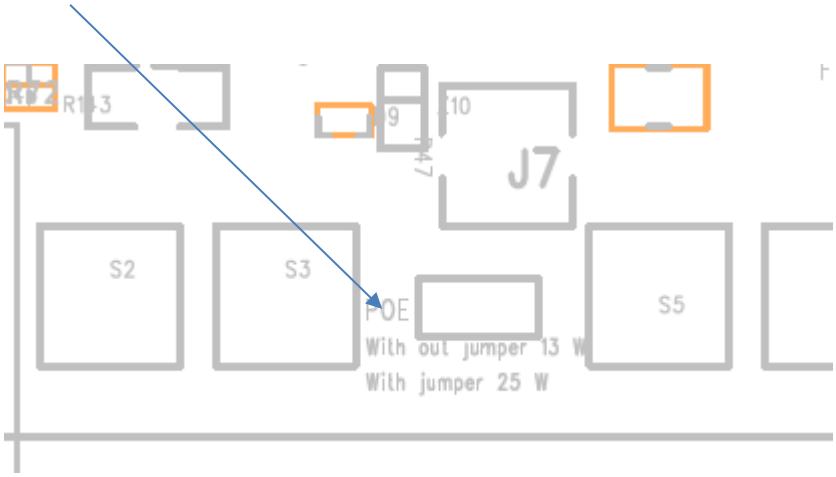
Determine whether to power from the network PoE or from external power supply.

PoE

TechPoint support PoE and PoE+. PoE switch must supply Out Voltage Range: 44-57VDC

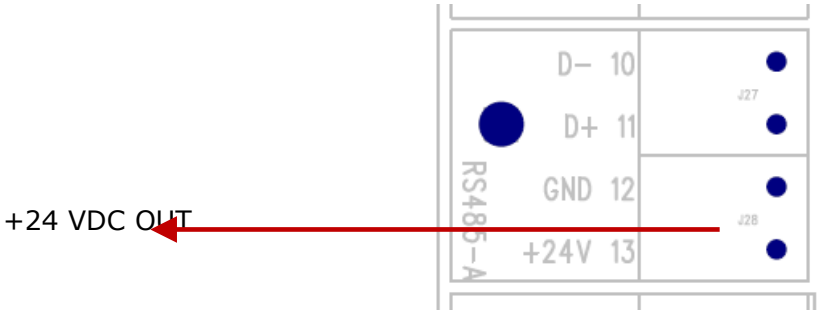
PoE, Default factory setting
IEEE 802.3af Type 1 Class 3 , 12,5 W

PoE+
IEEE 802.3at Type 2 Class 4, 25,5 W (max load on TechPoint output 20W)
Jumper 11 on CPU board must be placed.



24VDC out – TechIO2

Terminal pins 1,13 and 34 are then regulated 24VDC out (20W)



VDC out – TechIO4

REMARK Pin 4 and Pin 43 must not be used for connecting external power supply.

VDC out on RS485-A (J1) Pin 4 depending on SW5.
VDC out on RS485-B (J2) Pin 43 depending on SW6.

SW5 and SW6



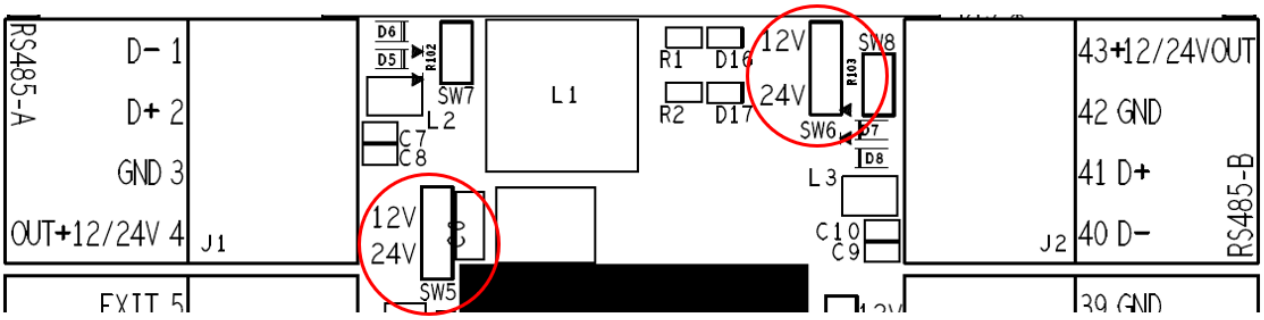
Default setting. No VDC out on Pin 4 and Pin 43.



SW5: 24 VDC out RS485-A (J1) Pin 4
SW6: 24 VDC out on RS485-B (J2) Pin 43



SW5: 12 VDC out RS485-A (J1) Pin 4
SW6: 12 VDC out on RS485-B (J2) Pin 43



Terminal Pin 21: 12VDC out.



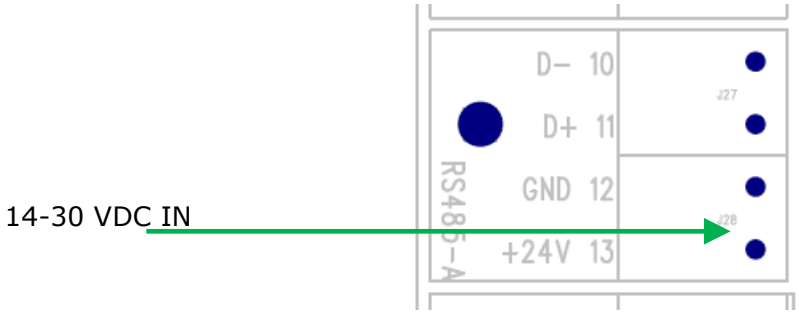
External Power supply

Remark!
The controller must not be connected to a PoE switch if an external power supply is used.

Vin - TechIO2

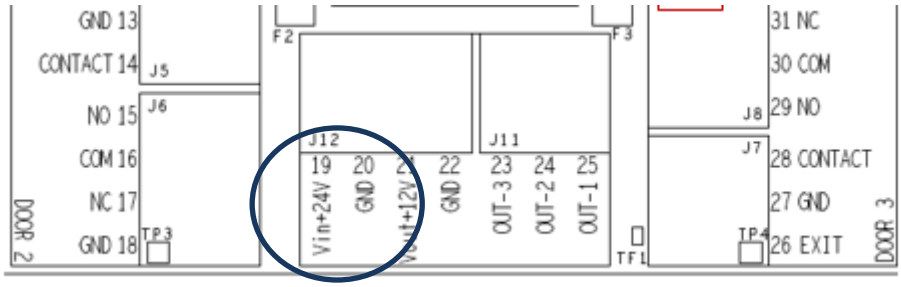
Terminal pins 1, 13 and 34 are then Vin

Connect external power supply 14-30VDC to e.g. Pin 13 (+24V terminal) and Pin 12 (GND)



Vin – TechIO4

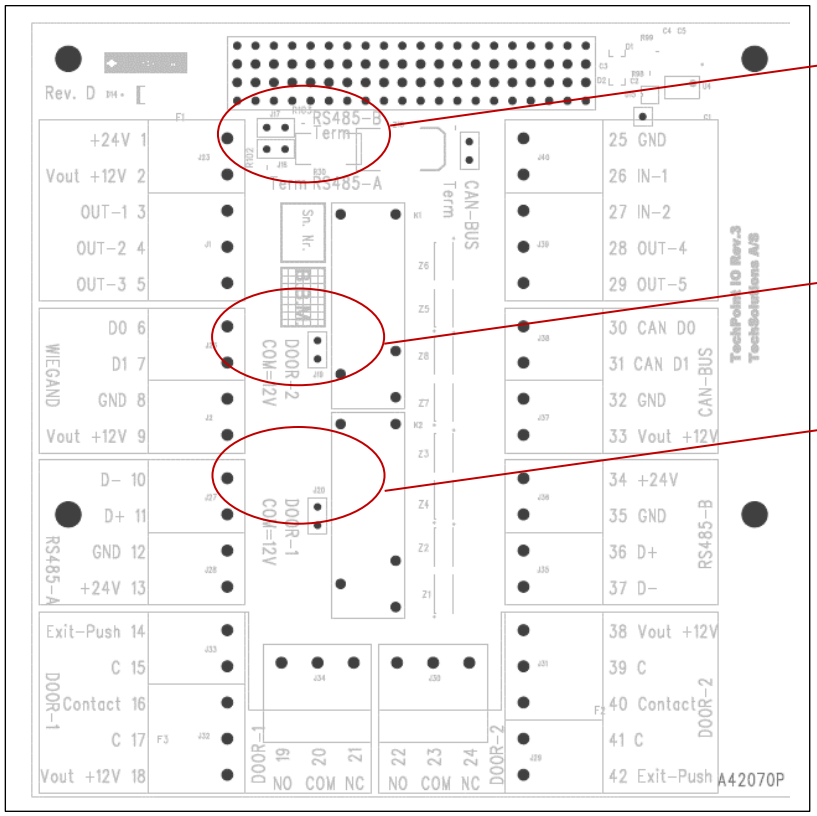
Terminal pins 19/20: Vin 14-30VDC from external power supply.



DO NOT connect external power supply to Pin 4 or 43 (RS485 connector)

Hardware overview

Terminal Connector – TechIO2



J16: RS485 A termination
J17: RS485 B termination

J19: Jumper fitted:
12V supplied to Door 2 relay
(COM - connector 23)

J20: Jumper fitted:
12V supplied to Door 1 relay
(COM - connector 20)

Remark!
Cable shield must be mounted to chassis.

