

Instruction Manual Axpert-MCom

Android application installation and user guide



AMTECH

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Preface

Thank You for using “**Axpert-MCom**” Android application.

Now a day’s Android mobile platform has been a powerful competitor of mobile operating system and drawn the attention of the leading manufacturers of the industry and became a hot spot of research. The main advantage of adopting Android is that it offers unified approach to application development. Developers only need Android platform and their applications should be able to run on numerous devices, as long as the devices are powered by Android.

Today, smart phones are very popular and handy. This application is designed to monitor Axpert-Eazy+ Series VFD from android mobile phone. It is compatible with Android version 7.0 and higher. It supports Axpert-Eazy+ Series VFD control versions 37.02 and onward. User can monitor all the parameters, current status and fault history of the VFD. The application has new material design user interface to make easy navigation.

1. Installation of Application

Install the latest version of “**Axpert-MCom**” application from Google Play Store.

After installation finishes you will find “**Axpert-MCom**” application in application menu.

Click on it and splash screen will appear. That shows Amtech Electronics (India) Limited logo.

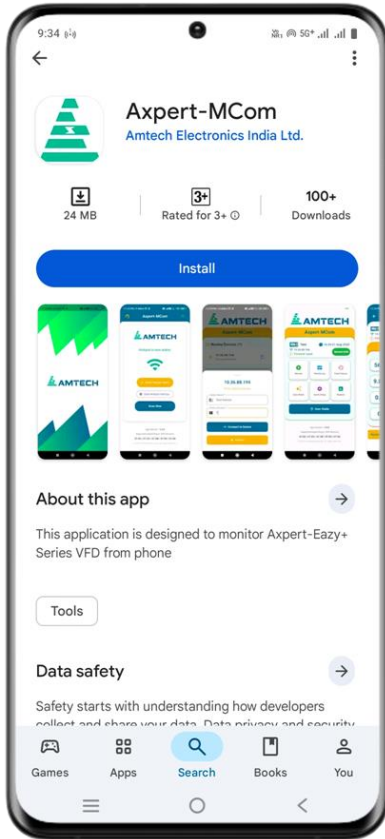


Figure 1.1: Axpert-MCom Application on Google Play Store



Figure 1.2: Axpert-MCom in menu



Figure 1.3: Splash Screen of Axpert-MCom application

2. Registration Process

1. Launch the “**Axpert-MCom**” mobile application on your device to begin the registration process.
2. Navigate to Sign Up, tap on the “**Sign Up**” option to access the sign-up screen.
3. Enter details like Full Name, Company Name, Work Email and Mobile Number with the correct country code.
4. Select your City, State and confirm the Country field (default set to India).
5. Tap the 'Send Verification OTP' button to receive a one-time password on your registered email ID.
6. Enter the OTP received to complete verification and activate your account.

Once verified, log-in to explore and use the supported features of the Axpert-MCom application.

3. Establishing Wireless Connectivity with Axpert-MCom

This procedure outlines the steps required to establish a connection between an Amtech Device (equipped with M2M/IoT Integrated Firmware V2.0) and the Axpert-MCom Android application via a mobile hotspot.

Phase 1: Initial Connection to Device Access Point (AP)

1. Disable existing Wi-Fi connections on your smart phone to prevent routing conflicts.
2. Using the Graphical Digital Operation Panel (DOP) on the device, ensure the Wi-Fi option is Read only (enabled).
3. Open Wi-Fi settings on your mobile. Scan for available networks and select the SSID named: Axpert-[Serial Number]-V2.0.
4. When prompted for a password, enter credentials in the following format:

Password: Amtech@[Power ON Time]

Example of password:

Power on Time = 00 Hrs	Password = Amtech@0
Power on Time = 09 Hrs	Password = Amtech@9
Power on Time = 58 Hrs	Password = Amtech@58

Note: The "Power ON Time" can be verified via the Digital Operation Panel (HMI) of the VFD (connected device) in the monitor mode parameters. For Axpert-Eazy+ VFD, the parameter number is M409.

