



MY VAPE DEFENSE

MVD

RS-485 INSTALLATION GUIDE

Revision V1.0 (25.09.23)

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1. Pre-Requisites

The following items are required at the time of installation, please check that you have all of the following before going to site

1.1 Requirements before going to site

- (a) Smartphone
- (b) Windows Based Laptop with ethernet port
- (c) Wall anchors & Screws
- (d) Tools - Tape measure, Side Cutters, Pliers, stud finder, pencil, level, Sharpie
- (e) Bootlace Ferrule Crimping Tool
- (f) Bootlace Crimps (Sizes: 1x 1.5mm & 2x 1.5mm for 18AWG power cable)
- (g) 2mm flat head screw driver to suit phoenix terminal block
- (h) Recommended Cable
- (i) Confirmation of available network ports on customers LAN Switch
- (j) CAT6 Patch Leads for gateway configuration

- (k) DC multimeter
- (l) Brushed Plates
- (m) Additional Power Supplies (if detectors will be in multiple locations)
- (n) Connectors or Wago Connectors or solder and heathrink to join power supply cable to install cable

1.2 What's in the box (RS-485 Gateway)

- * 1x MVD Gateway Cabinet
- * 1x Cabinet Mounting Plate
- * 2x Key
- * 1x Power Supply

1.3 What's in the box (RS-485 Detector)

- * 1x MVD RS-485 Detector
- * 1x Mounting Plate
- * 1x Security Screw

2. MVD Installers Portal

2.1 Creating an MVD Installers Account

Create an MVD Installers account and enter the details as prompted

(insert step by step guide with pictures)

2.2 Adding a new site

+ Add a new site to your portal by entering the details as prompted

(insert step by step guide with pictures)

2.3 Adding a new gateway

Add a new Gateway to the site

Scan QR Code of Rs-485 Gateway Unit and enter the details as prompted

***Insert images from portal**

***Insert step by step guide**

(QR Code http://myvapedefense.com/gate/{gateway_id})

> Confirm ID Number matches the ID number on the gateway

***Insert images from portal**

*Insert step by step guide

> Name the Gateway (eg: Science Wing Comms Cabinet)

*Insert images from portal

*Insert step by step guide

3. Power Supply

It is imperative that the detectors are supplied with sufficient power to ensure they operate at an optimal level. Use the following steps to assist with this process.

3.1.1 Power Supply Location - Select a suitable location to plug in the power supply taking into consideration

- The likelihood of it being mistakenly unplugged
- Who has access to the area it is plugged in
- The selected power point is RCD protected

3.1.2 Detector Locations - Before commencing the installation, identify all detector locations and estimate a worst case scenario cable distance making sure it meets the requirements set out in Chapter 5

3.1.3 Cable Route - Correct installation of the cable is highly important. Make sure that relevant cabling standards are adhered to.

3.1.4 Termination - Proper termination of the conductors result in good electrical conductivity and mechanical strength

3.1.5 Testing - Using a DC multimeter, ensure that the last detector has a minimum voltage of 16V DC

3.2 Current Draw - The average current draw for a RS-485 detector is <50mA not taking into consideration of the in-rush current which can be around double that figure

3.3 Power Supply Sizing

3.3.1 Combined Gateway MVG1022

- 1x 5amp 24V DC power supply for gateway and 16 wired detectors
- 2x 2.5amp 24V DC power supply (1 for every 8 detectors)

3.3.2 Dual RS-485 Gateway MVG1021

- 2x 5amp 24V DC power supply (1 for every 16 detectors)

3.3.3 Mini Pro Gateway MVG1025

- 1x 2.5amp 24V DC power supply for gateway and 4 detectors

3.3.4 Mini Basic Gateway MVG1028

- 1x 2.5amp 24V DC power supply for gateway and 4 detectors

3.3 Polarity

The detectors and gateway are polarity sensitive.

Red conductor = Positive

White conductor = Negative

Insert images once power supplies identified

4. Maximum Detectors

4.1 Combined Gateway MVG1022

- Up to 16 LoraWan Detectors
- Up to 16 RS-485 Detectors

4.2 Dual RS-485 Gateway MVG1021

- Up to 16 RS-485 Detectors per gateway (32 in total)

4.3 Mini Pro Gateway MVG1025

- Up to 4 RS-485 Detectors

4.4 Mini Basic Gateway MVG1028

- Up to 4 RS-485 Detectors

5. Cable

5.1 Recommended Cable

Roadworx RW610222/18BK (100m roll)

Roadworx RW610222/18BK (300m roll)

- 4 Core Conductor Double Insulated Shielded Cable
- 18AWG for 24VDC Power
- 22AWG for RS-485 Data Transmission

5.2 Recommended Cable Length

The detectors can be wired in a daisy chain network topology allowing for a single power source to power a number of detectors through the chain of wiring.

Using the recommended cable <200m

It is imperative that the voltage is checked at the furthest detector. Ideal operating voltage is **>=16V DC**

6. Detector Coverage

6.1. Provisions

As every installation environment will vary, it is important to note that the detectors have been designed to learn and improve their ability to accurately measure and report over time. It is essential that the following recommended floor areas are observed.

Please note that any full enclosed amenity / toilet cubicle requires a detector per fully enclosed cubicle

(insert pictures that factory engineers are to supply)

6.2 Mechanically exhausted (fan) amenity room

* Without full height partitioning

* Ceiling height of 2.4 - 2.7m

Maximum Coverage of 8 ~ 10m²

6.3 Air-Conditioned open floor room

* Ceiling height of 2.7 - 3.0m

Maximum Coverage of 15 ~ 18m²

6.4 Minimum Clearances

>= 0.5m from a wall

>= 1.5m from an exhaust fan or air conditioning vent

6.5 Testing

Testing and commissioning the response from all devices at the time of commissioning is recommended to ensure units measure and report levels as expected

7. Installing the Gateway

7.1 Considerations

The following items need to be considered prior to the Gateway being installed:

- > Mounting Location - Fix to at least one stud
- > Cable Management
- > Proximity to Power Point
- > Proximity to Network Port
- > Total distance to detectors