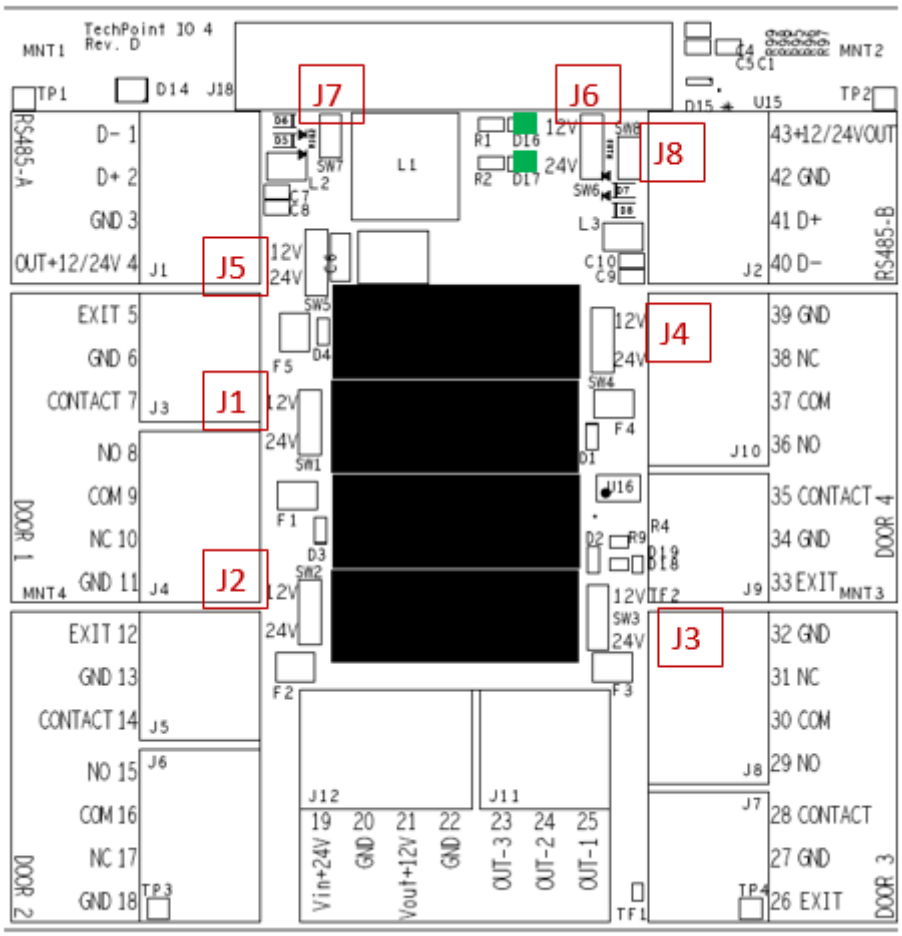
RS485 synonyms:

Data	Pin	Synonyms
D+	11 and 36	TX, A, RS485+
D-	10 and 37	RX, B, RS485-

Terminal Connector – TechIO4

TechPoint-IO4 supports four doors. Default two doors are included. Purchase a Door license to utilize more doors.

Remark
If RS485 devices are to be powered via the RS485 cable, ensure that J5 and/or J6 is set to the correct Voltage.



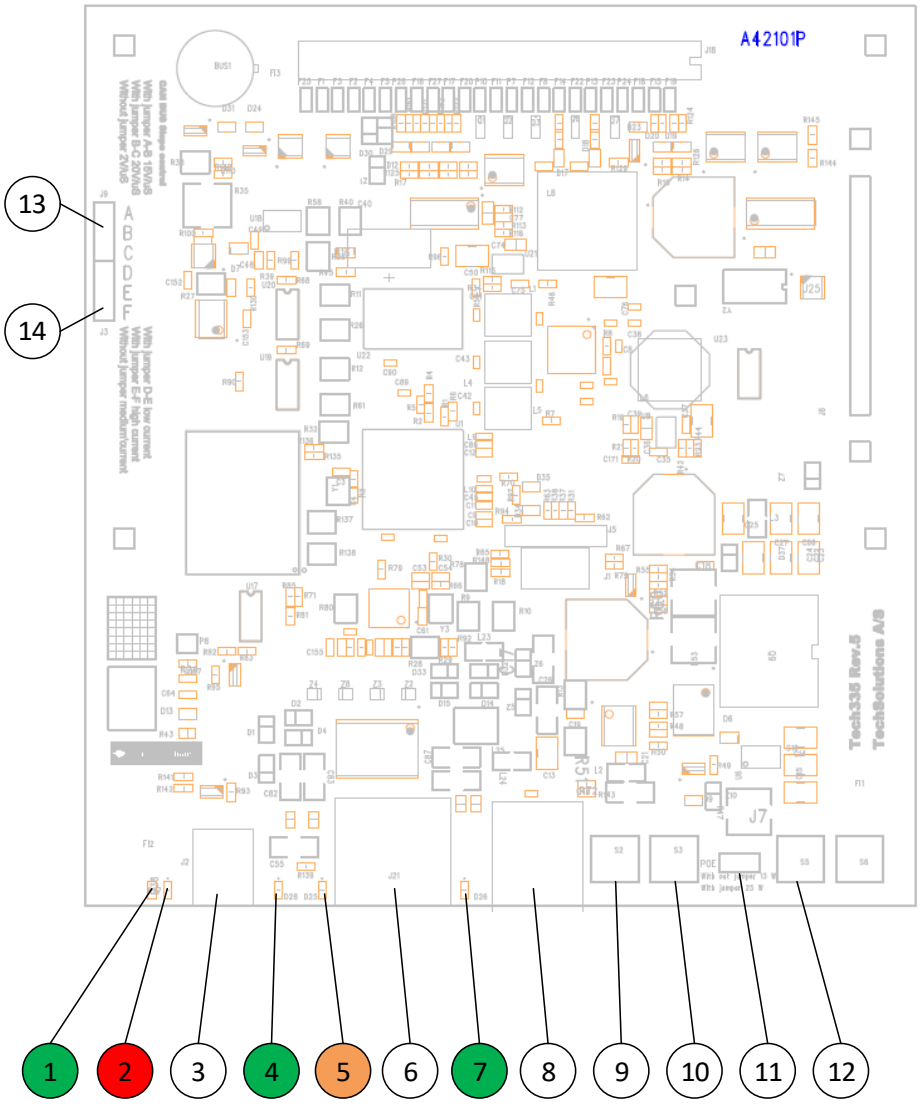
J1: Supply 12VDC or 24VDC to COM for Door 1 relay
J2: Supply 12VDC or 24VDC to COM for Door 2 relay
J3: Supply 12VDC or 24VDC to COM for Door 3 relay
J4: Supply 12VDC or 24VDC to COM for Door 4 relay

J5: Supply 12VDC or 24VDC to RS485 A
J6: Supply 12VDC or 24VDC to RS485 B

J7: RS485 A termination
J8: RS485 B termination

■ : 12VDC and 24VDC led indication.

CPU board



1	LED green 12V	9	Button custom
2	LED red	10	Button Reset
3	Mini USB	11	Jumper PoE / PoE+
4	LED green	12	Button SD boot
5	LED LAN link	13	CAN settings
6	RJ45 LAN	14	Current limit jumper
7	LED LAN activity		
8	Micro SSD flash		

Jumpers

Current limiter settings 12V/24V			
#	Jumper	Function	
14	No Jumpers:	Medium current	External power Supply: 24V / 1 A (24W) PoE+ : 20W **Default factory**
14	Jumper D-E	Low current	**UNUSED**
14	Jumper E-F:	High current	**UNUSED**

PoE jumper		
#	Jumper	Function
11	No Jumper	PoE 12 W
11	Jumper	PoE+ 25W

Buttons

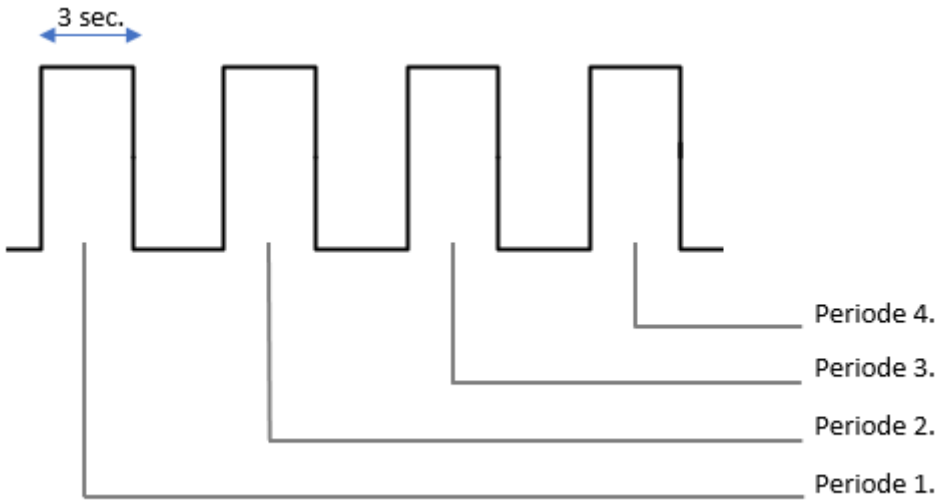
Buttons		
#	Button	Function
9	S2	Function Button
10	S3	Reset button
12	S5	SD Boot

Function Button

With button S2 (9) you can initiate a period for activating some specific functions.

Start by pressing **five times** quickly. The buzzer will start and stop frequently.

Buzzer on/off:



Buzzer periods:

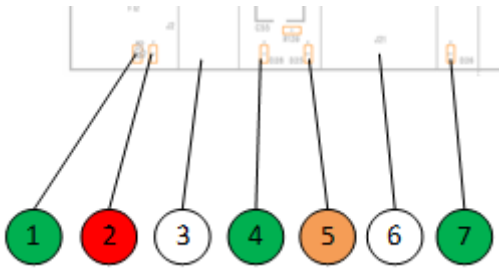
1 Period: Enables SSH
2 Period: Factory reset to DHCP
3 Period: Factor reset to Static 192.168.1.100
4 Period: Set to DHCP and Reset database contents.

Select a function by **pressing button S2** down in the period and keep button down until buzzer stops.
The TechPoint will software restart after activating of a function.

If button S2 is not pressed down in any period nothing will happen.

Led Indicators

LED Indicators



#	Color	Function
1	Green	Power 12V
2	Red	See table below
4	Green	See table below
5	Yellow	LAN Link
7	Green	LAN activity

LED states		
State	**2: Red**	**4: Green**
Normal operation	Off	Blink 1 sec.
Firmware update	Blink 0,5 sec.	Blink 0,1 sec.
Searching DHCP	On: 0,1 sec. Off: 2 sec.	Off
Some processes not running	Blink 1 sec.	Blink 1 sec.
Fault code represented as blink (For future use)	Fault * Blink 0,5 sec. Pause 2 sec.	Off

Cable

LAN cables:
Standard Cat 6A shielded twisted pair (STP). It is recommended using Cat 6A F/FTP or S/FTP. (Fully shielded cable, twisted pair. ISO/IEC 11801 2nd Ed.)

RS485 cable:
Twisted Pair Cable Shielded, 4 pair, AWG 24
If cable shield is mounted to chassis, we recommend grounding of the cabinet.

Door I/0:
24 AWG stranded (7x32) tinned copper conductors, conductors cabled, semi-rigid
e.g. Belden 9537

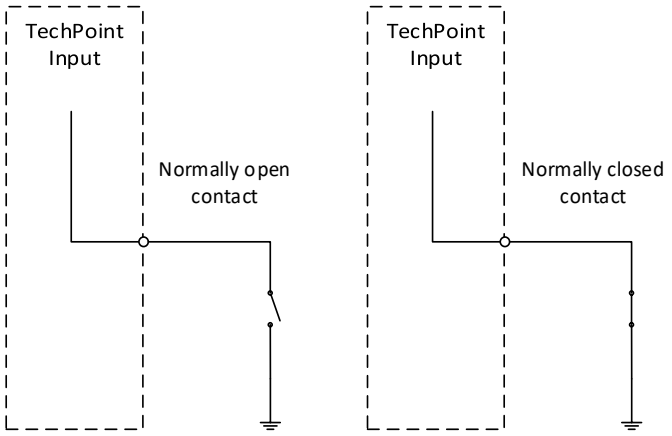
Inputs

All inputs are balanced inputs and therefore support cable supervision.

