

# **Installation Instructions - Configuring**

# IQ5, IQ5-IO Controller & I/O Modules

#### Important: Retain these instructions

These instructions shall be used by trained service personnel only. If the equipment is used in a manner not specified by these instructions, the protection provided by the equipment may be impaired.

https://partners.trendcontrols.com



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# 1 BEFORE STARTING CONFIGURATION

# Install the IQ5 and any required I/O Modules



IQ5 Installation Instructions - Mounting (TG201482) IQ5-IO Installation Instructions - Mounting (TG201484) IQ4/IO/.. Installation Instructions - Mounting (TG201342) XCITE/IO/.. Installation Instructions - Mounting (TG200627)

#### Prepare the Ethernet Network(s)

#### **Install DHCP Server**

If the IP address settings (IP address, subnet mask, default router, WINS and DNS servers' addresses) are to be supplied by a DHCP server, ensure one is installed on the Ethernet segment to which IQ5 is connected.

#### **Install DNS Server**

If email alarms are to be sent, and the email server address is identified by internet domain name, a DNS server must be installed.

Note: IQ5 does not support WINS. If hostnames are to be used, then a DNS server is recommended. For security the use of LLMNR protocol is not advised.

#### Install IQ®SET on Engineering PC / Laptop



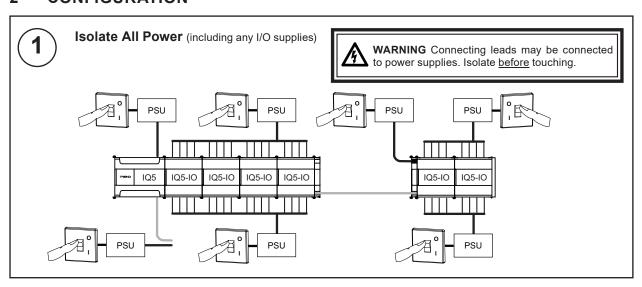
IQSET Manual (TE200147)

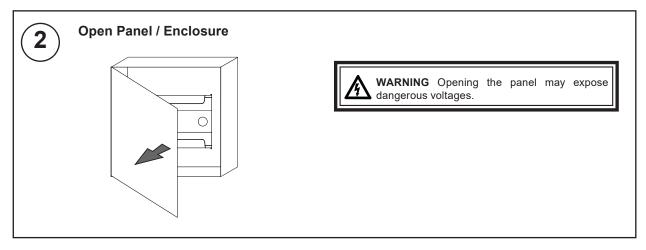
## **Additional Documentation Required**

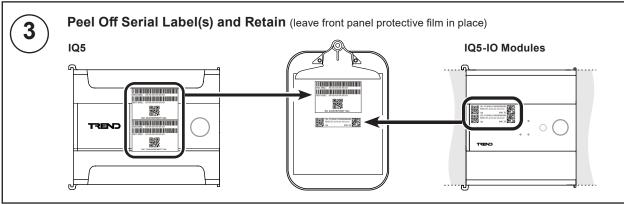
- IQSET Manual (TE200147)
- IP Tool Manual (TE200638)
- IQTool Monitor Applet Manual (TE201298)
- IQTool Addresser Applet Manual (TE201299)
- IQ5 Configuration Manual (TE201486)

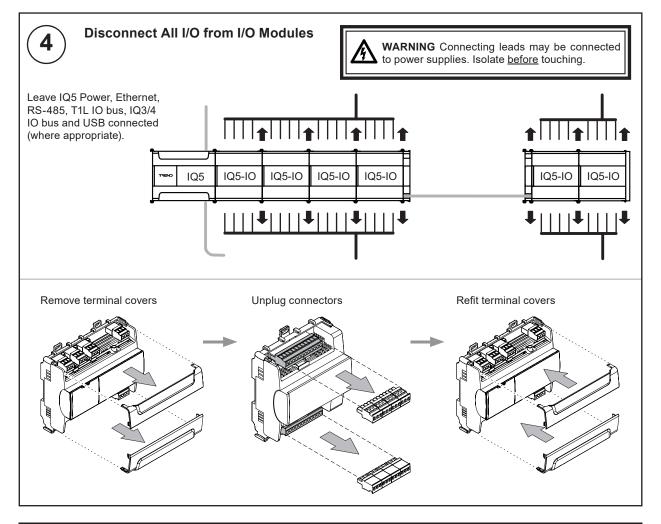
Note: PDF copies are included with IQSET installation in the following folder: C:\...\Trend Control Systems\Documentation