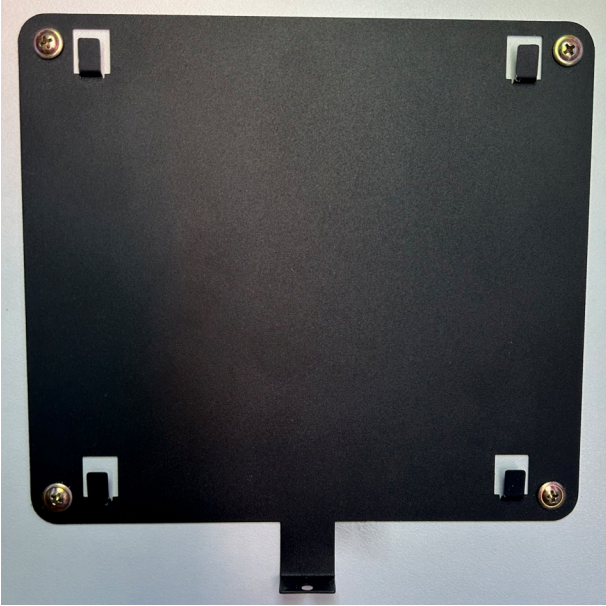
7.2 Installing the gateway

- (a) Locate and mark wall stud
- (b) Locate Mounting holes

(c) Using a level, hold the gateway on the wall and mark mounting holes

(d) Install wall anchors

(e) Install the gateway mounting plate using flat head screws



(f) Install the cabinet to the mounting plate

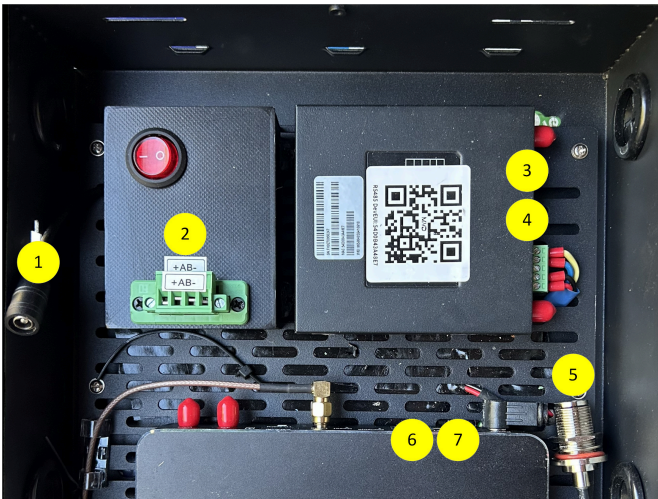
(g) Install the antenna



(h) Install the door

7.3 Connections

7.3.1 Combined Gateway



1 = 24V DC input

2 = RS-485 Bus Output

+ = 24V Positive

A = TX-/RX-

B = TX+/RX+

- = 24V Ground

3 = WAN (RS-485 Gateway)

4 = LAN (RS-485 Gateway)

5 = LoRaWAN Antenna

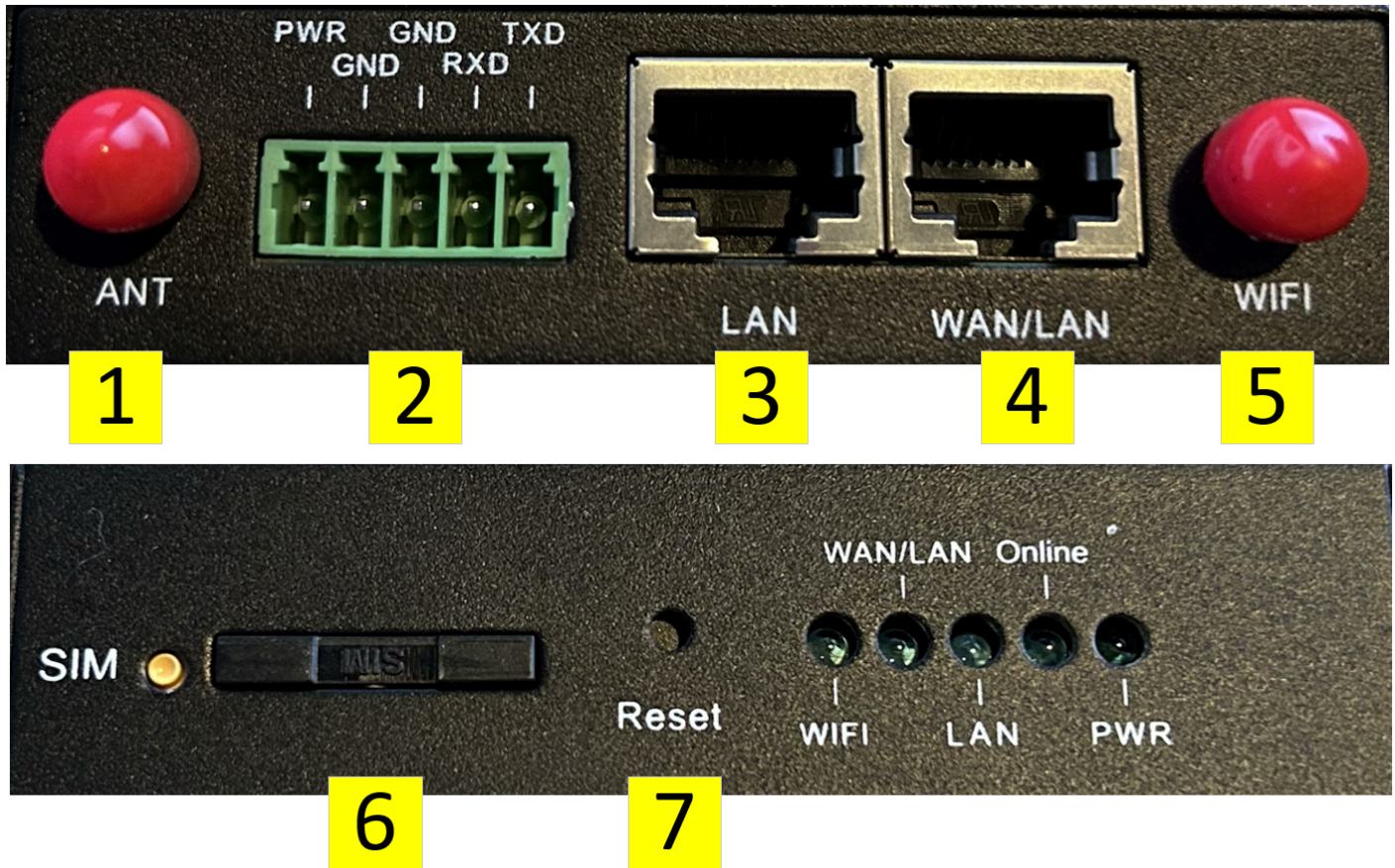
6 = LAN (LoRaWAN Gateway)

7 = WAN (LoRaWAN Gateway)

7.3.2 Dual Gateway

(insert pictures and descriptions when image received)

7.3.3 RS-485 Gateway



- 1 = ANT (Unused)
- 2 = 24VDC / RS-485 Connection
- 3= LAN Port
- 4 = WAN Port
- 5= Wifi Antenna - Unused
- 6 = SIM - For Future USe
- 6= Reset Button

8. Configuring the Gateway

All parameters have been pre-configured. In general, only the local network IP address of the gateway needs to be modified

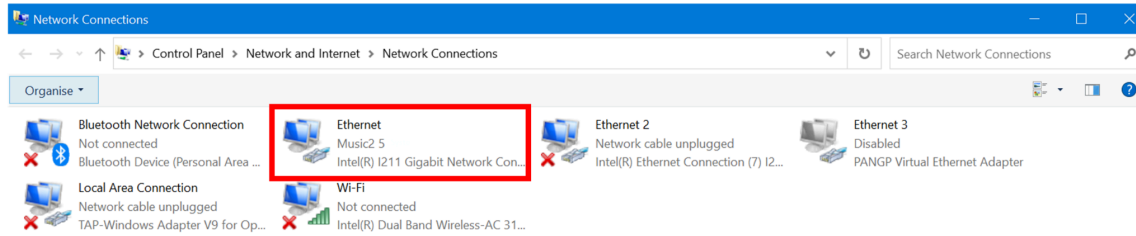
8.1 Connection

Using a patch lead connect your laptop to the **WAN** port of the LoraWan gateway
(See Chapter 7.3.3)