EOL: End Of Line resistor
AR: Alarm resistor

2-state

2-state supervision wiring is used when the cable should not be monitored. No additional resistors are used at the end of the cables.



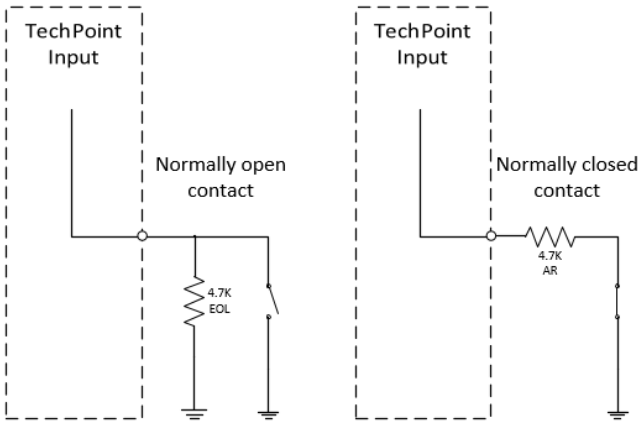
Two-State Supervision

States:
The following conditions states will be reported for 2-states supervision

Input transition	Normally closed	Normally open
Switch closed	normal	active/alarm
Switch open	active/alarm	normal

3-State

3-state supervision wiring is used to monitor an input line for either a cut-line or short-circuit conditions, as well as the switch open and close states. Cut-line or short-circuit monitoring depends upon whether the switch is normally-open or normally-closed.



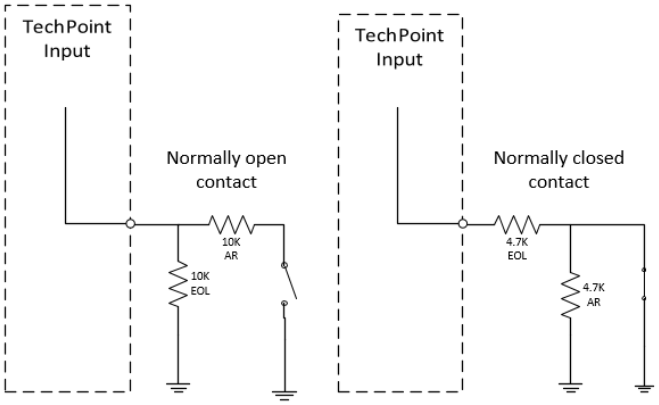
Three-State Supervision

States:
The following conditions states will be reported for 3-states supervision

Input transition	Normally closed	Normally open
Circuit shorted	*Shorted/trouble*	Active/alarm
Switch closed	Normal	Active/alarm
Switch open	Active/alarm	Normal
Open circuit	Active/alarm	*Open/trouble*

4-State

4-state supervision wiring is used to monitor all four conditions: cut-line, short-circuit, switch open and switch closed states.

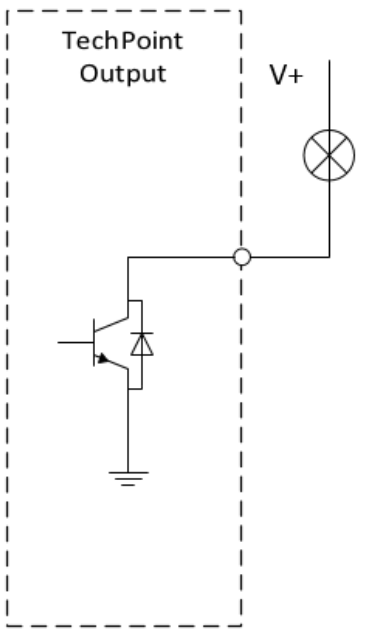


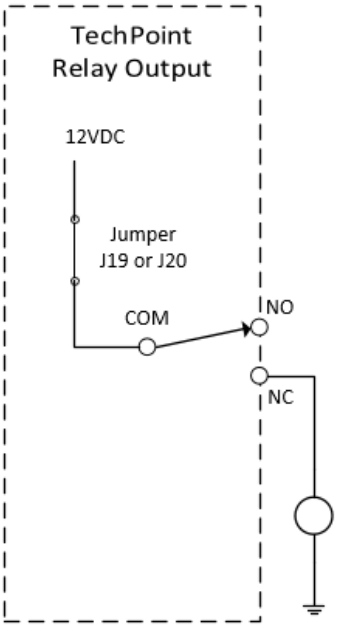
Four-State Supervision

States:
The following conditions states will be reported for 4-states supervision

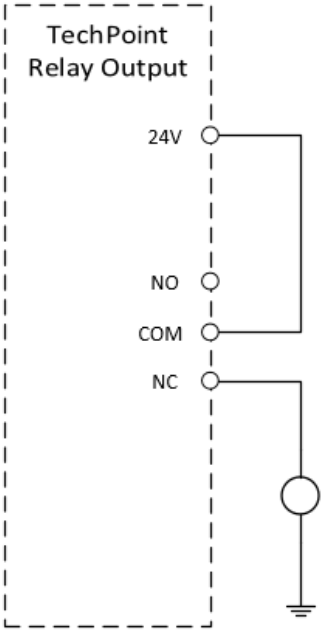
Input transition	Normally closed	Normally open
Circuit shorted	*Shorted/trouble*	*Shorted*
Switch closed	Normal	Active/alarm
Switch open	Active/alarm	Normal
Open circuit	*Open*	*Open/trouble*

Output TechIO2





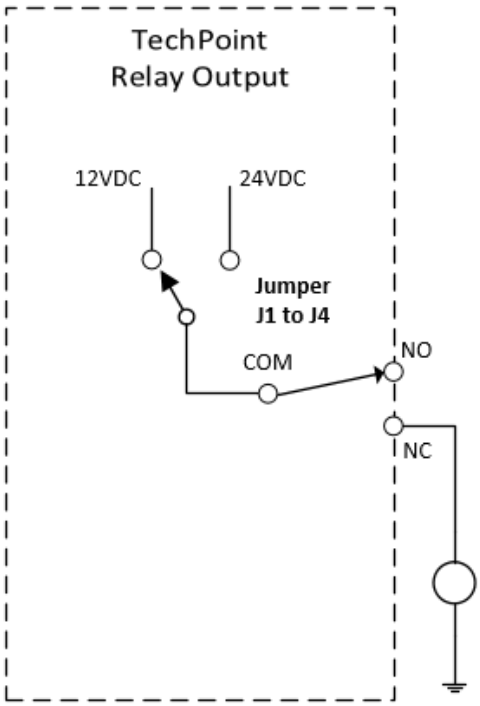
Relay with 12VDC internal



Relay with 24 VDC external connected

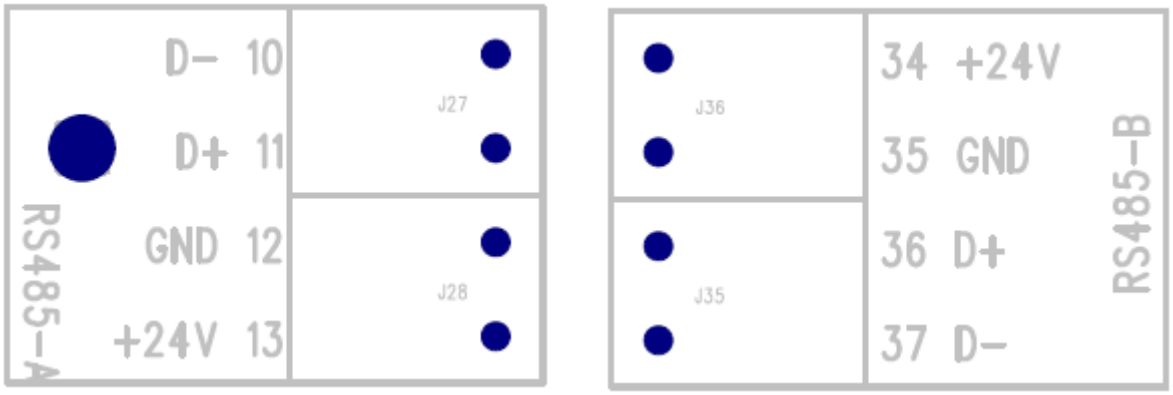
Relay output figures are only applicable to 2 doors connector board.

Relay output – TechIO4

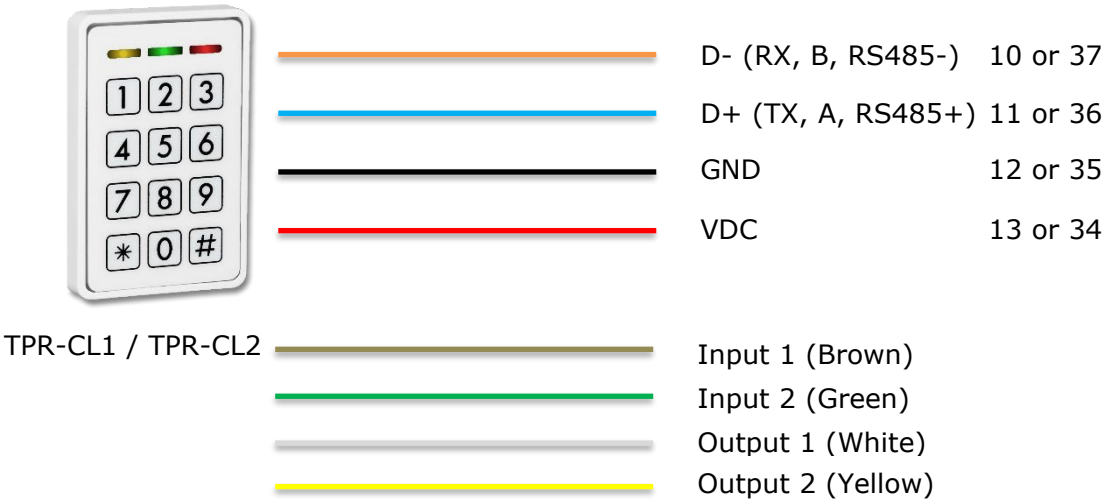


Reader connections

OSDP card readers may be connected to either RS485A (10-13) or RS485B (34-37)



Conlan



Set the OSDP address

The OSDP address can be entered from keypad within one minute after power-up
Enter:
4711#addr#
Where the addr = 0,1,2,3…10,11 etc.