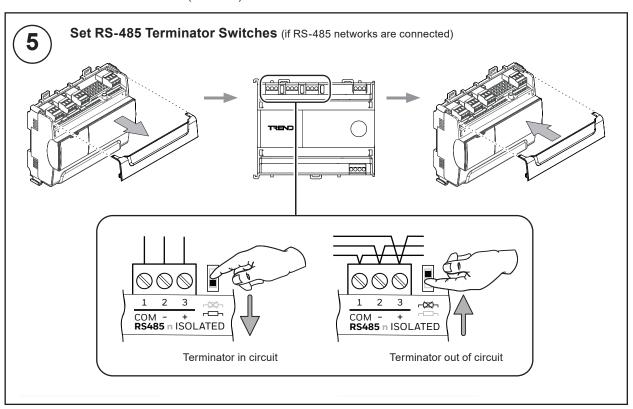
## 2 CONFIGURATION

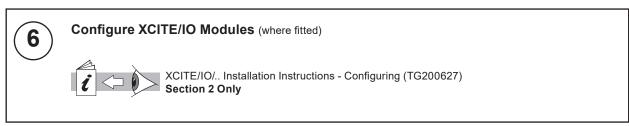


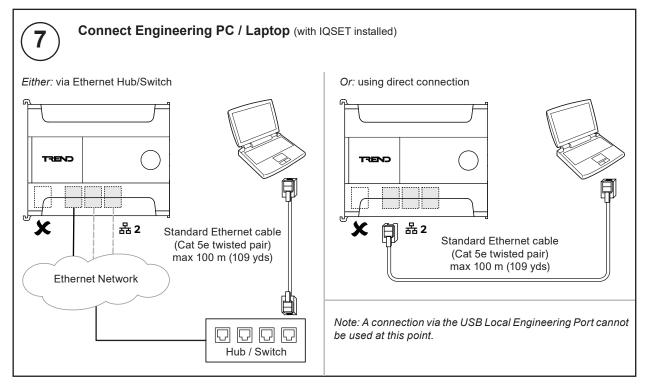


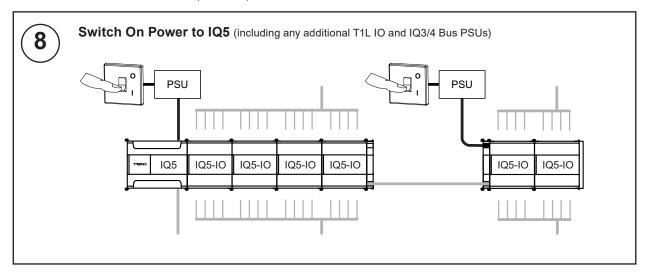


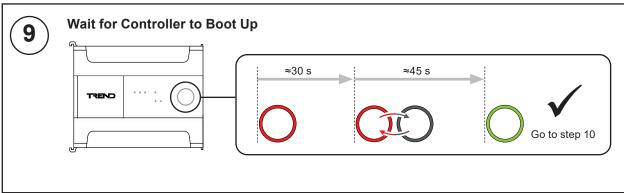


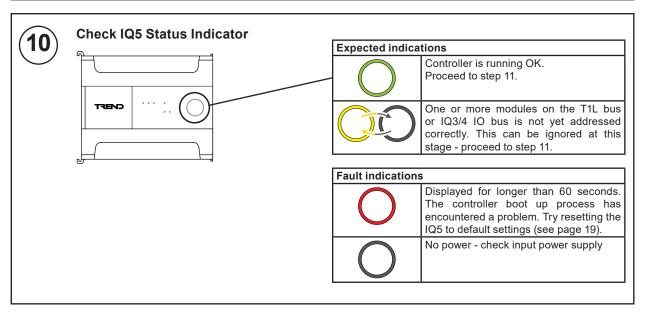


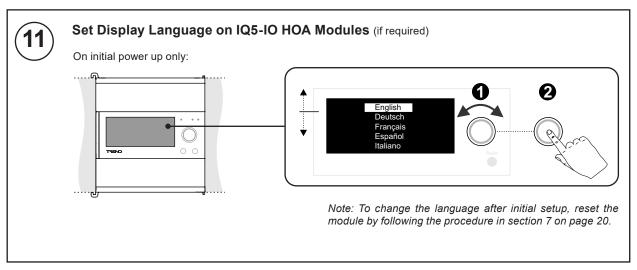


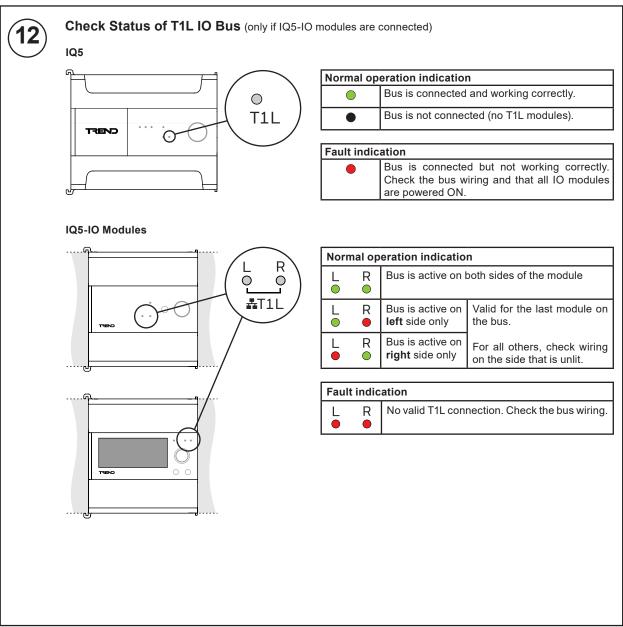


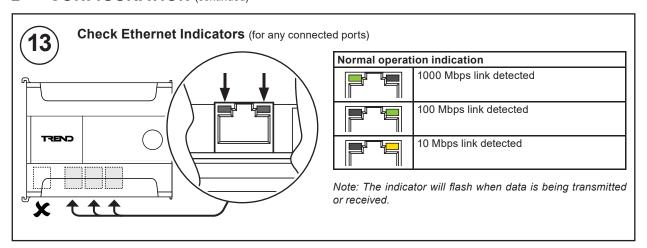


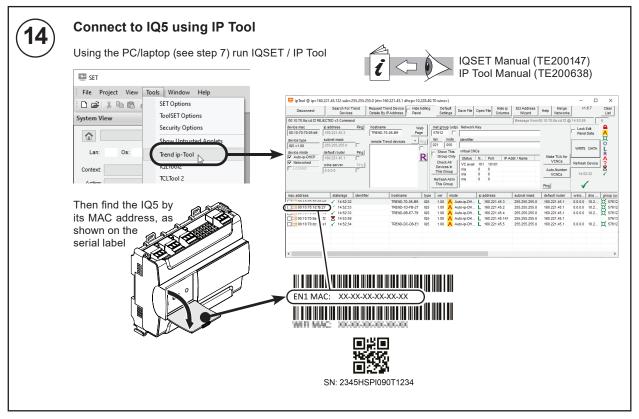














# Set up IP Addressing Details

With the IQ5 selected in the IPTool devices list, check the following parameters and set as required. **IMPORTANT:** The Network Key, lan and node parameters MUST be set.

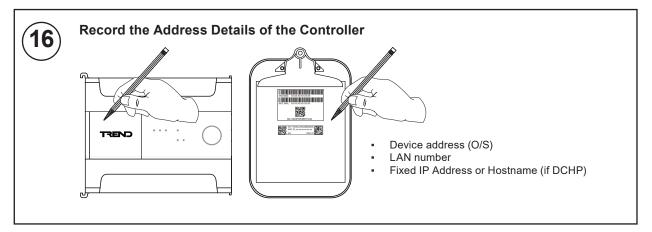
Parameter	Setting / Value	Further Details		
Network Mode - Networked*	□ = build Trend network with other devices (default)     □ = operate in standalone mode	In standalone mode the IQ5 will not build a LAN or internetwork with other devices.		
Network Mode - Auto-ip-DHCP*	□ = dynamic IP DHCP (default)     □ = static IP addressing	If set to DHCP mode but no DHCP server is found, the IQ5 will operate in link/local mode where it auto negotiates its IF address with other devices on its Ethernet segment.		
		Note: It is recommended that link/local only be used on a single segment system.		
IP Address*, Subnet Mask*, Default Router*	If static IP addressing is selected enter the required values in the format:  XXX.XXX.XXX.XXX	WINS is not supported by IQ5. If hostnames are to be used, then a DNS server is recommended. The use of LLMNR protocol is not advised.		
Hostname	Default is 'Trend-' plus the last three octets from the MAC address. Change if required.	The hostname may comprise upper or lowercase characters A to Z, digits 0 to 9, underscore or hyphen, with no spaces		
UDP	Default is 57612. If required, this can be changed to a value from 49152 to 65535.	All IQ5 controllers that are required to be part of the same Trend network must have the same udp port		