8.2 Set a static IP address on your laptop

- (a) Type **Network Connections** into the windows search bar and press enter

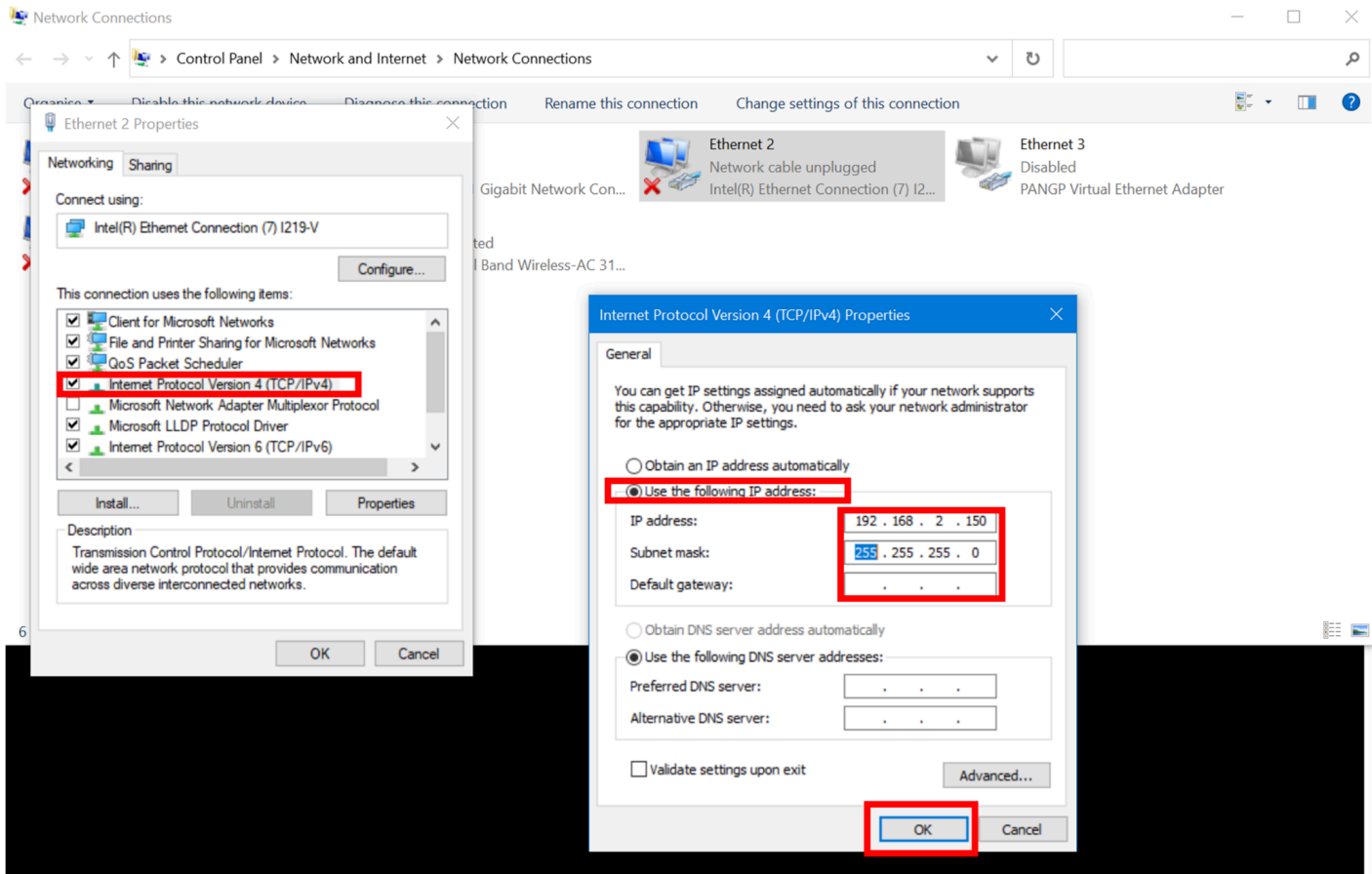
(b) Select your **Ethernet** connection.



(c) Double click on **Internet Protocol Version 4 (TCP / IPv4)**.

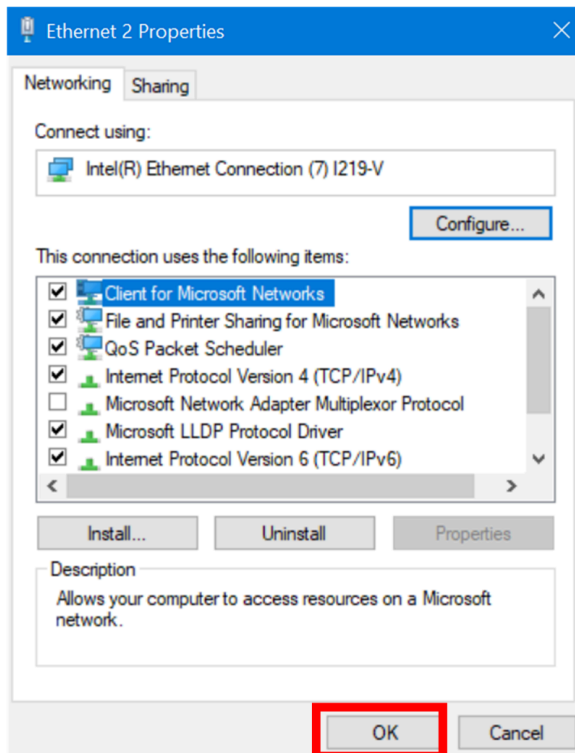
(d) Select **Use the following IP address**

(e) Enter the **IP Address, Subnet Mask and Gateway**, as shown below.



(f) Click **OK**

(g) Click on **OK** to save the network changes



(h) You now have a static IP Address

8.3 Access the RS-485 Gateway Interface

* Note: If you are using a router, ensure that the device and computer are on the same network of 192.168.2.xxx

- (a) Configure the IP Address of the Lora Gateway using the following instructions
- (b) Directly connect your Laptop to the Lora Gateway **LAN port**
(See Chapter 7.3.3)
- (c) Visit the gateway configuration page through a web browser (Chrome is recommended)
The default IP address of the gateway is 192.168.2.243

8.4 Change the password of the RS-485 gateway

(a) Enter a **New Password, Confirm Password** then select **Change Password**

The screenshot shows the 'Router Management' section of the wireless router's web interface. A red box highlights a warning message: 'Your Router is currently not protected and uses an unsafe default username and password combination, please change it using the following dialog!'. Below this, the 'Router Password' section contains three input fields: 'Router Username' (containing 'admin'), 'Router Password' (containing six dots), and 'Re-enter to confirm' (containing six dots). A 'Language' section has radio buttons for 'Chinese simplified' and 'English' (selected). A red box highlights the 'Change Password' button at the bottom right.

- (b) Record and document the new password
- (c) Log back in using the new password

8.5 Set the Password of the RS-485 Gateway Wifi

(a) Under the **Wireless** TAB, select **Wireless Security**

The screenshot shows the 'Wireless Security w10' configuration page. The 'Menu' on the left has 'Wireless' and 'Wireless Security' highlighted with red boxes. The main content area shows 'Physical Interface ath0 SSID [MVD RS-485] HWAddr [54:D0:B4:39:75:D5]' and a 'Security Mode' dropdown menu currently set to 'Disabled'. There are 'Save' and 'Apply Settings' buttons at the bottom. A 'Help' section on the right explains the security modes: 'You may choose from Disable, WEP, WPA Personal, WPA Enterprise, or RADIUS. All devices on your network must use the same security mode. With N-Mode you must use WPA2/AES'.

- (b) - Set the **Security Mode** to WPA2 Personal
- Set the **WPA Algorithms** to AES
- Set the **WPA Shared Key**

Menu

- Setup
 - Wireless
 - Basic Settings
 - Wireless Security
 - Services
 - VPN
 - Security
 - Access Restrictions
 - NAT
 - QoS Setting
 - Applications
 - Administration
 - Status

Wireless Security w10

Physical Interface ath0 SSID [MVD RS-485] HWAddr [54:D0:B4:39:75:D5]

Security Mode: WPA2 Personal

WPA Algorithms: AES

WPA Shared Key: [Redacted] Unmask

Key Renewal Interval (in seconds): 3600 (Default: 3600, Range: 1 - 99999)

Help more...