Successful: Buzzer and green led flashing in 2 seconds
Not successful: Buzzer and red led flashing in 2 seconds

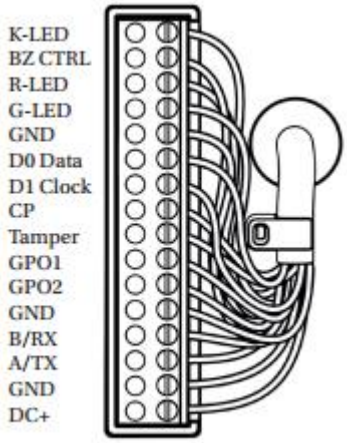
Firmware version must 1.17 or greater.

Default settings for Conlan readers is: 9600 baud and address 0

Cidron



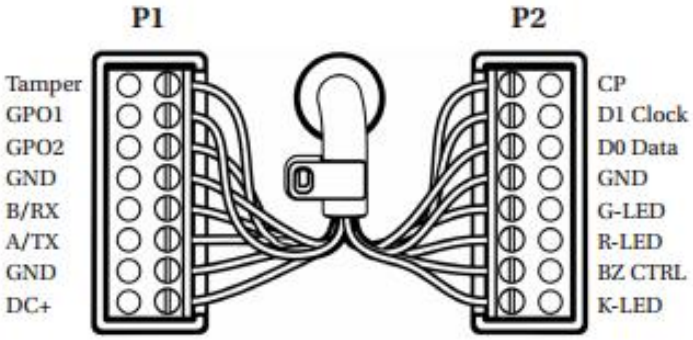
TPR-CSL / TPR-CSL-C



Cidron	TechPoint	
B/RX	D-	10 or 37
A/TX	D+	11 or 36
GND		12 or 35
DC+ (9-30VDC)		13 or 34



TPR-CST / TPR-CST-C

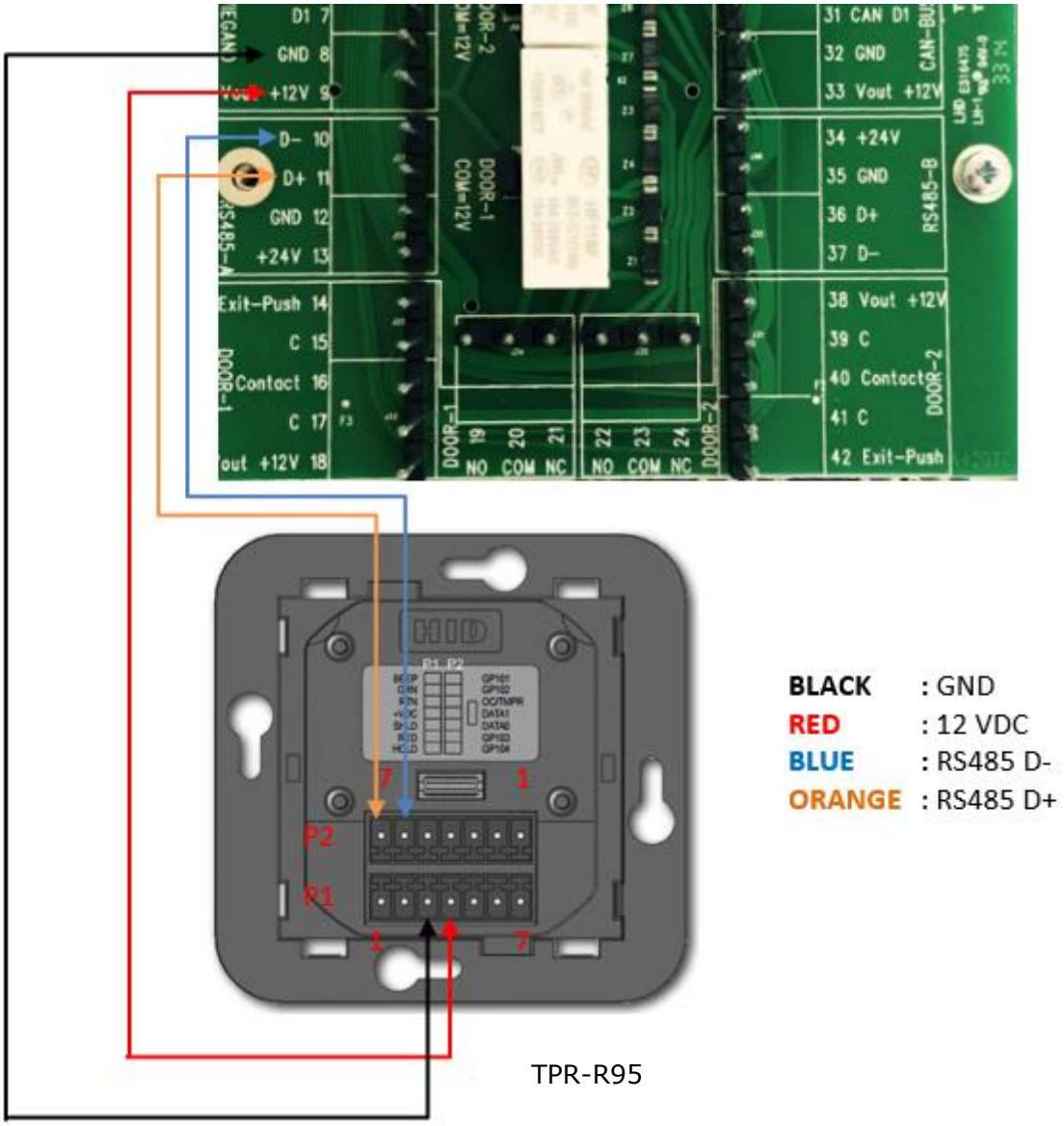


Cidron P1	TechPoint	
B/RX	D-	10 or 37
A/TX	D+	11 or 36
GND		12 or 35
DC+ (9-30VDC)		13 or 34

REMARK!
When connecting more than one Cidron reader to same RS485 channel, the readers must be supplied with 12 VDC (terminal 9 or 33) and not 24 VDC – as HID readers. (see next page). This due to high inrush current of a Cidron reader.

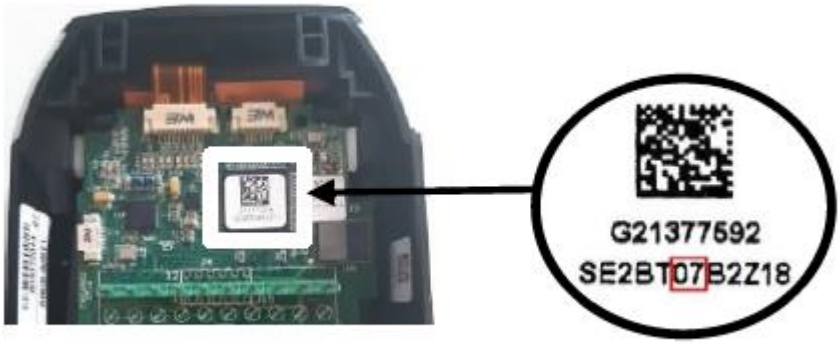
HID

REMARK: HID readers is 12VDC

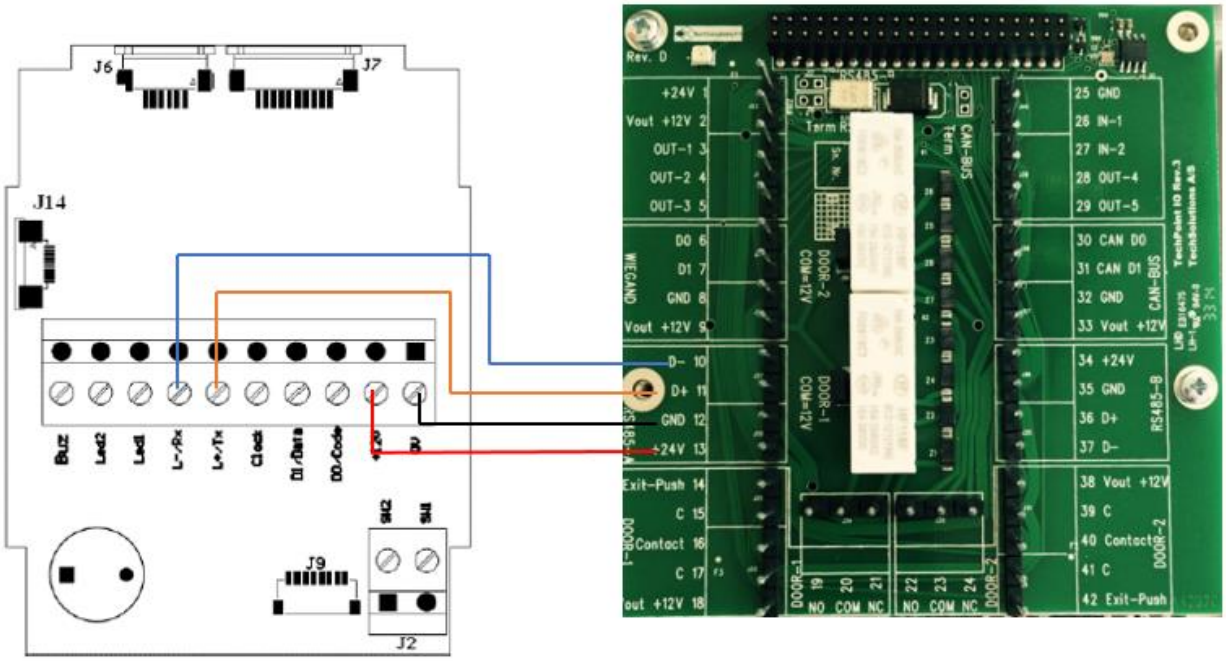


STid

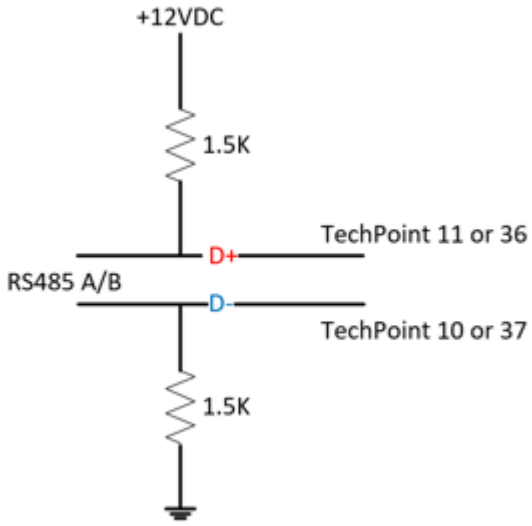
Find HW version as illustrated:



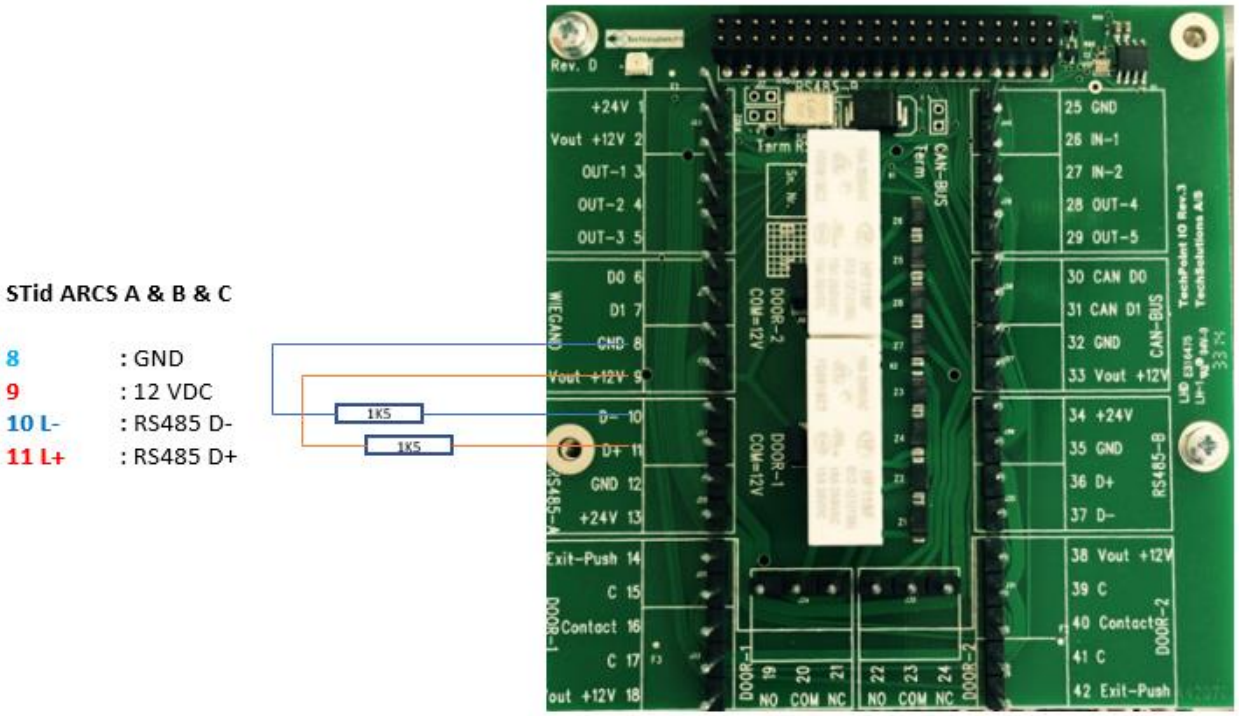
From version 07:
the readers are fitted directly with pull-up / pull-down resistors on the electronic board and the supply voltage is +7 Vdc and +28 Vdc



Lower than Versions 07:
The readers need external pull-up / pull-down resistors of the RS485 data lines.



Remark: supply voltage is +12 Vdc



Reader Led Indicators

Reader LED states are determined by the door state or by user interactions e.g. card presented or entering code.

Door state	Red	Green	Buzzer
Door secures (closed)	OFF	OFF	OFF
Door Blocked	**ON**		
Door released		**ON**	
Door Permanent released		**ON**	
Door Held		●●●●	ON
Door Warning		●●●●	ON
Door Forced		●●●●	ON

After presenting a card, Code or other credentials the LED's on all readers connected to same door indicate status as described below.

User state	Red	Green	Buzzer
Access granted – door released		**ON**	
Access denied (No Access)	●●		Beep
Card don't exist	●●		Beep
No Access – out of time	●●		Beep
Enter Pin Code		●●	
Enter New Pin Code		●●●●	
Enter Old Pin Code		●●	
Verify Pin Code		●●	
Change Pin Code		●●	
Invalid Pin Code	●●●●		Beep
Two Man rule		●	
Intrusion set	●●●●		
Intrusion setting	●●●●●●●●●●		
Intrusion unsetting		●●●●●●●●●●	
Intrusion now set	**ON**		
Intrusion failed	●●●●		Beep

●●●●●●●●●● : Flasning 10 hz.

●●●● / ●●●● : Flashning 4 hz.

●● / ●● : Flashing 2 hz.

Startup

Connect the TechPoint product to the network and wait until the network connection has been established and the product has powered up.

TechTool

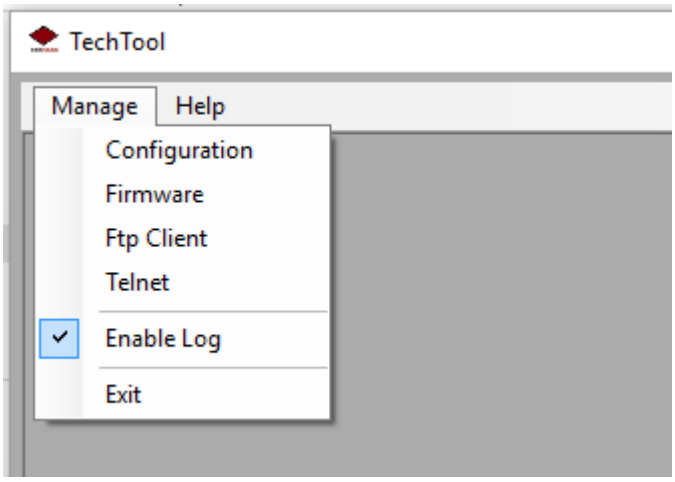
TechTool is a Finder and Service application to maintain and configure TechNode and TechPoint.

TechTool automatically discovers and displays TechPoint and TechNode products on your network. The application can also be used to manually assign a static IP address.

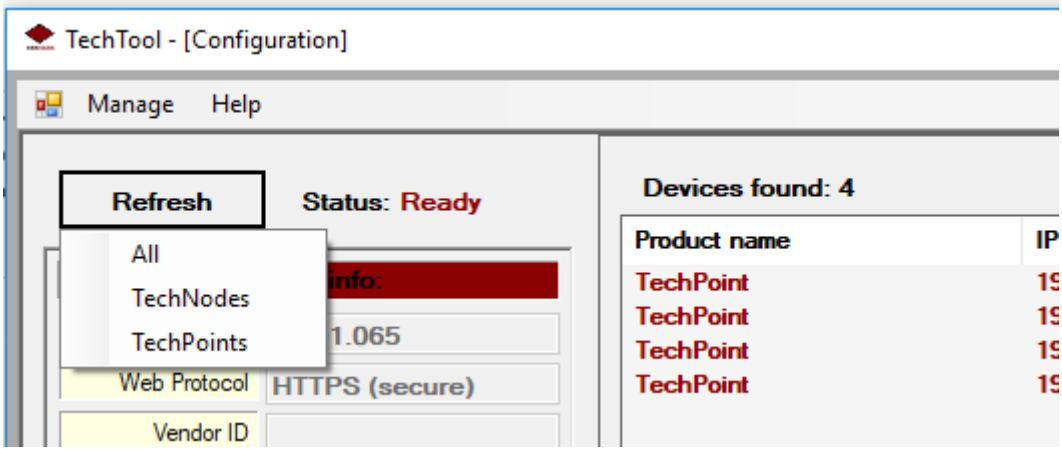
TechTool is free to download and is accessible at the TechDisk. **TechTool version 3.0.2** or greater is required. Version **3.0.6** is recommended.

Start TechTool and press *Manage/Configuration*

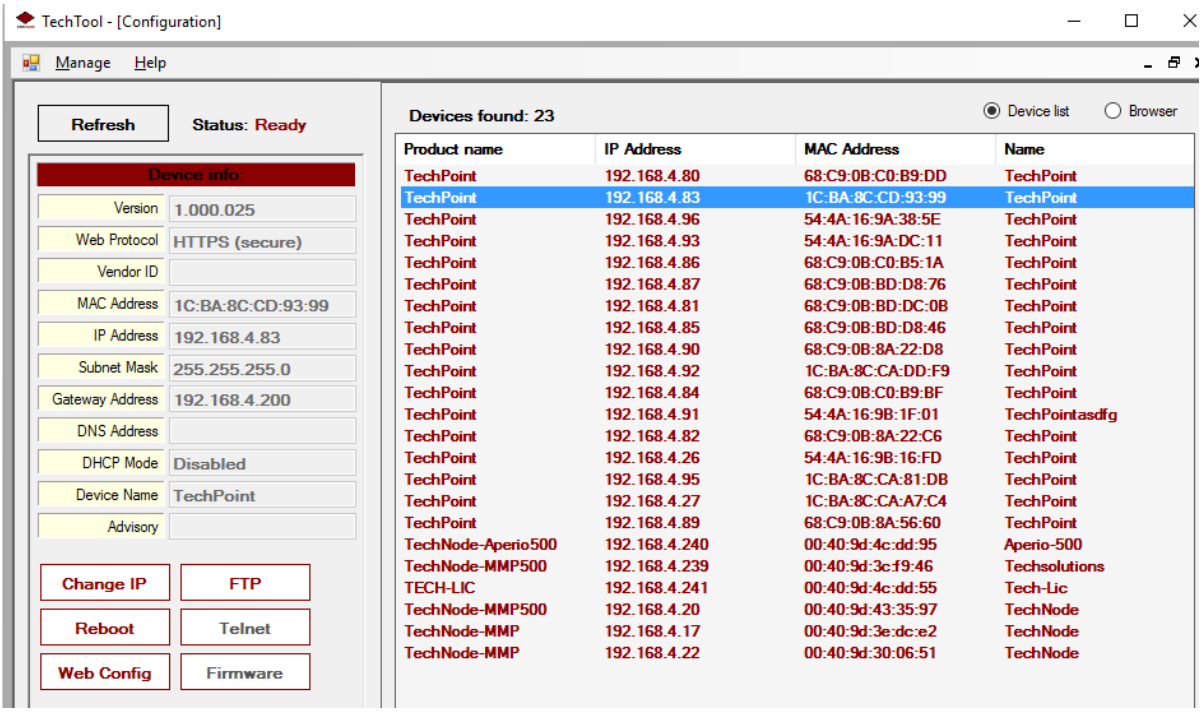
Note that the computer running TechTool must be connected on the same network segment (physical subnet) as the TechPoint product.



Then press *Search/TechPoints*



TechTool automatically discovers and display all TechPoints in the device list.

