

Unicla®

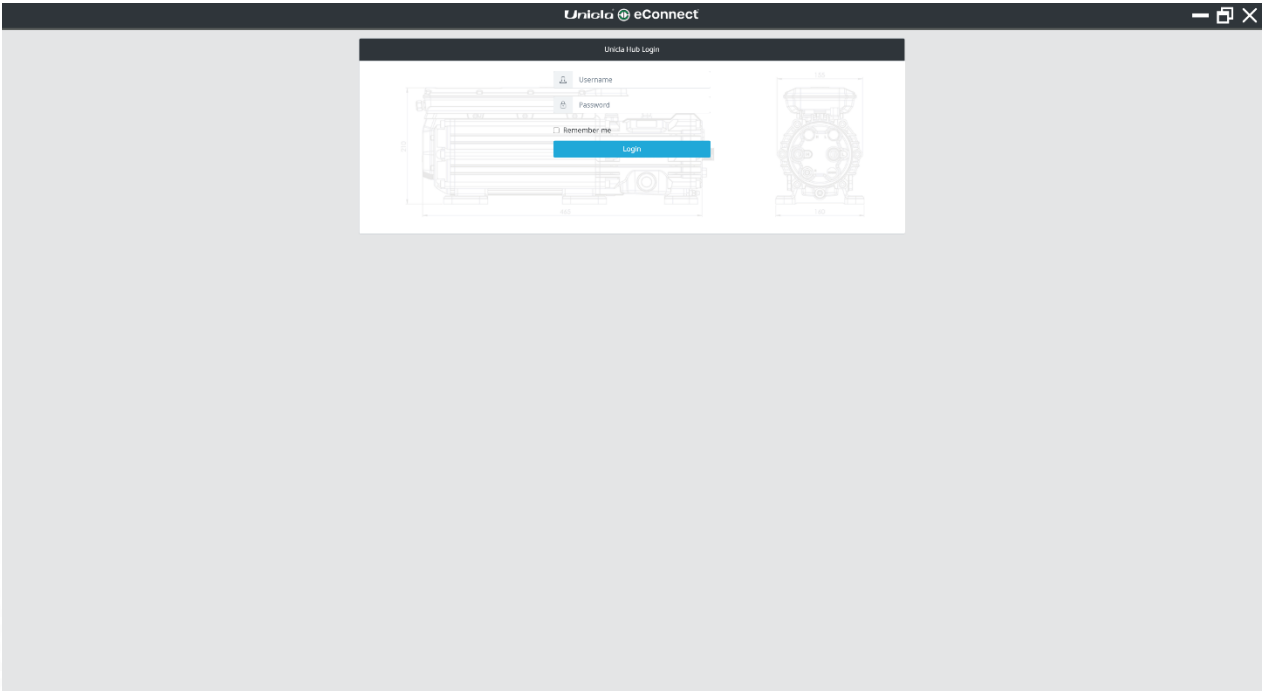
eConnect™



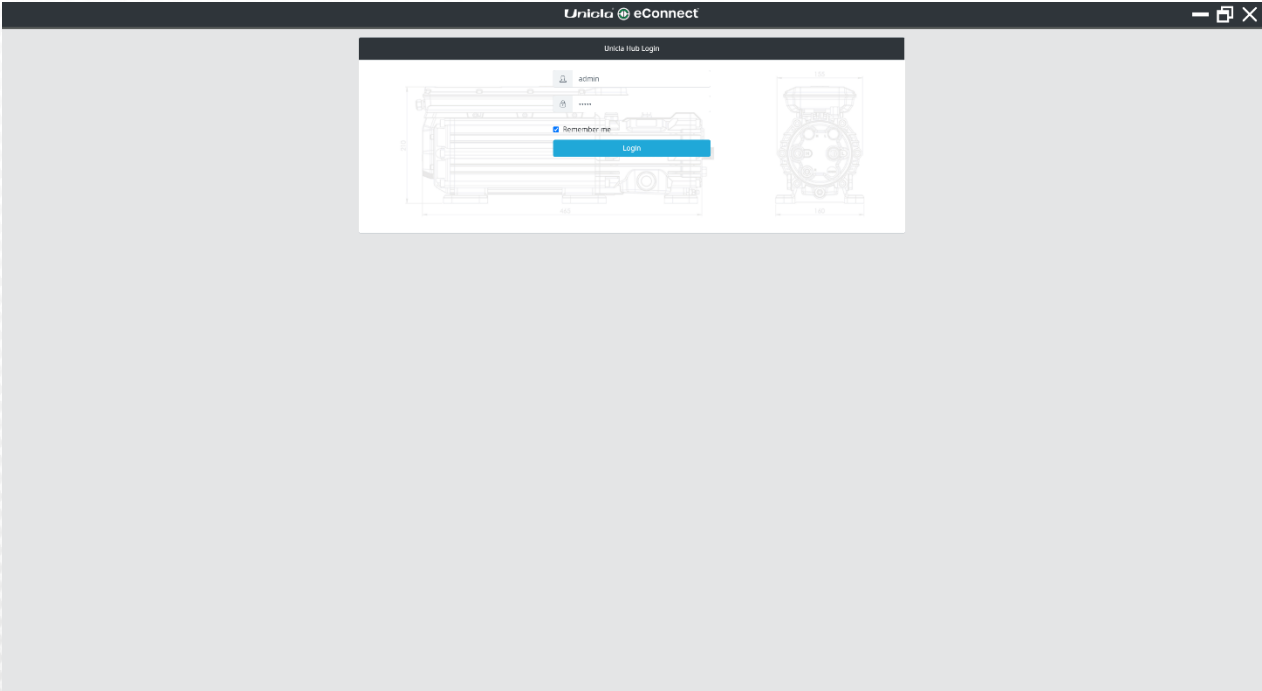
eConnect desktop app Quickstart guide

Connecting to a compressor with eConnect

After installing the eConnect App and opening, the login page will be the first screen shown.