Network Key	Enter a suitable key comprising at least 10 alphanumeric characters (no spaces).	number and the same network key. Multiple Trend networks can exist on the same physical network, in which case each separate Trend network will require a differen		
	Do not forget the Network Key!	network key.  HINT: For consistency, type the network key into a tex editor (e.g. Notepad), then copy and paste it for each device		
virtual CNCs*	Click Auto Number vCNCs or double-click on a vCNC in the virtual CNCs list and enter the following:	The IQ5 has four vCNCs (or eight when licenced as an NC device). All vCNCs are all disabled by default. At least one vCNC must be enabled to allow a supervisor, tool or loca		
	node - the vCNC address 1, 4 to 9, 11 to 119 (0 = vCNC disabled) port - the vCNC port number 1 to 32767	display to make a connection to the Trend system.  For most systems it is recommended to have vCNCs on a least two separate devices on each LAN in order to provide		
	Note: If Use Default Port is checked the port number will be set to 10000 plus the node address (e.g. node 23 = port 10023).	continuity of communications (if one device is offline) and to provide load sharing during intensive data transfer operations (e.g. when downloading plot data).		
LAN*	Enter the required local LAN number: 1, 4 to 9, 11 to 119	IQ5 controllers are given a default device address of 119 and LAN number of 20 in the factory.		
	Note: This <b>must</b> be the same for all devices required to form a LAN.			
OS*	Enter the required device address: 1, 4 to 9, 11 to 119			
	Note: This <b>must</b> be unique on a LAN.			
Identifier	Enter a name that identifies the controller within the system.	To avoid potential confusion, it is generally recommended that this is made the same as the hostname.		