Security Mode:
 You may choose from Disable, WEP, WPA Personal, WPA Enterprise, or RADIUS. All devices on your network must use the same security mode. With N-Mode you must use WPA2/AES

- (c) Record and document the new password
- (d) Select **Apply Settings**

8.6 Configure the IP address of the RS-485 Gateway

- (a) Select **Setup**

Four-Faith **Wireless Mobile Router** Firmware: F3x26Q-GW v1.1(Jun 14 2023 12:29:42) st
Time: 22:07:45 up 16 min, load average: 0.00, 0.03, 0.06
WAN IP: 192.168.1.15

2G/3G/4G/5G

Menu

- Setup**
- Wireless
- Services
- VPN
- Security
- NAT
- Access Restrictions
- QoS Setting
- Applications
- Administration
- Status

System Information

Router

Router Name	Four-Faith
Router Model	Four-Faith Router
LAN MAC	54:D0:B4:39:75:D3
WAN MAC	54:D0:B4:39:75:D4
Wireless MAC	54:D0:B4:39:75:D5
WAN IP	192.168.1.151
LAN IP	192.168.10.1

Services

DHCP Server	Enabled
radauth	Disabled

Memory

Total Available	121.8 MB / 128.0 MB
Free	67.0 MB / 121.8 MB
Used	54.8 MB / 121.8 MB
Buffers	6.6 MB / 54.8 MB
Cached	22.4 MB / 54.8 MB
Active	6.7 MB / 54.8 MB
Inactive	24.8 MB / 54.8 MB

Wireless

Radio	Radio is On
Mode	AP
Network	Mixed
SSID	Four-Faith
Channel	0 (2407 MHz)
TX Power	100 mW
Rate	Auto

- (b) Leave the **Connection Type** as Static IP
- (d) Enter a **WAN IP address, Subnet Mask & Gateway** that suits the network configuration the Lora Gateway will be connected to (You may need to liaise with the IT technician to get these details) **It is important that the IP**

address of the RS-485 gateway is not the same as an existing device on the network



Menu

- Setup
 - Basic Setup
 - DDNS
 - MAC Address Clone
 - Advanced Routing
 - Networking
- Wireless Services
- VPN
- Security
- Access Restrictions
- NAT
- QoS Setting
- Applications
- Administration
- Status

WAN Setup

WAN Connection Type

Connection Type: Static IP

WAN IP Address: 192, 168, 1, 151

Subnet Mask: 255, 255, 255, 0

Gateway: 192, 168, 1, 1

Static DNS 1: 0, 0, 0, 0

Static DNS 2: 0, 0, 0, 0

Static DNS 3: 0, 0, 0, 0

Keep Online Detection: Ping

Detection Interval: 120 Sec.

Primary Detection Server IP: 114, 114, 114, 114

Backup Detection Server IP: 208, 67, 220, 220

Enable Dial Failure to Restart: Enable Disable (Default: 10 minutes)

Wan Nat: Enable Disable

STP: Enable Disable

Help more...

Automatic Configuration - DHCP:
This setting is most commonly used by Cable operators.

Host Name:
Enter the host name provided by your ISP.

Domain Name:
Enter the domain name provided by your ISP.

Local IP Address:
This is the address of the router.

Subnet Mask:
This is the subnet mask of the router.

DHCP Server:
Allows the router to manage your IP addresses.

Start IP Address:
The address you would like to start with.

(e) Scroll down and select **Apply Settings**

8.7 Configure the IP address of the RS-485 Router

The RS-485 router allows for a direct wifi connection to the gateway in the event you cannot identify the IP address

- Disconnect the ethernet cable from your laptop
- Follow the steps in chapter 8 to set your laptops IP address in the same range as the RS-485 Gateway
As an example, if you set your RS-485 gateway with an IP address of 192.168.1.245 in the previous step, set your laptop with an IP address in the same range (eg: 192.168.1.151)
- Reconnect the ethernet cable to your laptop and **LAN port**
(See Chapter 7.3.3)
- Visit the gateway configuration page through a web browser to ensure that you can (Chrome is recommended)
In this example the new IP address is 192.168.1.245
- Enter username / password: admin / *****
- Select **Setup**

Menu		System Information	
Setup		Router	
Wireless		Router Name	Four-Faith
Services		Router Model	Four-Faith Router
VPN		LAN MAC	54:D0:B4:39:75:D3
Security		WAN MAC	54:D0:B4:39:75:D4
NAT		Wireless MAC	54:D0:B4:39:75:D5
Access Restrictions		WAN IP	192.168.1.151
QoS Setting		LAN IP	192.168.10.1
Applications			
Administration		Wireless	
Status		Radio	Radio is On
		Mode	AP
		Network	Mixed
		SSID	Four-Faith
		Channel	0 (2407 MHz)
		TX Power	100 mW
		Rate	Auto
		Services	
		DHCP Server	Enabled
		radauth	Disabled
		Memory	
		Total Available	121.8 MB / 128.0 MB
		Free	67.0 MB / 121.8 MB
		Used	54.8 MB / 121.8 MB
		Buffers	6.6 MB / 54.8 MB
		Cached	22.4 MB / 54.8 MB
		Active	6.7 MB / 54.8 MB
		Inactive	24.8 MB / 54.8 MB

(g) Scroll down to **Network Setup**

(h) Check that the Router IP - Local IP address of 192.168.4.1 is different to the network the gateway will be connected to

Notes:

- 1) If the address is the same it will cause IP conflicts so it is very important to ensure these settings are different
- 2) If you do not know the router IP address of the customers network, follow the steps in **8.8**
- 3) If the Router IP is different, then proceed to step **8.9**

Network Setup

Router IP

Local IP Address	192	168	4	1
Subnet Mask	255	255	255	0
Gateway	0	0	0	0
Local DNS	0	0	0	0

Network Address Server Settings (DHCP)

DHCP Type: DHCP Server

DHCP Server: Enable Disable

Start IP Address: 192.168.10.100

Maximum DHCP Users: 50

Client Lease Time: 1440 minutes

WINS: 0.0.0.0

Use DNSMasq for DHCP:

Use DNSMasq for DNS:

DHCP-Authoritative:

Time Settings

NTP Client: Enable Disable

Time Zone: UTC

Summer Time (DST): none

Server IP/Name:

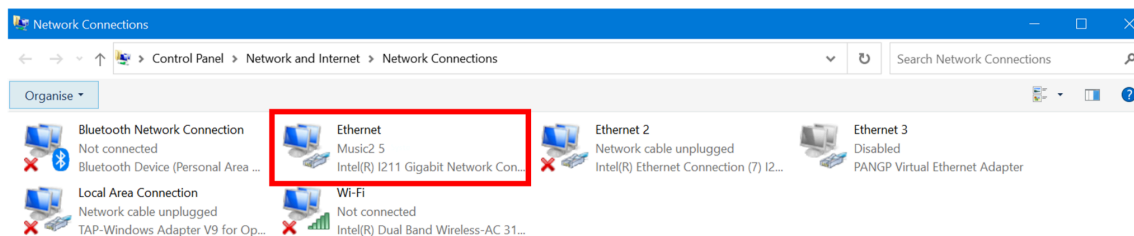
Adjust Time

Auto | 2023 | 10 | 10 | 10 | 00 | 41 | Set

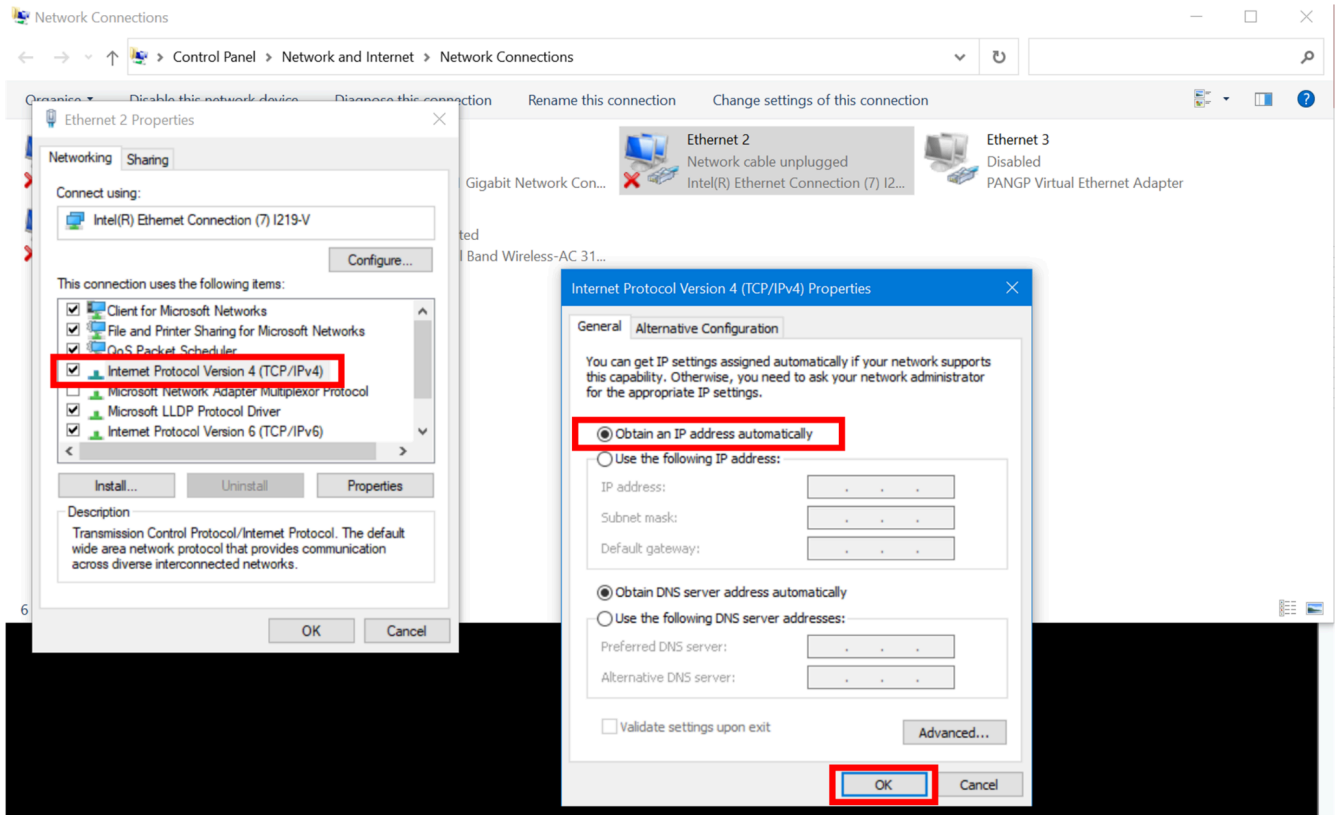
Save | **Apply Settings** | Cancel Changes

8.8 Identify a customers server Default Gateway address

- Set your laptop IP address to obtain an IP address automatically
- Type **Network Connections** into the windows search bar and press enter
- Select your **Ethernet** connection.

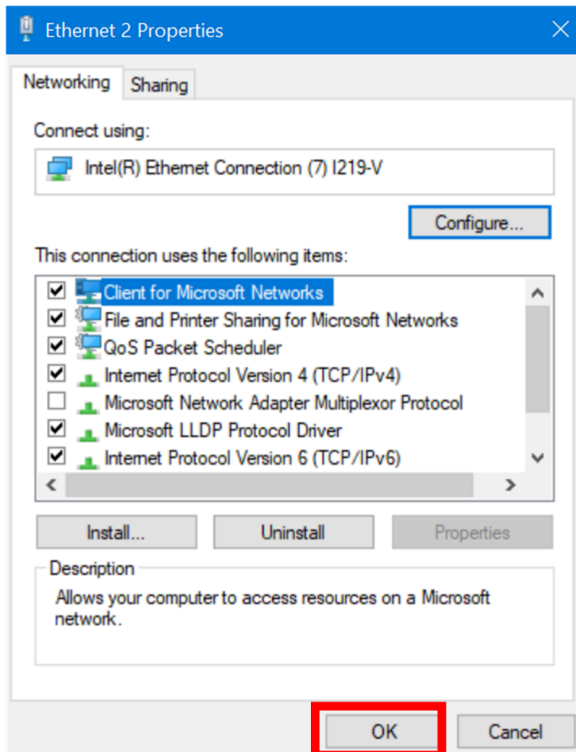


- Double click on **Internet Protocol Version 4 (TCP / IPv4)**.
- Select **Obtain an IP address automatically**

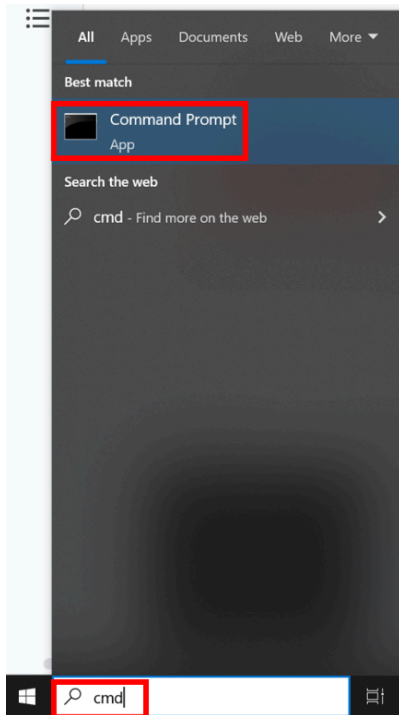


(f) Click **OK**

(g) Click on **OK** to save the network changes



- (h) You have now set your laptop to obtain an IP address automatically.
- (i) Type **CMD** in the search bar
- (j) Select **Command Prompt**



- (k) type **ipconfig** and press the **enter** key
- (l) Note down the **Default Gateway IP** address
- (m) If this address is not 192.168.5.1 then proceed to **Step 8.10**, if the address is the same, follow **Steps 8.9** to change the address

```

C:\Users\integ> ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

   Media State . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Ethernet adapter Ethernet 2:

   Media State . . . . . : Media disconnected
   Connection-specific DNS Suffix  . : localdomain

Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : home
   Link-local IPv6 Address . . . . . : fe80::63b9:58b6:c394:5c12%22
   IPv4 Address. . . . . : 192.168.1.45
   Subnet Mask . . . . . : 255.255.255.0
   Default Gateway . . . . . : fe80::faca:99ff:feaf:fe6%22
                               192.168.1.1

Wireless LAN adapter Wi-Fi:

   Media State . . . . . : Media disconnected
   Connection-specific DNS Suffix  . : home

Wireless LAN adapter Local Area Connection* 8:

   Media State . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 10:

   Media State . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Ethernet adapter Bluetooth Network Connection:

   Media State . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

C:\Users\integ>

```

8.9 Change the RS-485 Router IP address

(a) Select **Setup**

Firmware: F3x26Q-GW v1.1(Sep 4 2023 17:29:16) str
Time: 03:26:03 up 26 min, load average: 0.00, 0.04, 0.04
WAN IP: 192.168.1.95

Menu

- Setup**
- Basic Setup
- DDNS
- MAC Address Clone
- Advanced Routing
- Networking
- Wireless Services
- VPN
- Security
- Access Restrictions
- NAT
- QoS Setting
- Applications
- Administration

WAN Setup

WAN Connection Type: Static IP

Connection Type: Static IP

WAN IP Address: 192.168.1.99

Subnet Mask: 255.255.255.0

Gateway: 192.168.1.1

Static DNS 1: 1.1.1.1

Static DNS 2: 0.0.0.0

Static DNS 3: 0.0.0.0

Keep Online Detection: Ping

Detection Interval: 120 Sec.