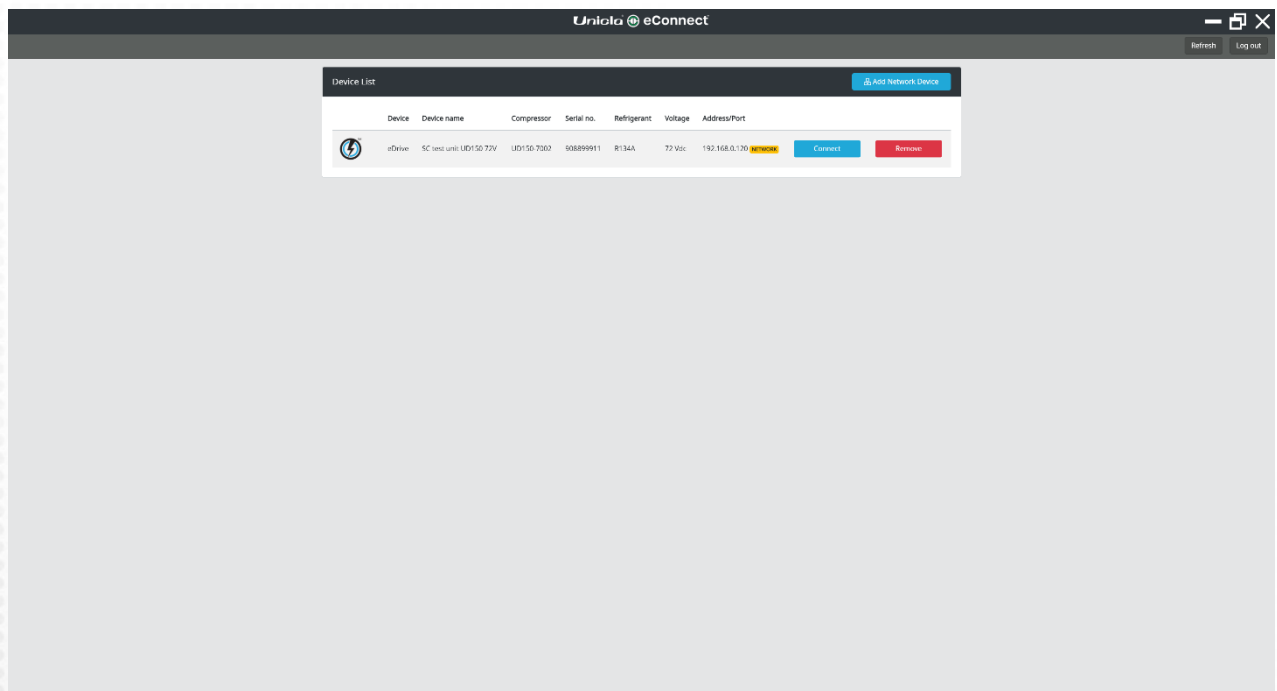
Enter the username ADMIN and password ADMIN, then press login. Tick remember me if you want the details retained and eConnect will open directly to the next screen on opening next time.