Click the WRITE DATA button to save the new settings.

Note: If parameters indicated \* above are changed the IQ5 will reboot when the new values are saved.

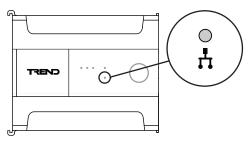
# STOP!

It is recommended that you complete the above setup for <u>all</u> IQ5 controllers in the Trend network before proceeding.





# Check LAN OK Indicator (not applicable if being used in NC Mode)



Normal operation indication				
	LAN built OK with at least one other device.			
•••	Attempting to build a LAN with other devices that have the same LAN number and Network Key. This may take several minutes.			
•	Controller set to standalone mode and will not build a LAN with other devices.			

#### Fault indication



If this continues to show for more than a few minutes this indicates that the controller has not found any other devices on the same LAN. Use IPTool to check device settings.



# Connect to the Trend Network using IQSET

Using the Engineering PC/Laptop (see step 7) run IQSET and make a connection to the Trend Network (or Site). For example:



IQSET Manual (TE200147)

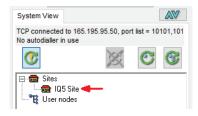
- Open a new site (e.g. File > Open/New Project > Live Site).
- In the IQSET System View panel right-click on Sites and select New Site.
- Select Trend as the network type and click OK.
- Enter a Site name and click Edit site details. The Connection Wizard will appear.
- Select Launching TUA Editor and click Next. The TUA editor will appear. Select the CNC tab:



 Select TCP/IP, enter the IP Address (or hostname) of an IQ5 and add at least one valid vCNC port in the Remote IP port list.

Note: If using a hostname and DNS or LLMNR is not supported on the network, add '.local' to the hostname and ensure that IQSET is connected to the same segment.

- Click **OK** twice.
- In the **System View** panel, double-click the site name in the **Sites** tree:



If the IQ5 (to which you are connecting) already has a System Account set up, then you will now be asked to login using the appropriate credentials - go to step 20 on page 9.

Otherwise, you will be prompted to press the controller's service button to validate the connection - go to step 19.

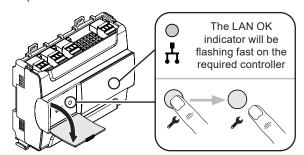


# Validate the Connection to IQ5 and Create System Accounts

If you attempt connection to an IQ5 that has no system accounts setup, then IQSET will display:



Press the service button > on the controller within the specified time limit:



 IQSET will now display a dialogue box for you to enter an Account Name, Password and Email address for the Admin system account.

Note: The email address is required in order to recover from a forgotten password.

- Click to create the account.
- You will then be given the option to create a single Engineer system account - click Yes or No as required.

The new system account(s) will now be set up on the controller and synchronised with all other IQ5 controllers on the same Trend network, i.e. any IQ5 controller that has:

- the same Network Key and UDP Port set up, and
- no pre-existing system accounts.

This will take a few seconds to complete, after which time IQSET will display a login box - go to step 20 on page 9.

Note: To add further system accounts go to the System View in IQSET, right-click the site, select System Account Manager and follow the instructions in the IQSET Manual.



Remember to provide the credentials of the Admin system account plus the Network Key to the site owner to enable them to manage the system accounts. If the site owner does not have access to IQSET you may need to add another Admin system account for each system integrator working on the site.



## Login to the Trend Network

If you attempt connection to an IQ5 that has system accounts setup, then IQSET will display:



- Enter the User Name and Password for a valid Admin or Engineer system account.
- Click OK.
- In the System View panel click the site name to refresh the site details (or right-click and select Refresh).

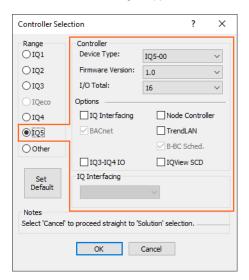


#### **Create Strategy in IQSET**

Create an IQSET project and create a strategy for each IQ5 controller.



- In IQSET click File > Open / New Project.
- Select Create New SET Project and click OK.
- Enter the required details and click OK.
- In the Project View panel add the required LANs by rightclicking the project name and selecting Insert Lan.
- Enter the required LAN Number and Label, and click OK.
   Note: The LAN number should match the LAN(s) defined using IPTool in step 15.
- Add the required IQ5 controllers by right-clicking a LAN and selecting Insert Device > IQ Controller. The Controller Selection dialogue appears:



 Select IQ5 and select the required number of I/O points (I/O Total) and licensable features (Options) and click OK.