Primary Detection Server IP: 114.114.114.114

Help more...

Automatic Configuration - DHCP:
This setting is most commonly used by Cable operators.

Host Name:
Enter the host name provided by your ISP.

Domain Name:
Enter the domain name provided by your ISP.

Local IP Address:
This is the address of the router.

Subnet Mask:
This is the subnet mask of the router.

(b) Scroll down to **Network Setup**

(c) Change the **Local IP** address so that is not the same as the customers

(d) Select **Apply Changes**

Network Setup

Router IP

Local IP Address	192	168	4	1
Subnet Mask	255	255	255	0
Gateway	0	0	0	0
Local DNS	0	0	0	0

Network Address Server Settings (DHCP)

DHCP Type: DHCP Server

DHCP Server: Enable Disable

Start IP Address: 192.168.4.100

Maximum DHCP Users: 50

Client Lease Time: 1440 minutes

WINS: 0.0.0.0

Use DNSMasq for DHCP:

Use DNSMasq for DNS:

DHCP-Authoritative:

Time Settings

NTP Client: Enable Disable

Time Zone: UTC

Summer Time (DST): none

Server IP/Name:

Adjust Time

Auto

8.10 Connecting the RS-485 Gateway to a network

- Disconnect your laptop from the gateway
- Disconnect power from the gateway
- Connect an ethernet cable from the customers network switch to the **WAN** port on the gateway
- Enter the **IP address of the RS-485 gateway** (In this example 192.168.1.151) followed by the port :8088
 - You can now access the RS-485 gateway from the customers network
 - Don't forget to set your laptops IP Address back to Automatic (DHCP)
- You will only be able to add the gateway to the MVD portal when **at least one detector** is connected

*Insert images from portal

*Insert step by step guide

8.11 Check that the Rs-485 Gateway has connected to the MVD Server

- Select the **Status** tab, then select **Smart Gateway Status**

Menu

- [Setup](#)
- [Wireless](#)
- [Services](#)
- [VPN](#)
- [Security](#)
- [Access Restrictions](#)
- [NAT](#)
- [QoS Setting](#)
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Gateway status

Gateway status Enabled

Gateway status				
SN	Channel	Use	Bind Center	Protocol
<input type="checkbox"/> 1	COM1	Used	ALL	ModbusRtu
<input type="checkbox"/> 7	ETH1	-	-	-

[Data status](#) [Numerical operation state](#)

Server Connet status			
Server	Server Address	Use Status	Connet status
1	mqtt.myvapedefense.com:1883	Used	Connected

Flush

b) If the Rs-485 gateway is configured correctly and able to access the internet, the Connect Status should be 'Connected'

8.12 Backup

It is recommendation that once all gateway configuration is completed, a backup should be created and stored with both the installer and the client

8.12.1 Create a Backup

Select the **Administration** tab, then select **Backup**

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Backup Configuration

Backup Settings

Click the "Backup" button to download the configuration backup file to your computer.

Restore Configuration

Restore Settings

Please select a file to restore No file chosen

WARNING

Only upload files backed up using this firmware and from the same model of router.
Do not upload any files that were not created by this interface!

Help [more...](#)

Backup Settings:
You may backup your current configuration in case you need to reset the router back to its factory default settings.

Click the *Backup* button to backup your current configuration.

Restore Settings:
Click the *Browse...* button to browse for a configuration file that is currently saved on your PC.

Click the *Restore* button to overwrite all current configurations with the ones in the configuration file.

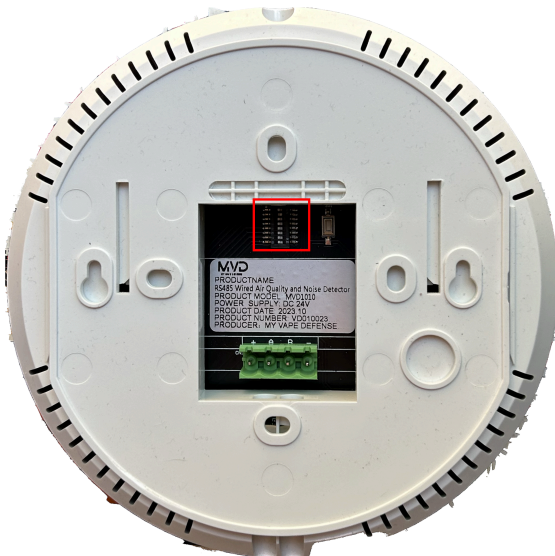
9. Configuring the Detector

9.1 Setting the Detector DIP switch

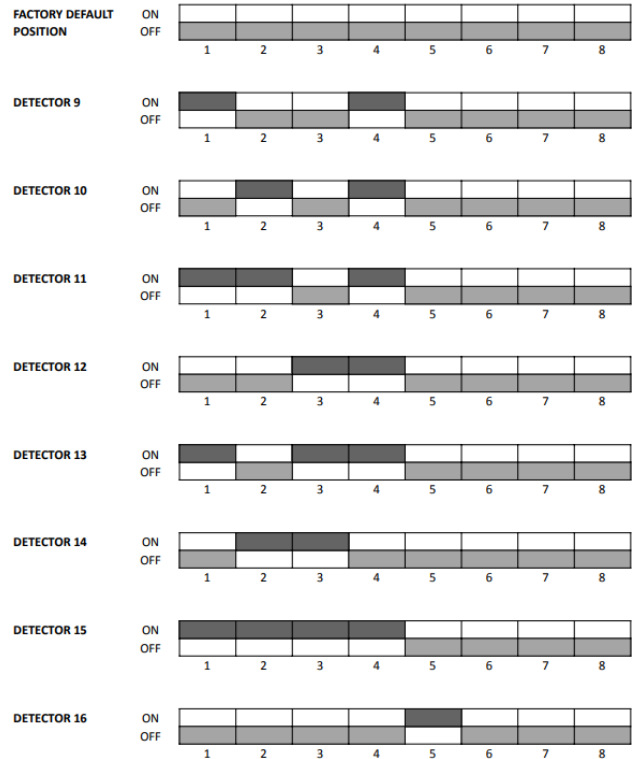
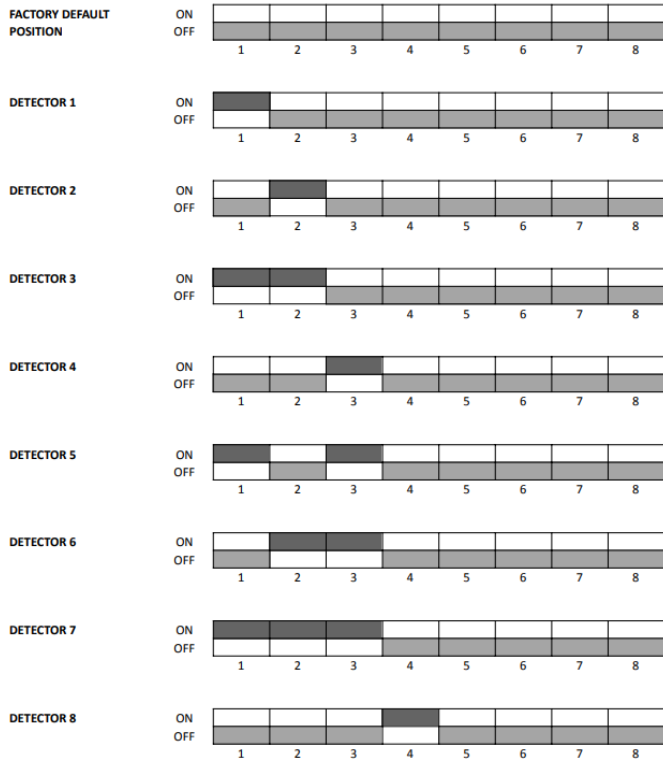
Prior to installing the detectors, the dip switches need to be set so the detector can communicate with the RS-485 Gateway