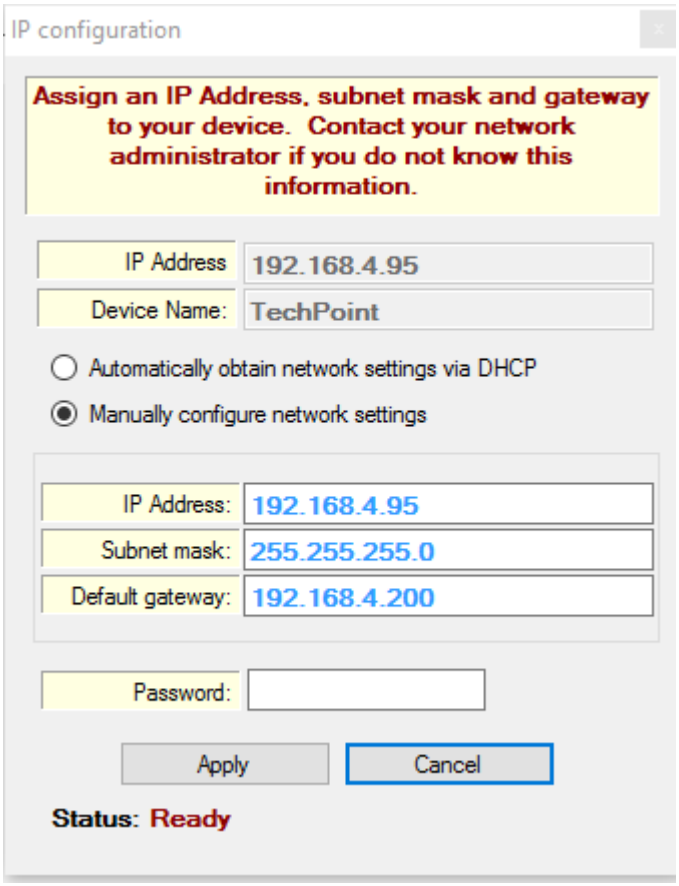


Information for the selected device is shown on the left side.

Assign the IP Address manually.

TechPoint is default set to use DHCP.

Press *Change IP* for setting fixed IP address.



Enter your IP settings, correct password and press A*pply.*

Default password*: !Techsolutions*.

Wait for TechPoint rebooting. TechTool will make a new discover and refresh the device list.

The TechPoint web pages are also accessible by using a standard Internet browser, such as Internet Explorer, Mozilla Firefox or Google Chrome.
Type https:// <TechPoint IP address>

Calculate Fall back IP address

If no DHCP server is found, the TechPoint assign itself a IP address based on its MAC address calculated as described below.

TechPoint MAC address: 68:C9:0B:8A:56:60

IP address: 167.x.y.z

The last 6 digits represented in HEX must be converted to Decimal:

X = 8AH = 138
Y = 56H = 86
Z = 60H = 96
Exceptions for Z
If Z = 0FFH then use 01
If Z = 00H then use 254

TechPoint IP address 167.138.86.96

TechPoint Web Login

TechPoint's default factory user is *"root"* and password *"!Techsolutions"*



TechPoint Web main page:



System button : System settings, configuration of readers and doors etc.

Access Button : Access management, create card holders, week programs etc.

Users Button : TechPoint Web user management.

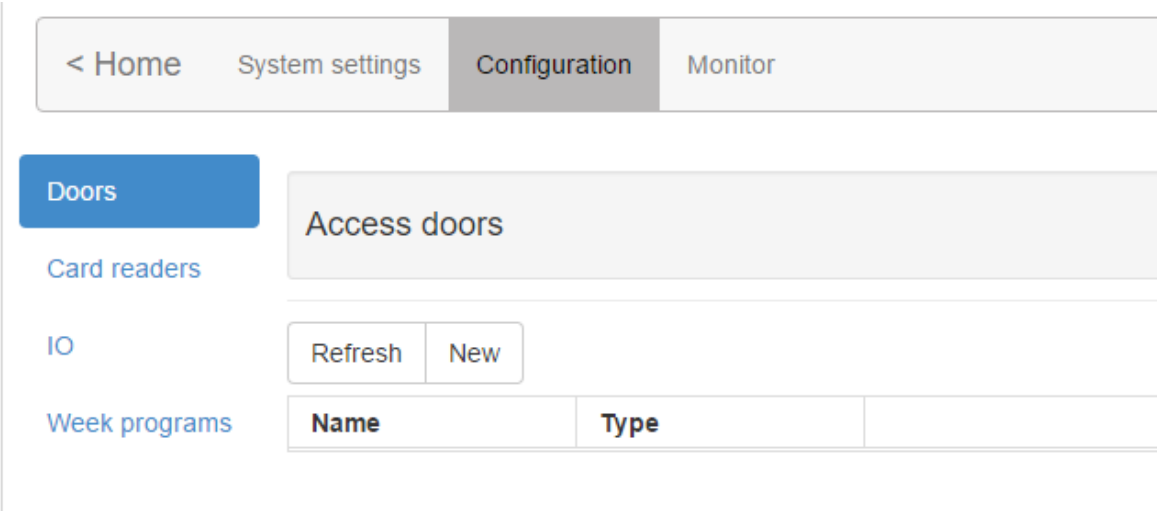
Log Button : Viewing event log. Report module.

Help Button : Showing this Installation Guide.

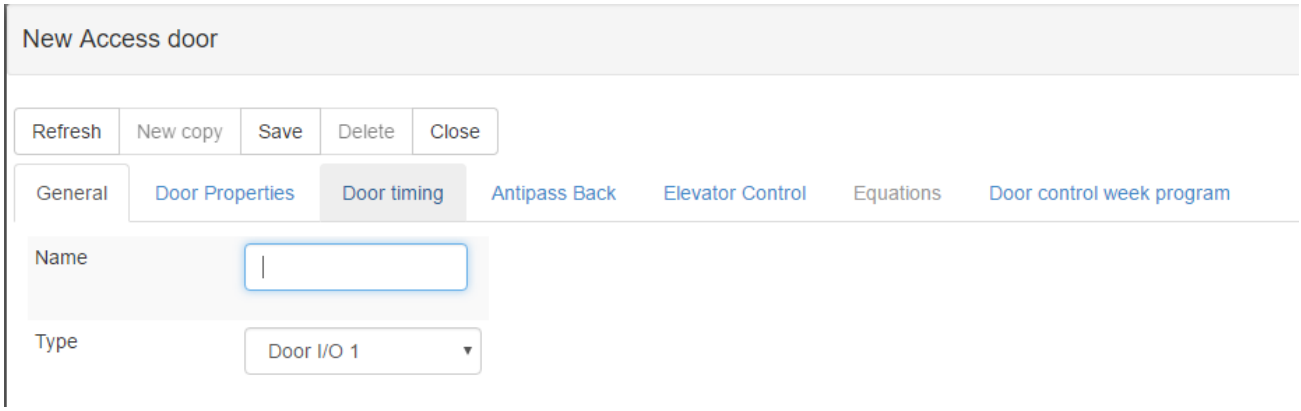
Your first configuration

Create a Door

Press the *System* button and select the menu: *Configuration/Doors.*



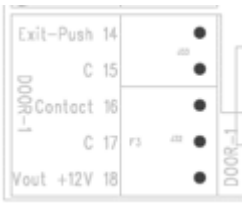
1. Press New



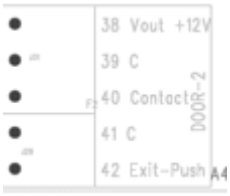
2. Enter a door name.

3. Select which I/O is going to be used.

Door I/O 1: Door 1 I/O at terminal connection board.



Door I/O 2: Door 2 I/O at terminal connection board.



Door I/O Custom: Any other free internal or external inputs and outputs.

Remark: Door Contact 1 and Door Contact 2 are default configured to Normal closed and may generate a Door forced if no door contact is connected.

Configure door contact to ”Normally Open” se section *Set Door Contact to Normally Open* on page 35

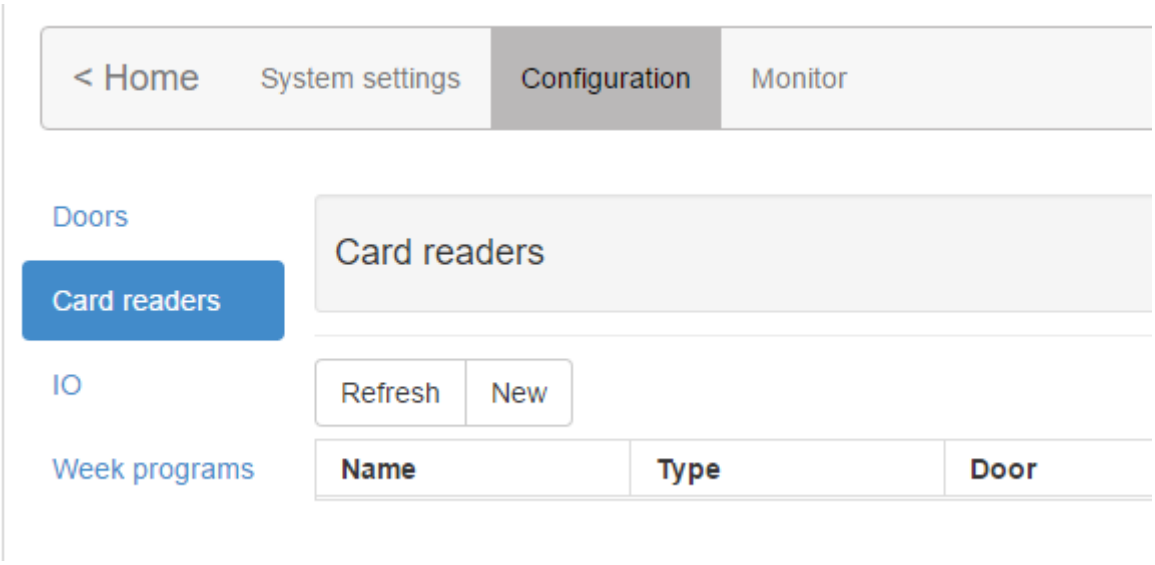
4. Press save and Press Close

Door properties, Door timing etc. can be retained as default.