- In the Device Details dialogue enter the controller Address and Name, and click OK.
  - Note: The Address should match the node(s) defined using IPTool in step 15.
- In the Address Module dialogue enter any required settings and click OK.
- In the Sensor Type dialogue enter any required settings and click Exit

#### Set up IO Modules (if installed)

- Right-click in the empty strategy page and select Device > I/O Setup.
- In the I/O Setup dialogue add and configure any IO Modules as required by following the instructions in the IQSET Manual.

#### Configure Remaining Strategy (as required)

 Create the remainder of the strategy by following the instructions in the IQSET Manual and IQ5 Configuration Manual.

#### **Local User Modules**

It is not necessary to create local User Modules for the IQ5, unless these are required to control end users access to the web interface or the IQVIEW SCD (single controller display). All engineering access is controlled by the system accounts created in step 19.



### **Set up IQ5 Feature Licencing**

If any licensable features are required (e.g. additional IO points, NC or INT functionality) these must now be enabled.



See 'Licence IQ5 Features' in the IQSET Manual (TE200147)

- With IQSET connected (see step 18) and logged in (see step 20), go to System View.
- Right-click the site name in the Sites tree and select IQ5 Feature Licensor.
- Select the device(s) required and click to generate a Licence Request File and save it on the PC.
- Login to the HBT Licensing Portal:

# https://MyBuildings.honeywell.com

- Select Quick Cart and upload the License Request File.
- Add any additional details including the email address of the person requiring the licence, then checkout the order.

After the order has been processed an email will be sent to the specified email address. You will then need to...

- Download the Licence File from the Portal and save it.
- Using the IQ5 Feature Licensor click to import the Licence File.
- · Select which device(s) to update.
- Click to update the device licences.

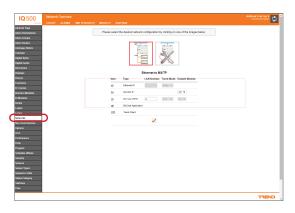
Note: If you are not connected to the same IQ5 vCNC that was used when creating the Licence Request File a warning will be displayed. If you are connected to the same site you can ignore the warning. If you are not connected to the same site connect using a different connection.



#### Set up NC Communication Mode (if the IQ5 is required to operate as node controller)

Note: The IQ5 must be licenced for NC mode.

- Using the Engineering PC/Laptop (see step 7) open a compatible web browser and access the IQ5 web interface using its IP Address or Hostname.
- If prompted, login using valid system account credentials.
- Select Modules > Networks to display the NC Configuration Wizard.



 Click required mode icon (see table), and if necessary specify any parameters, e.g. LAN number.

Note: If no icons appear, check that the IQ5 is configured and licensed for NC operation (see step 21 & 22).

- Click : the controller will now reboot.
- Set the communications channel on the MS/TP network module to the port the MS/TP network is connected to.

Mode Icon	Parameter Settin	ngs		
in	Ethernet Internetwork to to MS/TP LAN (default)			
- 110	Parameter	Setting		
LAN	BACNet MSTP LAN number	1, 4 to 9, 11 to 119		
	BACnet IP Disable Module	No = Enabled Yes = Disabled		
- 4.00	Manual configurat (not recommende	tion of all paramters d)		

Note: In NC mode the IQ5 always has a LAN to connection to the internetwork and so cannot join another LAN on the internetwork.



#### Configure or Disable the Web Server (if required)

The IQ5's web server enables users to access the web interface for viewing/changing module parameters (including setting up NC mode - see step 23) or interacting with optional GraphIQ pages via a web browser.

Connection to the IQ5's web server can be made via HTTP and/or HTTPS protocol and both these ports are enabled by default.

Note: Where HTTPS is used it will be necessary to configure SSL certificates (see the IQ5 Configuration Manual).

If access to the web interface is not required it is recommended that both ports are disabled for security. For example:

- Using the Engineering PC/Laptop (see step 7) open a compatible web browser and access the IQ5 web interface using its IP Address or Hostname.
- If prompted, login using valid system account credentials.
- Select Modules > Networks.
- Select n1 (Ethernet IP).
- Set the Web Server Port Number and/or Secure Web Server Port Number parameters to 0 to disable the port.
- Click



IQ5 Configuration Manual (TE201486) IQSET Manual (TE200147)



## **Download Strategy to IQ5 Controller**

IQSET Manual (TE200147)

Use IQSET to download the strategy to the controller(s).

For a single controller...

- Select the appropriate controller/strategy in the Project
- From the Strategy menu select Create Data File.
- In the **System View** select the appropriate controller.
- Right-click the controller and select Send File to Device.
- In the File Download dialogue box check that the correct file is selected the in Transfer Directory field.
- Click to start the download.