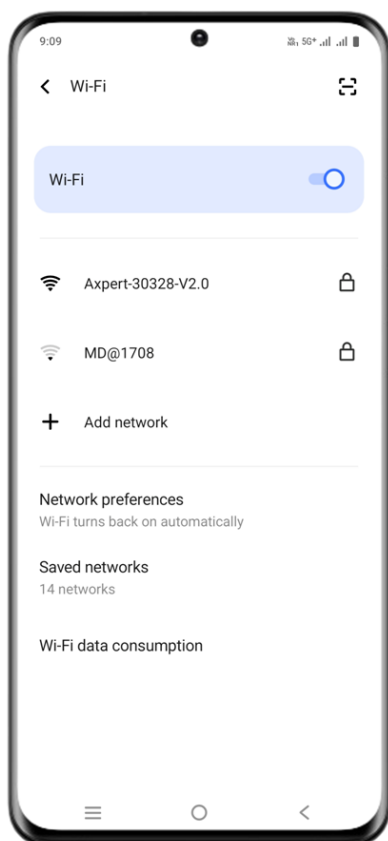


Figure 3.1: Smart phone Wi-Fi Scan Screen showing Axpert SSID

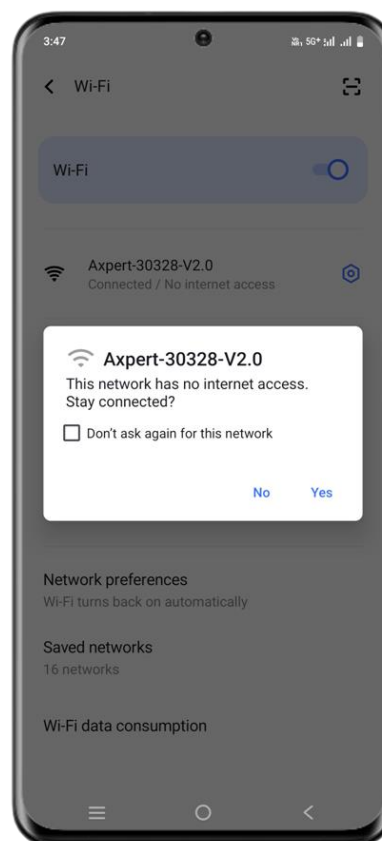


Figure 3.2: Allow network to connect without Internet access

Note: It is mandatory step for proper connection.

5. Ensure your mobile successfully connects to the device's Access Point.
6. After connecting to the device's Access Point, you'll see a notification about joining a network without internet. Allow the connection to proceed.

Phase 2: Configuring Device Wi-Fi Credentials

7. Open Axpert-MCom application and navigate to the "Wi-Fi Configuration" page by clicking on sidebar of the application home page.