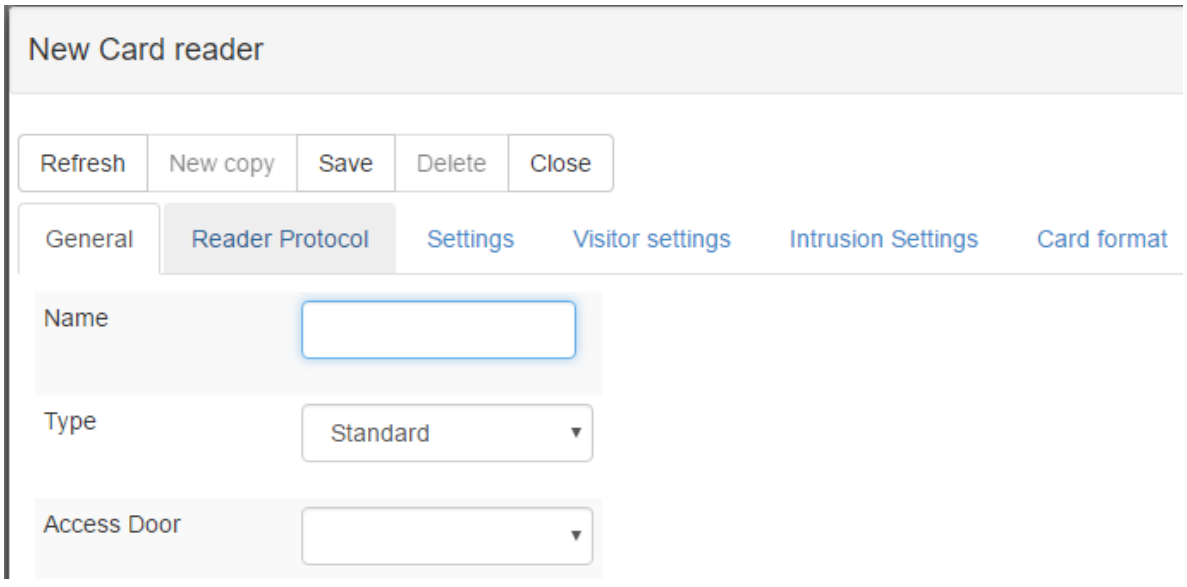
Create a Reader

Press the *System* button and select the menu: *Configuration/Card Readers.*

The guide below explains how to create an OSDP reader connected at RS485A

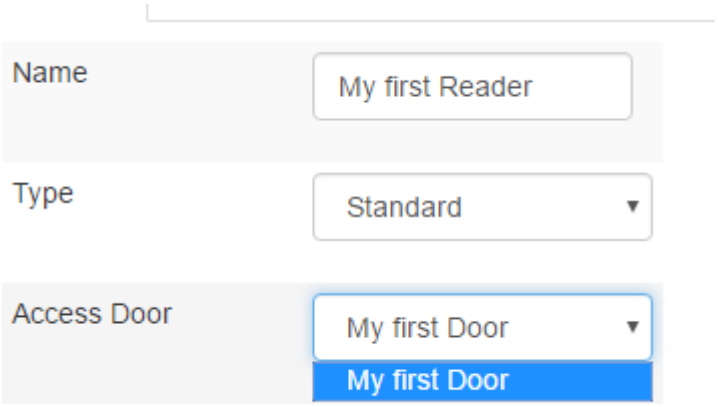


1. Press New

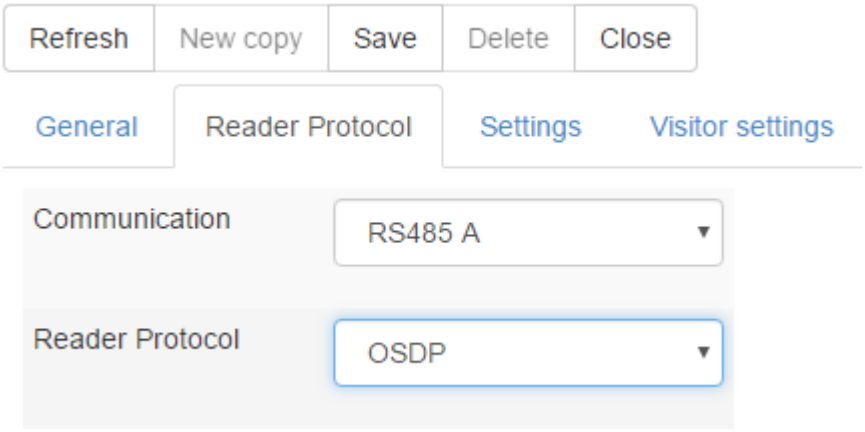


2. Enter a suitable Reader name

3. Select which door the reader must work with



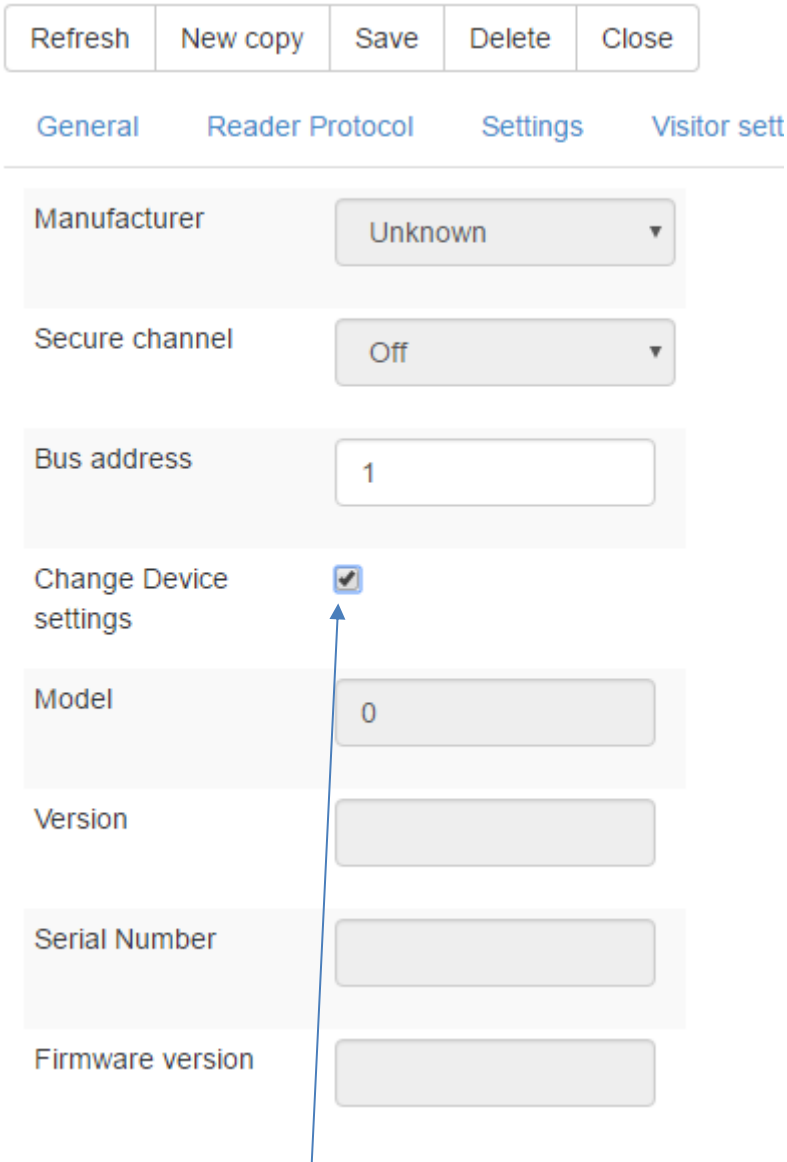
4. Reader Protocol



Select Communication to: RS485 A and the Reader Protocol to: OSDP

5. OSDP Settings

Remark!
Before connection of an uninitialized Reader, be sure that no other devices are connected to the same RS485 channel.

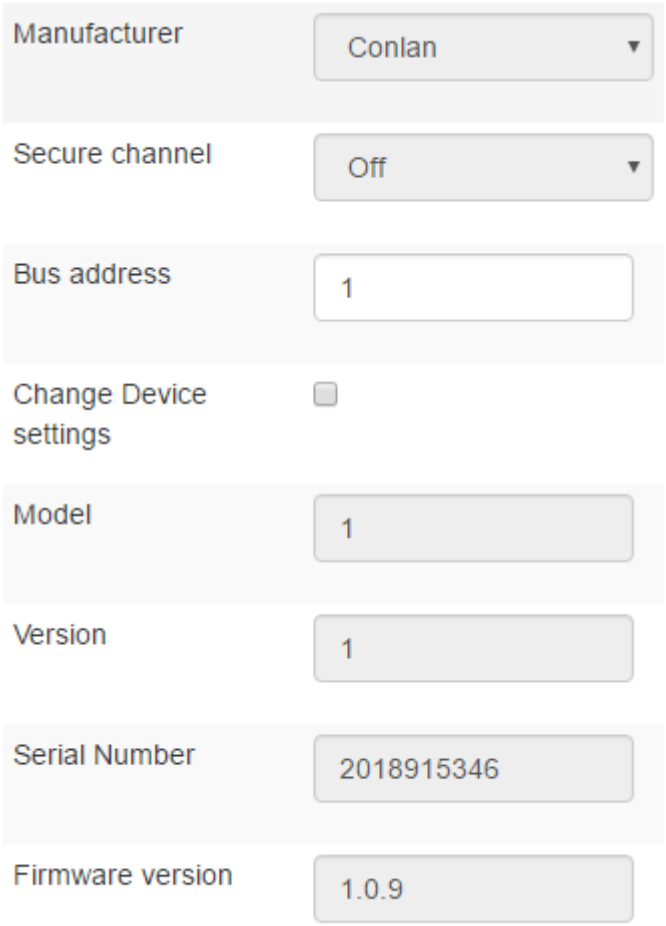


A. Enter Bus Address e.g. 1

B. Check *Change Device settings.*
Before pressing Save, be sure that no other devices are connected.

C. Press Save

When the reader is configured and registered, the *Change Device Settings* are automatically moved, and Reader information is shown.

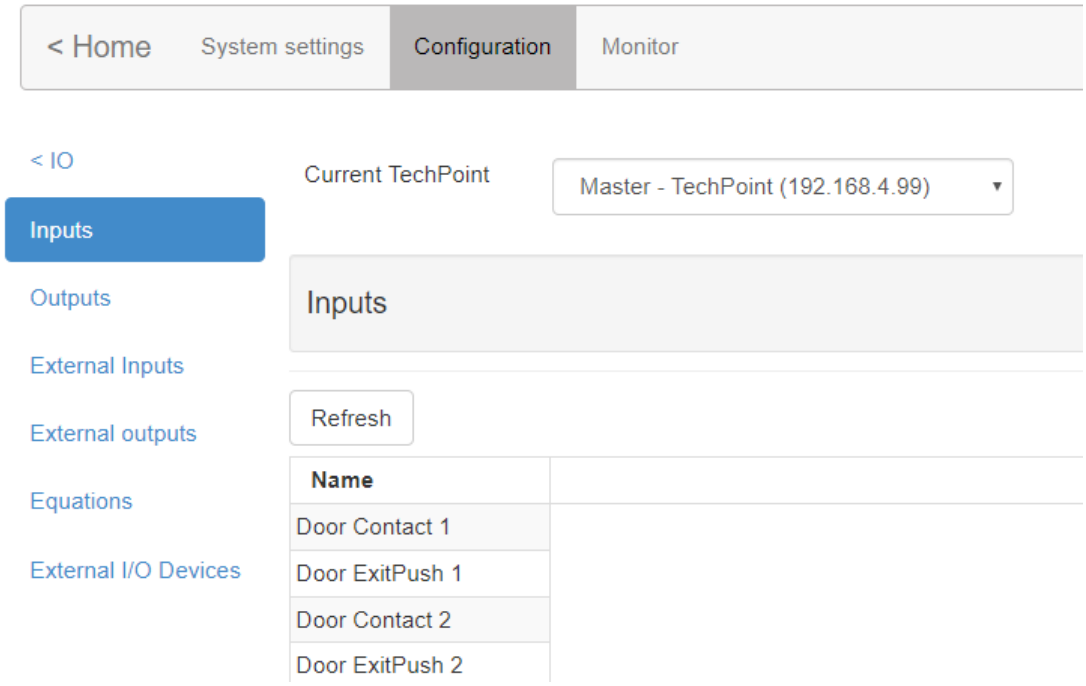


Remark!
Any disconnected devices can be reconnected again.