For other methods or for downloading to multiple contollers please refer to the IQSET Manual

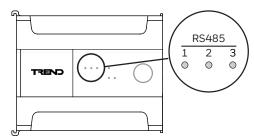
IMPORTANT: The controller's date and time MUST be set correctly to ensure that the controller's security certificates can be correctly validated. Communications issues will occur if the security certificates are not valid. This can be done by selecting the option to set the controller's time is selected when downloading the strategy.

Note: If the strategy uses an NTP server to set the IQ5's time and date, synchronisation will only occur if the IQ5's time and the server's time are within 49 days of each other.

Note: The controller's date and time may be set up from a controller configured as timemaster.



#### Check RS-485 Network Indicators (if RS-485 devices are connected)



# Normal operation indication

Port configured OK and communications are good.

Port not active. No Network module exists in the controller strategy or is not configured correctly.

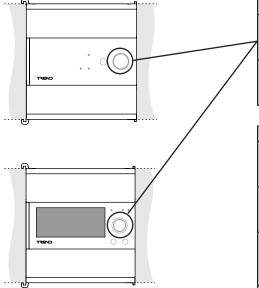
#### Fault indication

No communications or no network connected.

Note: A controller configured for NC operation will show 
on port 1 until BACnet devices are connected.



#### Check Status Indicator of T1L IO Bus Modules (if connected)



# Normal operation indication

Module operational and address set OK. If all modules are in this state, go to step 29 on page 14.



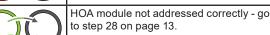
Module is booting up - please wait a few minutes and check again.

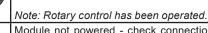
## **Fault indication**



Module not addressed correctly - go to step 28 on page 13.









Module not powered - check connection from previous module or separate PSU (if applicable)



#### **Setting the Address of a Module**

The IQ5 controller will automatically attempt to match each physical I/O module with its corresponding strategy I/O module and set its address accordingly.

However, the controller will be unable to set the address of a module if:

- there is more than one unaddressed physical module of the same type.
- there is more than one unaddressed strategy module of the same type, or
- there is no corresponding I/O module in the strategy.

Should any of the above situations arise it will be necessary to set the address of any affected module using either of the following methods.

Method 1: Use the IQ Tool Soft Addresser Applet in IQ®SET.



IQ Tool Soft Addresser Applet Manual (TE201356)

 Use the applet to assign the physical I/O module to the appropriate strategy I/O module.

Method 2: Use the controller web interface.



IQ5 User Guide (TE201490)

- Login to the controller's web interface.
- Access the I/O Module page and enter module addresses as required.

Note: If a module is not visible in either the applet or the web interface, it may be because it has already be used with another controller. A module becomes bound to the first controller it connects to over the T1L bus. If connecting the module to a different controller it will need to be reset as shown in section 7 on page 20.

#### Identifying a Module using the 'Wink' Function (if required)

To help indentify a specific module it can be placed in 'wink' mode, either from the module itself or set up tool. While in wink mode the module's service indicator  $\digamma$  will flash and the status indicator ring of the corresponding controller will also flash green.

Method 1: Use the module's service button..

- Open either the IQ Tool Soft Addresser Applet or the controller's web interface (see Method 2 and 3).
- Any module in wink mode will have its Wink parameter set to 'On'.

Method 2: Use the IQ Tool Soft Addresser Applet in IQ®SET.

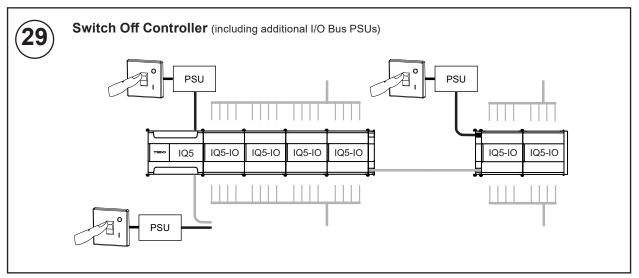


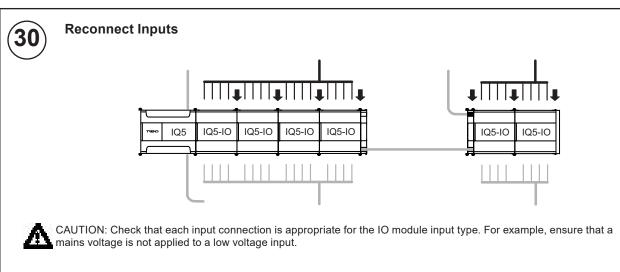
- Click the button for the appropriate module.
- Click the button again to turn off wink mode.

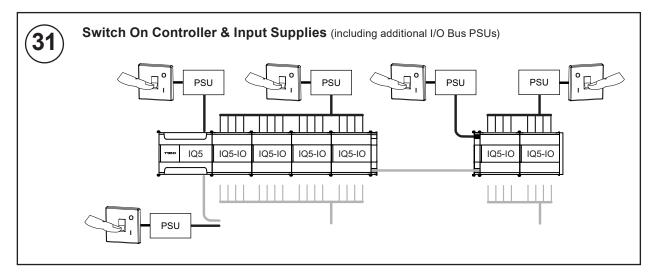
Method 3: Use the controller web interface.