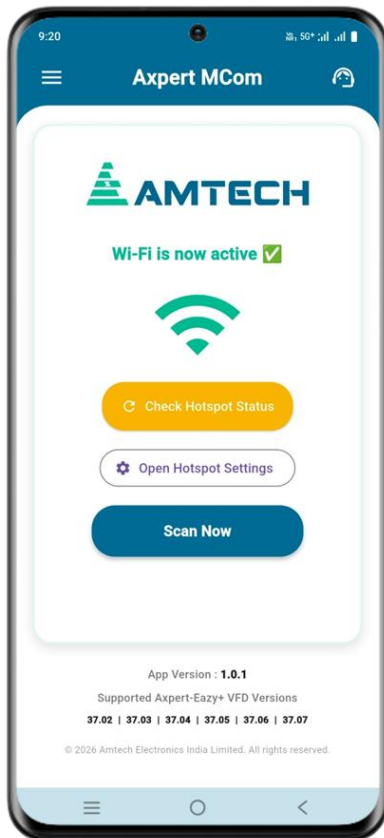


Figure 3.3: Application Home Page

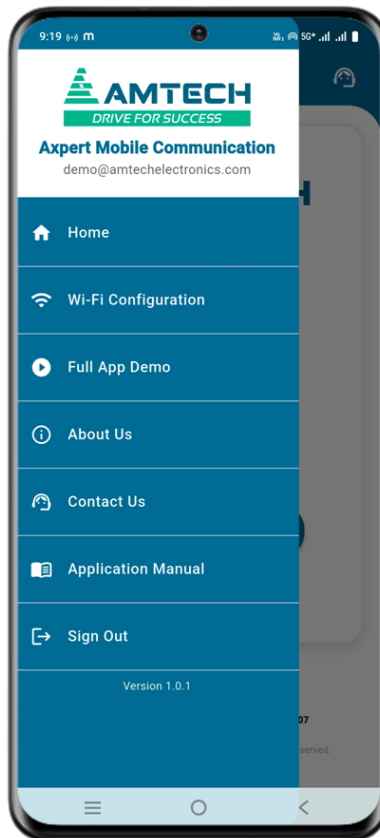


Figure 3.4: Sidebar Application Options

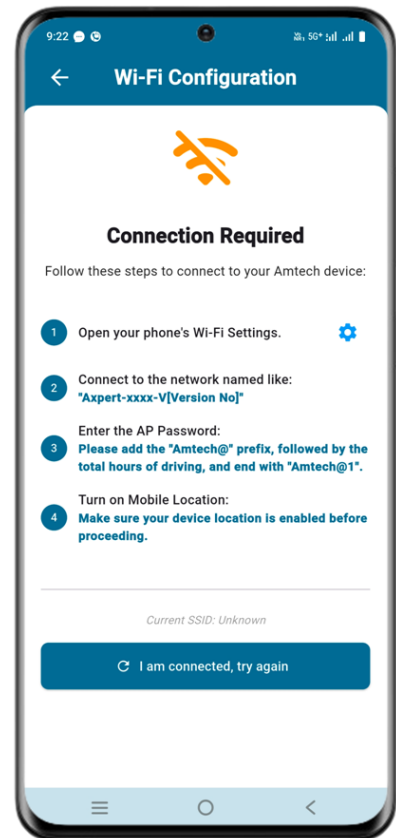


Figure 3.5: In case mobile isn't connected with Device's Wi-Fi

Note: Mobile Location must be Enabled

8. Validate communication by clicking the "Refresh Status" button and confirm the device details (Serial Number, Mode and Active ID) appear in the JSON response section.