Once logged in, the device list will be populated with the last connections discovered by eConnect. They may no longer be valid connections if you are re-powering eDrive. Generally, you should discover the currently available eDrives by selecting the **refresh tab** which will repopulate the available device list.

When pressing refresh, if nothing is discovered there are couple of possible reasons with several check / resolve items -

- If you have only just powered on eDrive, wait 2 - 3 minutes then press refresh again. This gives time for the eDrive control system to boot up allowing for a valid discovery process.
- Check that the eDrive is correctly connected to the power supply and energized with the correct voltage.
- Check the communication cable connections are connected to the correct eDrive port and the PC.
- USB is susceptible to electronic noise interference (EMF). If you cannot get a connection or maintain a stable connection and suspect EMF is present, use an ethernet connection. (A USB to ethernet adaptor will help where you don't have an ethernet port available on your PC)
- Avoid using USB extenders.
- Should device discovery be difficult, it is possible to manually add a device ethernet address detail using the **add network device** tab if you have the device details. This is rarely necessary.

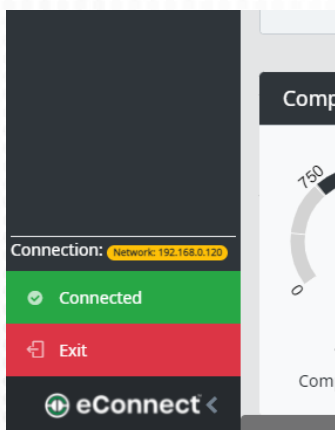


To connect to the discovered device, press the blue **connect** tab beside the discovered device. eConnect will cycle through a few loading screens then display the dashboard for the selected device.

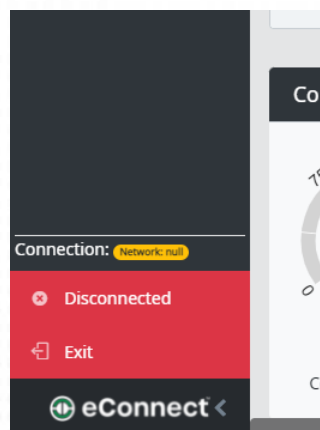


The bottom left-hand corner of the screen will show a solid green connected tab if a stable uniform connection is achieved. If connection is lost or unstable (power loss, EMF, disconnection of communication cable) the tab will revert to disconnected and shown in red. To reconnect with USB you need to exit or close and connect again. Ethernet typically reconnects without intervention.

The connection type will be shown in the yellow tab above the connected tab.



Connected

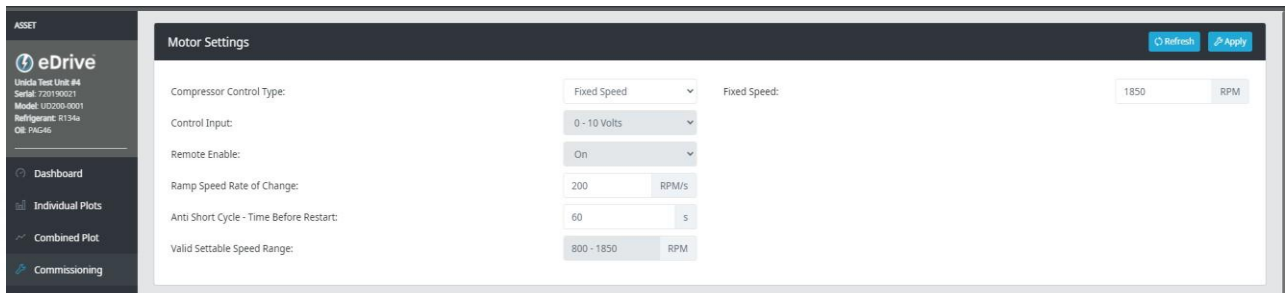


Disconnected

Commissioning with eConnect

Consider a traditional belt driven cooling system. The thermostat demands for cooling and completes a 12 or 24 Vdc circuit that engages the clutch and spins the compressor. eDrive incorporates an air cooled brushless motor that spins based on the same demand for cooling.

eDrive uses control signals from the thermostat or cooling controller to manage compressor operation. The eConnect commissioning tab enables the commissioner to configure various operational modes to suit the application.