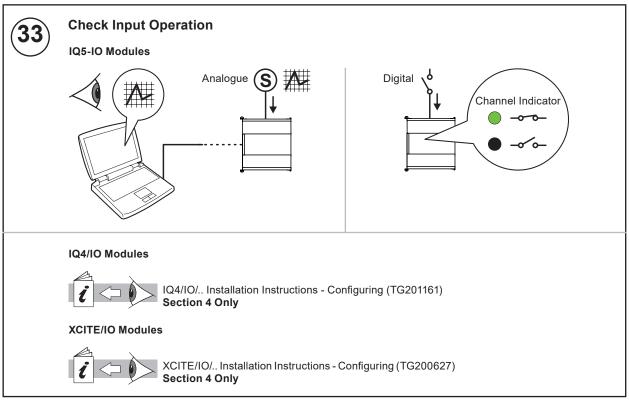


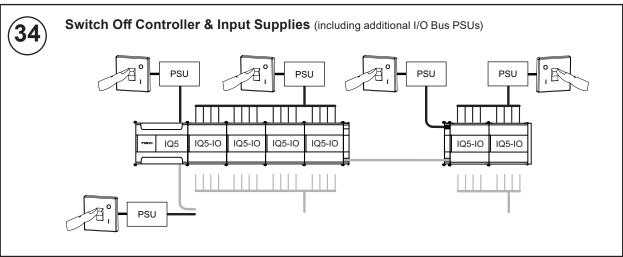
- · Login to the controller's web interface.
- Access the I/O Module page.
- In the Wink column set the parameter to 'On' for the appropriate module.
- The module's service indicator will flash, showing that the device is in wink mode. It will continue to flash until the corresponding Wink parameter is set back to 'Off'.

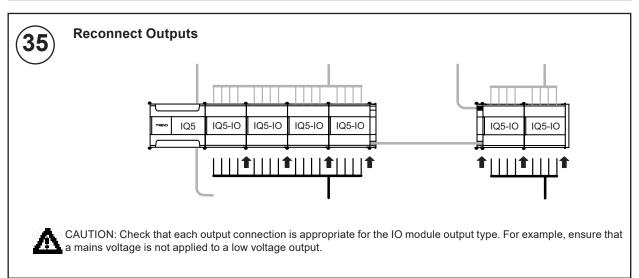


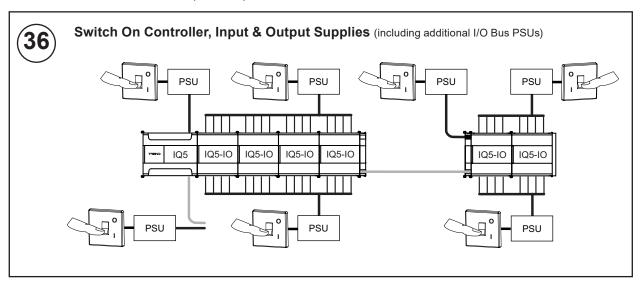


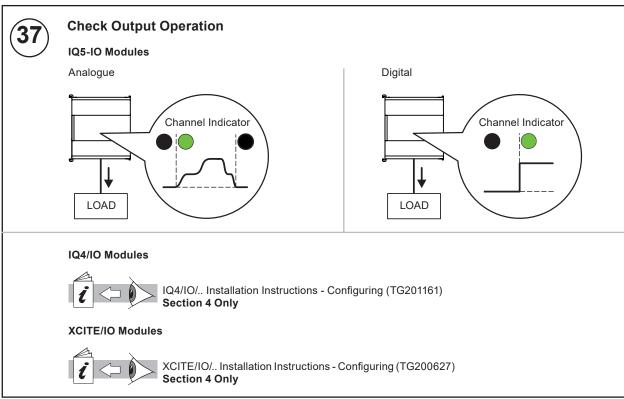








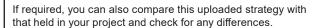






# **Backup Strategy**

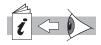
Once the system is working as expected, it is good practice to upload the strategy from each controller into IQSET to create a backup.







## Install Supervisors or Displays (if required)

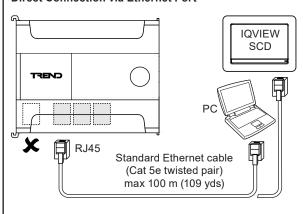


If a supervisor or local display is required, install these now following the appropriate installation instructions and the guidance notes below. Otherwise go to step 32 on page 18.

Connection Method	Suitable for			
	IP Tool	IQSET	Supervisor (e.g. IQVISION)	Web Interface (e.g. IQVIEW SCD for IQ5)
Direct via Ethernet Port	✓	√*	√*	✓
Via Ethernet Network	✓	√*	<b>√</b> *	✓
Direct via USB Engineering Port	×	✓	×	×

<sup>\*</sup> connection requires a vCNC to be configured on the target controller.