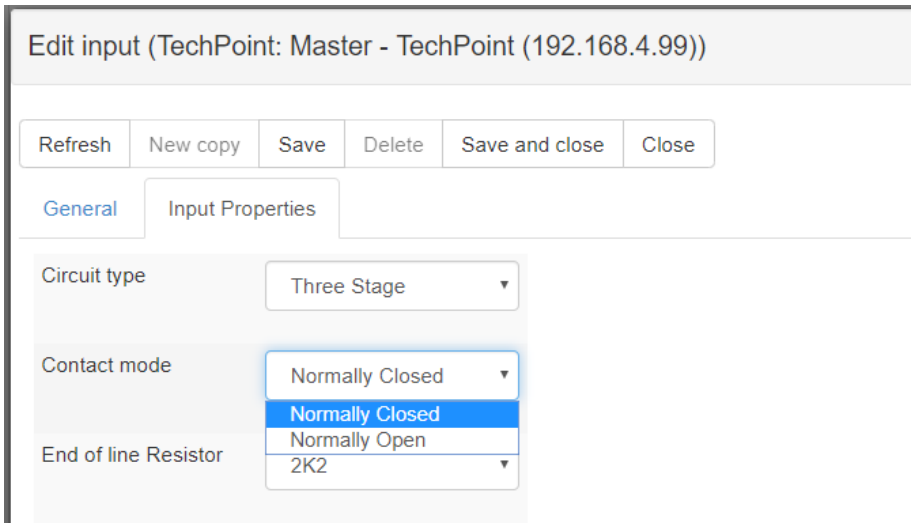
Set Door Contact to Normally Open

If no door contact connected, then reconfigure it to Normal Open for avoiding door forced

Press ”System” and select ”Configuration / IO / Inputs”.



Select *Door Contact1* or *Door Contact 2.*



Select *Normally Open* and Press *Save*

Card reader keypad Door Commands

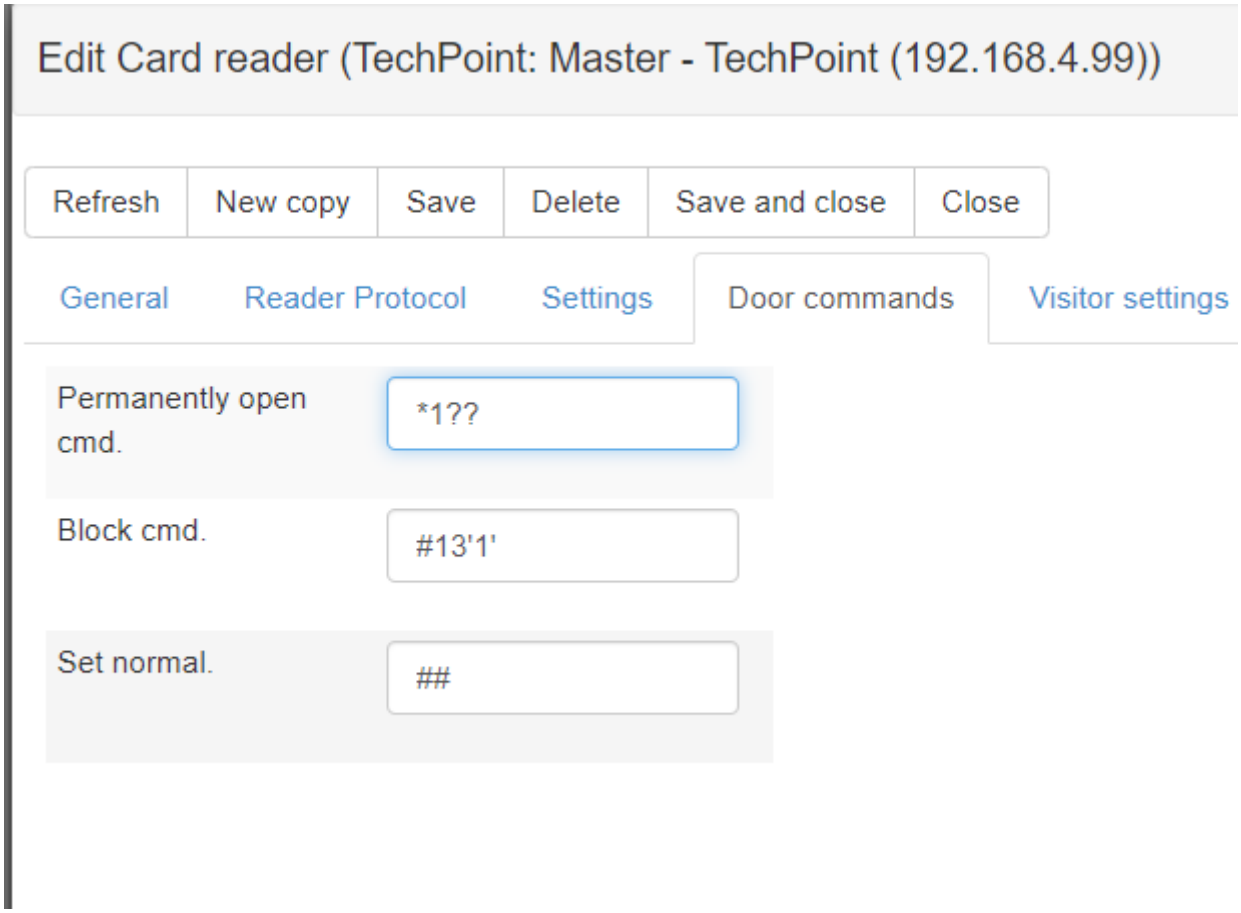
It is possible to define card reader keypad commands for controlling the door.

Below commands are available:

- Permanently Open
- Block door
- Set normal

Since cards readers have different keypad layout, the commands must be configured individually for each card reader.

Select a specific reader and go to the tap: *Door Commands*



Door commands are available from version 1.3.13 and greater.

Command syntax:	
<command string>{[??..] ['nn..']}	
<command string>	number of digit (0,1,2,4,5,6,7,8,9,*,#,X,V) (X,V) used for Vanderbilt reader
[??..]	keypad input – value in minutes – Optional ? :== digit (0,1,2,3,4,5,6,7,8,9) number of digits are unlimited.
['nn..']	Fixed value in minutes - optional n :== digit (0,1,2,3,4,5,6,7,8,9) number of digits are unlimited.

Examples		
Command	**Keypad entry**	**Description**
Permanently Open	** or *10	Release the door permanently (indefinitely time)
	*2'10' or #4'10'	Release the door for 10 minutes.
	##'60'	Release the door for an hour
	#3??	Release the door for the number of minutes that are entered. If #320 is entered, then the door is release for 20 minutes.
Block Command	#9	Block the door forever or until it is set normal
	#8???	Block the door for the number of minutes that are entered. If #8120 is entered, then the door is blocked for 2 hours.
Set Normal	### No optional attributes	Cancel Door released or door blocked and secure the door. **No matter how the door is blocked or release it will be secured.**

Technical Specification

Door Controller		IO4
Readers	Max. 8 readers pr. door. Typically, 1-2 readers pr. door. (RS485) OSDP	
Doors	2 doors I/O onboard. Max. 16 Wireless Online doors Max. 64 Offline doors.	4 doors I/O onboard.
Credentials	Up to 500.000 cardholders	
Event log	1.000.000 events	
Schedules	1000	
I/O interface		**IO4**
Inputs supervised.	6 balanced. 2/3/4-state supervision. Configurable analog or digital. Max. 40 V DC. Resistance network is configurable.	
Inputs Digital	2 digital, 5 V DC - used for Wiegand interface	
Relay output	2 relay outputs (NO, NC, C), 10A 250VAC / 30VDC	4 relay outputs (NO, NC, C), 10A 250VAC / 30VDC
	Jumper for 12VDC at NC	Jumper for 12/24 VDC at NC
Outputs	5 Open Drain output, Sink max. 750 mA	3 Open Drain output, Sink max. 750 mA
CANbus	CAN low, CAN high, GND	
USB	USB 2.0	
Power		
In	Power over Ethernet PoE+ IEEE 802.3at Type 2 Class 4 - Maximum load on outputs 20 W PoE IEEE 802.3af Type 1 Class 3 - Maximum load on outputs 10 W or 14-30 V DC Maximum load on outputs 24W.	
Consumption	Max. 1,6 W (typically 50 mA at 24 VDC)	
DC output	For powering auxiliary equipment. 5 * 12 V DC max load 1800 mA If powered over Ethernet: 24 V DC output max load 900 mA	
Network & Protocols		
Security	IP address filtering; HTTPS encryption; Password protected user levels; IEEE 802.1X network access control, TLS 1.3	
Protocols	IPv4, IPv6, HTTP, HTTPS, SSL, SFTP, SMTP, SNMP, DNS, SNTP	

General	IO2	IO4
CPU & Memory	ARM Cortex A8 128 MB RAM, 8GB Flash Support for Micro SD flash card. Configuration data backup at connection board.	
Connectors	RJ45 10 Base 10 terminal blocks: 2* Door environment, 2* RS485, Wiegand, CAN, 2 * Additional I/O	RJ45 10 Base 12 terminal blocks: 8* Door environment, 2* RS485, 1 * Additional Output, 1* 12/24VDC
Operation Conditions	0° to 50° Humidity 20 – 80% RH (non-condensing)	
Cable	LAN: Cat 6 shielded twisted pair (STP). RS485: Twisted Pair Cable Shielded, 4 pair, AWG 24	
Dimensions	Depth: 50 mm, Width: 140 mm, Height: 210 mm	
Weight	0,650 kg.	
Casing	Aluminum painted.	
Tamper	Optical tamper on removal of top enclosure	



TechSolutions A/S Marielundvej 43A,st DK-2730 Herlev
Phone : + 45 70 229 700
CVR: 29009805
info@techsolutions.dk
www.TechSolutions.dk