Fixed operation creates a traditional on / off operation. When eDrive receives a 12 to 24 Vdc 'trigger' circuit via the control cable, the compressor will start according to the parameters set in fixed mode commissioning (positive and ground connections as shown below).

Pin no.	Wire colour	Function	Polarity
Pin 1	White	Zero volts	Ground
Pin 2	Brown	Analog 10 volt output	Positive
Pin 3	Green	Compressor fault output	
Pin 4	Yellow	Start / stop (and remote enable)	Positive
Pin 5	Grey	Zero volts	Ground
Pin 6	Pink	4-20 mA variable control	Positive
Pin 7	Blue	0-10 Volts variable control	Positive
Pin 8	Red	Zero volts	Ground

This trigger is visualised on the dashboard by the remote enable signal indicator. Green signifies a 12 to 24 Vdc detected, at which point the compressor will start (assuming fixed mode setup and no faults exist). Given fixed speed operation is either on or off, the thermostat demand will show by default as 100% when a remote enable is present or 0% when it is removed.

Compressor Control Status				
Starting	Fixed Speed	●	100 %	0s
Status	Compressor control setting	Remote enable signal	Thermostat demand	Anti short-cycle timer
View Fault				

Variable speed mode allows the compressor to operate at varied RPM based on either a 0-10 Vdc or 0-20 Milliampere range provided by the thermostat or cooling system (The thermostat device needs to support this type of output). This mode offers significant configurability. For example 9 Volts may represent a maximum of 1500 RPM, 4 Volts may represent a minimum of 800 RPM, and 3 Volts may represent a stop RPM depending on the commissioned settings. During variable mode operation, the thermostat demand will display as a percentage indicating the cooling requirement detected from the system based on the input control Vdc or mA and commissioned range.

Remote enable (variable speed mode) can also be optionally enabled within the variable mode. This allows for an additional layer of control (12 to 24 Vdc) for the thermostat or control system to provide a 'gate' or stoppage to compressor rotation. For example there maybe a sufficient variable control input detected for rotation, however if the remote enable is not detected, rotation is not allowed.

please note a separate ground is required for all control inputs if remote enable being used.



Pin no.	Wire colour	Function	Polarity
Pin 1	White	Zero volts	Ground
Pin 2	Brown	Analog 10 volt output	Positive
Pin 3	Green	Compressor fault output	
Pin 4	Yellow	Start / stop (and remote enable)	Positive
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eConnect mode (manual mode) is positioned on the dashboard and allows for manual operation of the compressor. This mode bypasses normal thermostatic inputs which would be useful during commissioning and system servicing and diagnosis.

The eConnect mode can be enabled in 2 ways.

1. pressing 'stop' on the eConnect control on the dashboard
2. selecting eConnect mode from the compressor control dropdown box in the commissioning page.

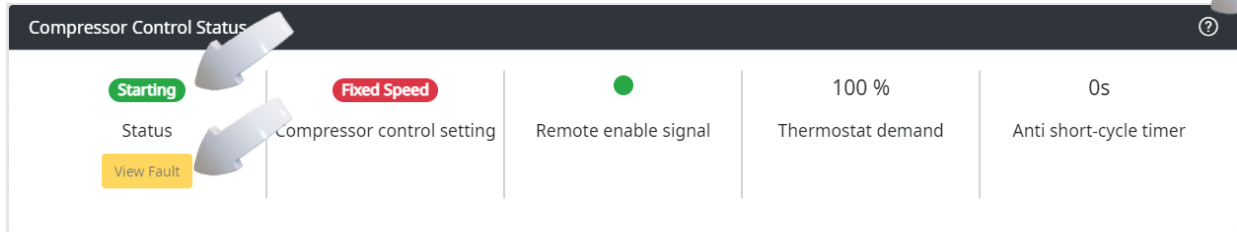
Set the speed within eConnect control on the dashboard and press start. Press stop to end rotation.