#### **Direct Connection via Ethernet Port**

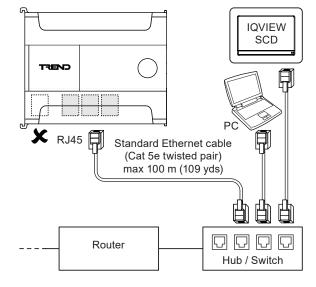


 To make a connection with IQSET or supervisor ensure that a vCNC is available in a Trend device on the same Ethernet Trend network and connect to the vCNC as described in the supplied documentation.

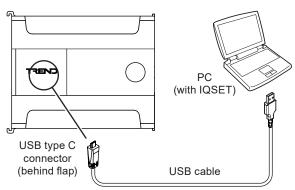
Note: If connecting with IP Tool, the PC should be on the same Ethernet segment as the IQ5.

- To make a connection with a web browser run the web browser on the PC and access the IQ5's IP address or host name.
- To make a connection with an IQVIEW SCD, install the IQVIEW SCD application on the controller, then configure the display device with the URL of the IQ5 controller. For full details see IQVIEW Single Controller Display for IQ5 Manual (TE201504).

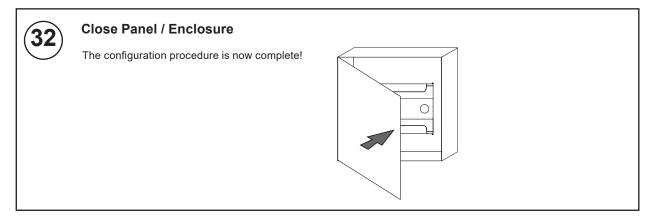
#### **Connection via Ethernet Network**



## **Direct Connection via USB Engineering Port**



This method is only suitable for a temporary connection with IQSET during system commissioning or fault finding.



## 3 RESET IQ5 CONTROLLER TO FACTORY DEFAULTS

A factory reset will erase the strategy and reboot the controller into its default configuration.



#### Isolate Power and Disconnect All I/O

Follow steps 1, 2, 4, 8 and 9 (on pages 1 to 4) to:

- Isolate Power,
- Open Panel,
- Disconnect All I/O,
- Unplug all Ethernet cables. Any RS-485 networks may be left connected,
- Switch on power to IQ5 only,
- Wait for controller to settle.



#### Perform the Reset

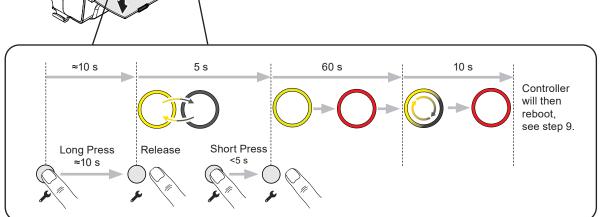
Press and hold down the service button  $\checkmark$  (located behind the drop down flap) until the ring indicator flashes yellow, then release the button. To initiate the reset press the button again while the indicator is still flashing.

The reset process may take up to several minutes depending on the controller type. <u>Do not remove power to the controller until the process has completed.</u>

While the controller is erasing the strategy, the ring indicator will remain yellow and appear to 'rotate'. When the reset is complete the controller will reboot as shown in step 9 on page 4.

The strategy, user modules (passwords, etc), alarm logs, and plots records are cleared down, and all other parameters will be returned to their default settings as shown in step 15 on page 7.

Note: Time and date are left at their current values, and the license is not affected by the reset.





# Re-configure the Controller

Go to step 15 on page 7.

## 4 RESET IQ5-IO MODULE TO FACTORY DEFAULTS

A factory reset will erase all input/output settings and module address and reboot the module into its default configuration.



#### Isolate Power and Disconnect All I/O from the Module

Follow steps 1, 2, 4, 8 and 9 (on pages 1 to 4) to:

- Isolate any power supplies used by the module inputs or outputs,
- Open panel.
- Disconnect all I/O from the module,
- Isolate the module power supply.



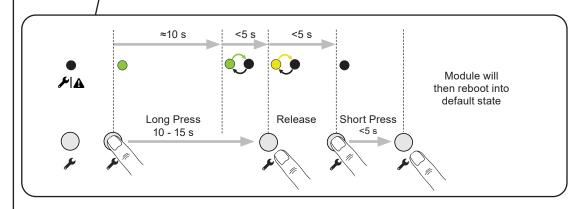
## **Perform the Reset**

With the module powered up, use the service button to initiate the reset process as follows:

The reset process will only take a few seconds depending on the module type. <u>Do not remove power to the module until the process has completed.</u>

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When the reset is complete the module will reboot and the controller will attempt to re-address the module as shown in step 1 on page 14.





#### **Reconnect Inputs & Outputs and Check Operation**

Follow the guidance from step 27 on page 12, through to step 31 on page 17.

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