9.2 Dip Switch Positions

(a) The factory default dip switch position of the detector is set to off



(b) Using the following table, starting at 1 set each detector with a number



(c) Mark the number on the back of the detector with a sharpie for easy identification

9.3 Check that the detector has connected to the RS-485 Gateway

(a) Select the **Status** tab, then the **Smart Gateway Status** tab, then select **Data Status**

Time: 00:02:27 up 5:51, load average: 0.30, 0.10, 0.02
WAN IP: 192.168.1.151

Four-Faith WIRELESS MOBILE KOURIER 2G/3G/4G/5G

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 - Sys-Info

Gateway status Enabled

Gateway status

SN	Channel	Use	Bind Center	Protocol
<input type="checkbox"/> 1	COM1	Used	ALL	ModbusRtu
<input type="checkbox"/> 7	ETH1	-	-	-

Data status Numerical operation state

Server	Server Address	Use Status	Connet status
1	mqtt.myvapedefense.com:1883	Used	Connected

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Data status

Data status(1/4)					
SN	Channel	Dev ID	Data Id	Data Type	Value
1	COM1	01	A1	UINT16	8
2	COM1	01	A2	UINT16	null
3	COM1	01	A3	UINT16	null
4	COM1	01	A4	UINT16	null
5	COM1	01	A5	UINT16	null
6	COM1	01	A6	UINT16	2
7	COM1	01	A7	UINT16	4
8	COM1	01	A8	UINT16	0
9	COM1	01	A9	UINT16	430
10	COM1	01	A10	UINT16	1
11	COM1	02	B1	UINT16	8
12	COM1	02	B2	UINT16	null
13	COM1	02	B3	UINT16	null
14	COM1	02	B4	UINT16	null
15	COM1	02	B5	UINT16	null
16	COM1	02	B6	UINT16	1
17	COM1	02	B7	UINT16	1
18	COM1	02	B8	UINT16	0
19	COM1	02	B9	UINT16	642
20	COM1	02	B10	UINT16	1
21	COM1	03	C1	UINT16	0
22	COM1	03	C2	UINT16	0
23	COM1	03	C3	UINT16	null
24	COM1	03	C4	UINT16	null
25	COM1	03	C5	UINT16	null
26	COM1	03	C6	UINT16	0
27	COM1	03	C7	UINT16	0
28	COM1	03	C8	UINT16	0
29	COM1	03	C9	UINT16	646
30	COM1	03	C10	UINT16	1
31	COM1	04	D1	UINT16	2
32	COM1	04	D2	UINT16	1
33	COM1	04	D3	UINT16	null
34	COM1	04	D4	UINT16	null
35	COM1	04	D5	UINT16	null
36	COM1	04	D6	UINT16	1
37	COM1	04	D7	UINT16	2
38	COM1	04	D8	UINT16	0
39	COM1	04	D9	UINT16	619
40	COM1	04	D10	UINT16	1
41	COM1	05	E1	UINT16	null
42	COM1	05	E2	UINT16	null
43	COM1	05	E3	UINT16	null
44	COM1	05	E4	UINT16	null
45	COM1	05	E5	UINT16	null
46	COM1	05	E6	UINT16	null
47	COM1	05	E7	UINT16	null
48	COM1	05	E8	UINT16	null
49	COM1	05	E9	UINT16	null
50	COM1	05	E10	UINT16	null

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9.4 Adding the detector to the MVD portal

(a) Scan the QR code

b)