Please note

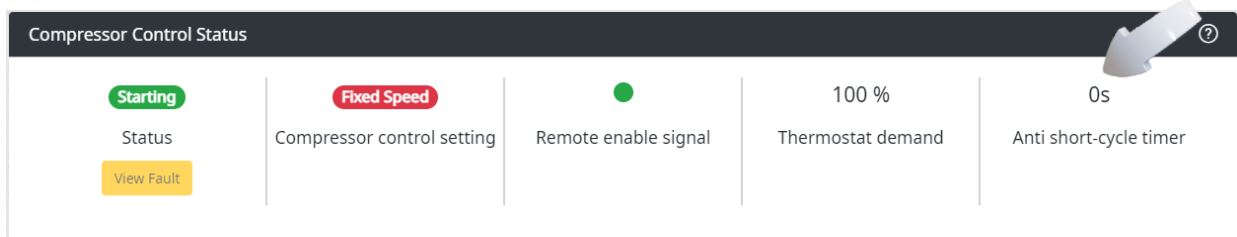
- The technician must ensure the condenser / evaporator fans are running when using eConnect mode. Without this, damage or fault may result.
- To exit manual control, navigate to the commissioning page and select the required operational mode.
- The manual mode set RPM is independent of commissioned RPM settings

The current status is displayed in the **status** bar in the dashboard. An explanation of each status can be obtained by clicking the '?' symbol on the dashboard.

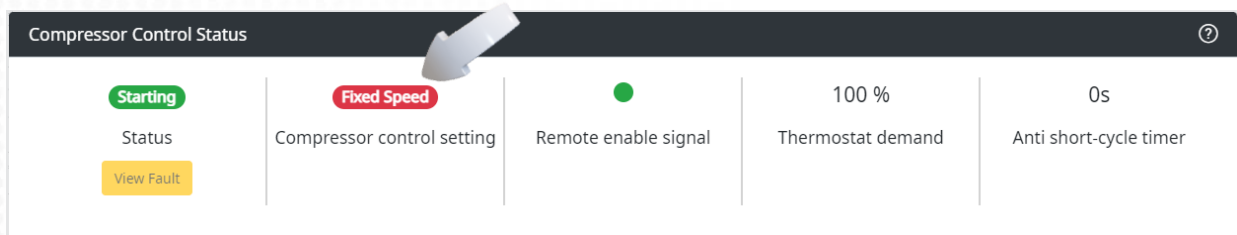
Should a fault occur, press the **view fault** button to view current faults. Current faults and fault history can also be accessed via the event log tab.



The **Anti short cycle timer** is a mandatory but configurable delay that occurs after a compressor stoppage. The timer will count down and rotation is only allowed after it is completed. It is designed to prevent problematic thermostatic control that could call for erratic or rapid start / stop, potentially damaging compressor or system components. It can be configured within the commissioning tab of eConnect.



The currently configured operational mode is shown under the **compressor control setting** heading in the dashboard. (fixed, variable, variable with remote, eConnect).



The commissioning page includes a mandatory but configurable **oil balancing** feature. When triggered the compressor will cycle on and off for a defined RPM and number of cycles. It is designed to protect compressors against scenarios of compressor dormancy where there is a possibility of refrigerant migration in the system. This start up cycle aims to prevent massive oil washout of the sump, allowing oil return and minimising damage to the compressor under these conditions.

The dashboard status bar will indicate when an oil balance is running or planned to occur next start. Normal thermostatic operation occurs after this cycle completion.

Analysis with eConnect

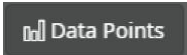
The **Plotting** tabs provide a convenient tool to observe operational trends over time. The tool is available in a singular / individual data format or grouped / combined data format that overlays data on one graph.



The Y-axis button allows the user to set Y axis plotting limits if required



The X button selects the individual data set and expands the graphing



The data points button changes the displayed number of data points



The displayed data can be toggled from live to historical

For data download and higher level analysis, eConnect provides for excel CSV file creation. The '**Log to file**' button located at the top of the dashboard allows the user to specify a save-to location and log all data points into the spreadsheet while the PC is connected to eDrive via eConnect. Stop logging ends the current log. (please note the dashboard units cannot be changed during a current log)

The **event log** tab provides a list of eDrive related events in both 'all events' and 'critical' categories. Clicking on any specific event will produce additional event data if available.

Current Events		
Time	Source	Event
2022/08/22 12:20:26	CMC	eDrive Started : 1000
2022/08/22 12:19:16	CMC	Safety Loop State Cleared
2022/08/22 12:15:53	CMC	Anti Short New State : OK
2022/08/22 12:14:53	CMC	eDrive Locked
2022/08/22 12:14:53	CMC	Anti Short New State : INHIBIT
2022/08/22 12:14:53	CMC	eDrive Stopped
2022/08/22 12:14:53	CMC	Compressor Safety Flags – Run