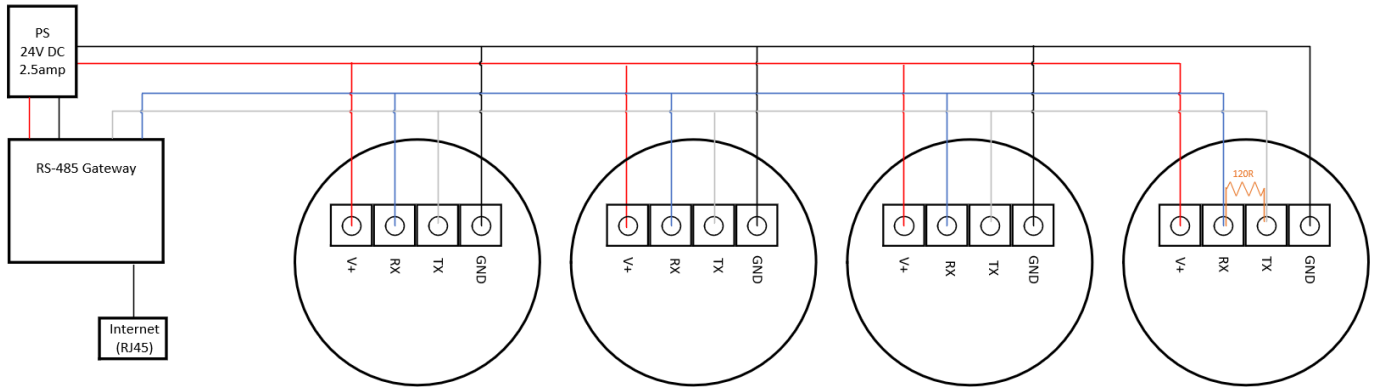
*Insert images from portal

*Insert step by step guide

10. Installing the Detectors

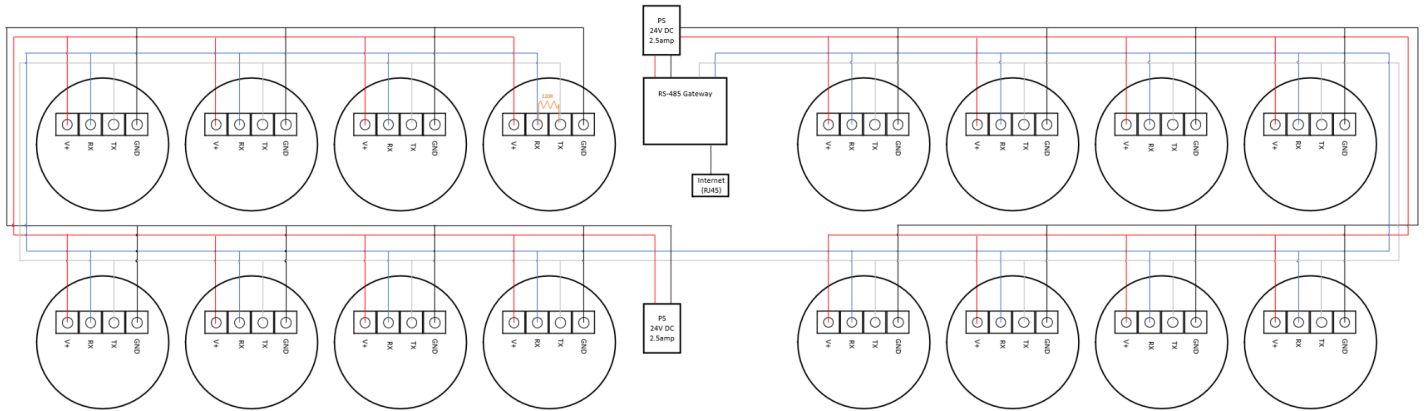
10.1 Wiring Diagrams

Example 1 - Daisy Chain Topology



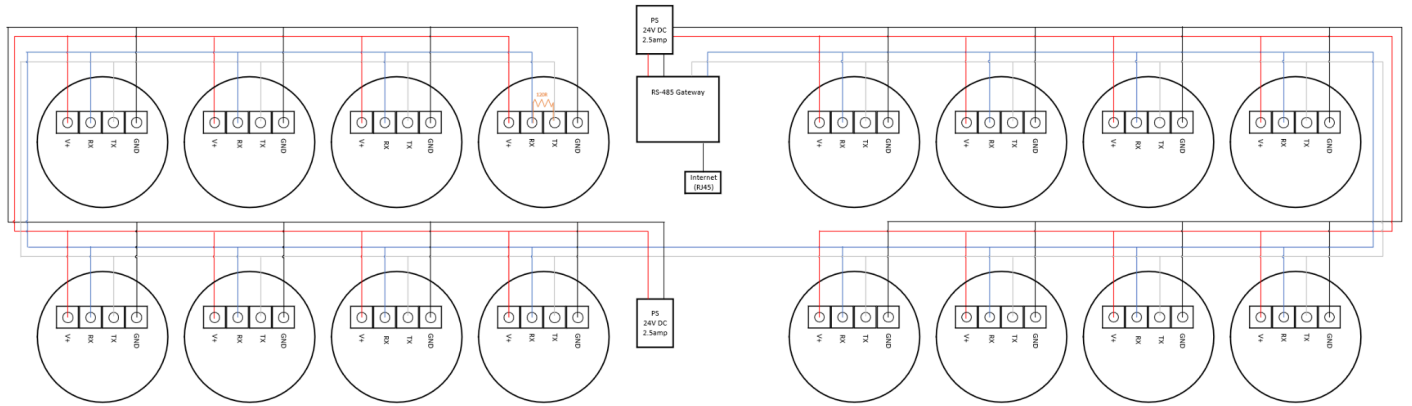
- *Maximum of 4 Detectors per 2.5amp PS for Mini & Mini Pro Gateway
- *Maximum of 8 Detectors per 2.5amp PS for Combined & Dual Gateways
- *Maximum of 16 Detectors per 5amp PS for Combined & Dual Gateways

Example 2 - Single Power Supply



- *Maximum of 4 Detectors per 2.5amp PS for Mini & Mini Pro Gateway
- *Maximum of 8 Detectors per 2.5amp PS for Combined & Dual Gateways
- *Maximum of 16 Detectors per 5amp PS for Combined & Dual Gateways

Example 3 - Multiple Power Supplies



*Maximum of 4 Detectors per 2.5amp PS For Mini & Mini Pro Gateway
 *Maximum of 8 Detectors per 2.5amp PS for Combined & Dual Gateways
 *Maximum of 16 Detectors per 5amp PS for Combined & Dual Gateways

10.2 Termination

It is recommended that termination of the detectors is completed using a Bootlace Ferrule Crimping Tool and Bootlace Crimps

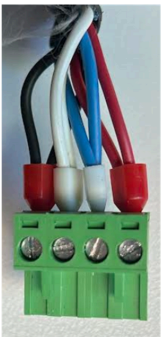
10.2 End of line Resistor

10.3 Bootlace Crimp Sizes (18AWG Cable)

- For single conductor terminations - 1x 1.5mm
- For two conductor terminations - 2x 1.5mm

10.4 Termination Examples

Neat and proper termination of the cables is vital to provide the detector with a reliable power source and prevent faults and corrupted data



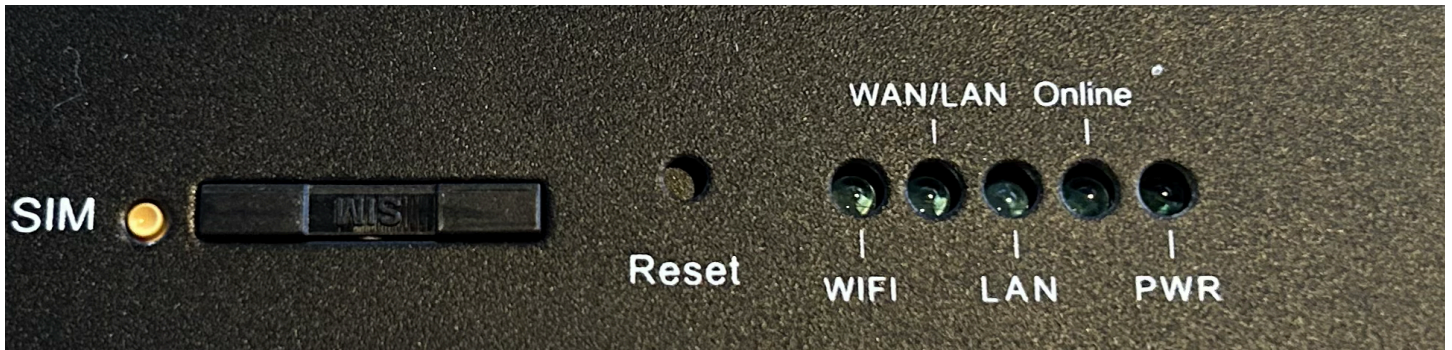
10.5 Mounting

- Install the mounting plate within the parameters set out in Chapter 6
- Cut a 50mm hole at the required location
- Install the mounting plate



- (d) Terminate the cable to the phoenix connector
- (e) Connect the phoenix connector to the detector
- (f) Mount the detector onto the plate with the arrows facing the same way
- (g) Install the security screw

11. Status Light Indicators



No.	Name	Function	Description
1	WIFI	WiFi running indicator light	On: WiFi running Off: WiFi disable
2	WAN/LAN	WAN/LAN Indicator light	Flicker: System running Off: System exception
3	LAN	LAN indicator light	Flicker: System running Off: System exception
4	Online	System running indicator light	Flicker: System running Off: System exception

5	PWR	Power light	On: Power on Off: Power off
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12. Troubleshooting

Problem	Causes	Suggestions
Detectors won't connect to gateway	<ul style="list-style-type: none"> • Detectors don't have power • Only PoE power is connected to Gateway • RS-485 Bus is not 	<ul style="list-style-type: none"> • Wait several minutes for the detectors to connect to the gateway after initial power up • Check for voltage directly out of power supply • Check polarity • Check detectors for minimum voltage • Check Gateway is powered with 24VDC • Check RSSI & SNR values
Can't access the Gateway	<ul style="list-style-type: none"> • IP address is incorrect • Incorrect port connected 	<ul style="list-style-type: none"> • Power Cycle the Gateway - it can take more than a minute to obtain its IP address • Directly connect to Gateway • Use an IP scan tool - noting that the MAC address may not appear depending on your scan tool • Ensure you are connected to the WAN port
The Gateway won't connect to the MVD portal	<ul style="list-style-type: none"> • No detectors are connected to the gateway • Gateway is being blocked by a Firewall • Local network configuration 	<ul style="list-style-type: none"> • Make sure at least one detector is connected to the gateway • Engage site IT technician •
The gateway has been factory reset	<ul style="list-style-type: none"> • The Reset button has been pressed 	<ul style="list-style-type: none"> • Refer to the MVD 'Factory Resetting the RS-485 Gateway' document

The detector won't join the gateway	<ul style="list-style-type: none">• The dip switch on the detector is incorrect	<ul style="list-style-type: none">• Check the dip switch is correct• Power cycle detector• Power cycle the gateway