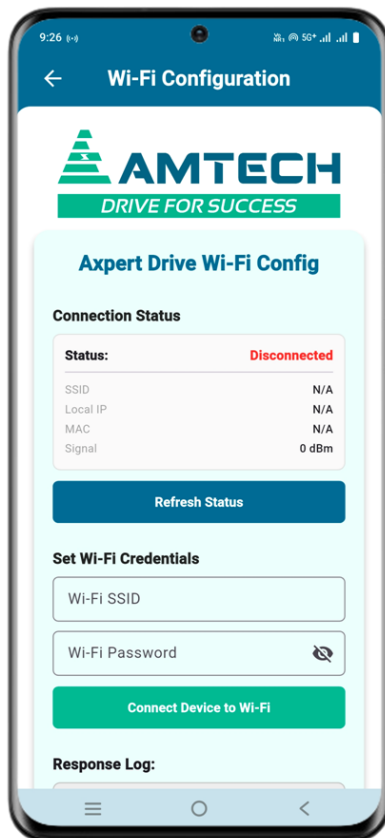


Figure 3.6: Wi-Fi Configuration Page

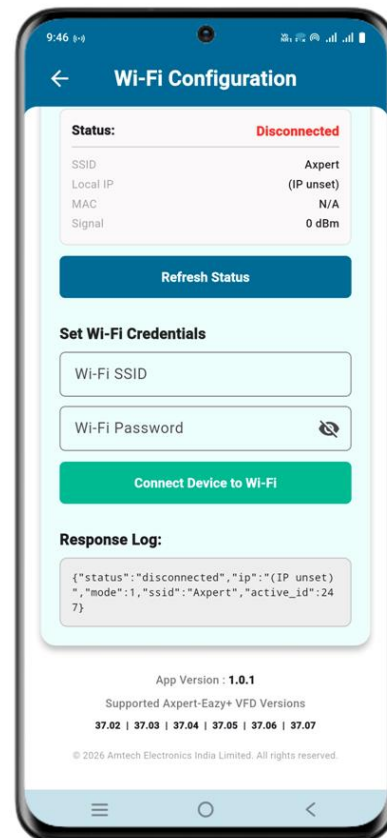


Figure 3.7: Wi-Fi Configuration page with current status of device

Phase 3: Station (STA) Mode Activation

9. In the “Set Wi-Fi Credentials” section, enter the SSID and Password of your mobile hotspot, then click Update Wi-Fi to save the credentials. The device will connect to your hotspot once the update is complete.

Note: Ensure that your mobile remains connected to the device’s access point (AP) during this step to successfully commit the credentials to the device’s Wi-Fi module EEPROM.

10. Check your mobile hotspot's "Connected Devices" list. Within a few seconds, the device name should appear as:

Amtech [Product Type] [Serial Number]-V2.0

(In this case Amtech VFD 30328-V2.0)

Note: The device is now operating in Station Mode, sharing the same network as your phone.



Figure 3.8: Connecting Process of entered Credentials of Mobile Hotspot

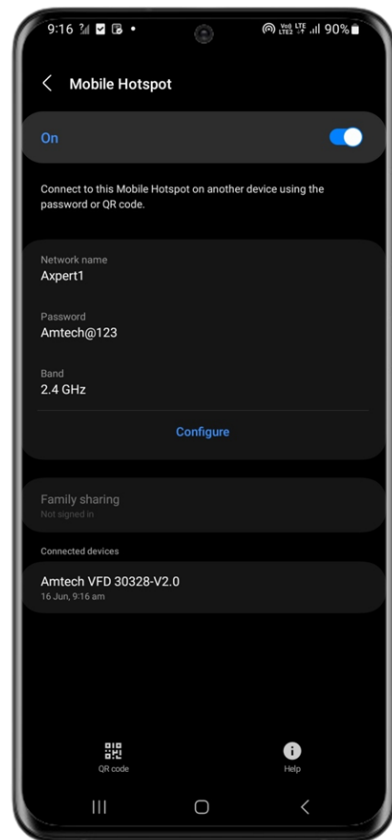


Figure 3.9: Device connected with Mobile Hotspot

Phase 4: Axpert-MCom Application Integration

11. After successful connection with the device get back to the Axpert-MCom application home page and now it will show ***“Hotspot is active now”***.
12. Click on ***“Scan Now”*** option to start searching the connected device.

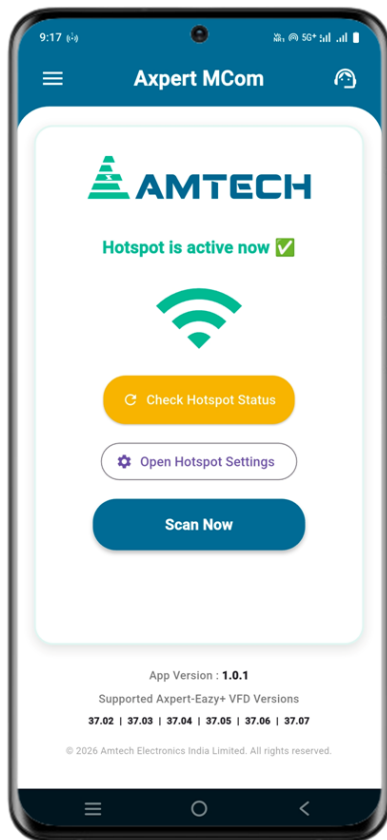


Figure 3.10: Hotspot Activated page

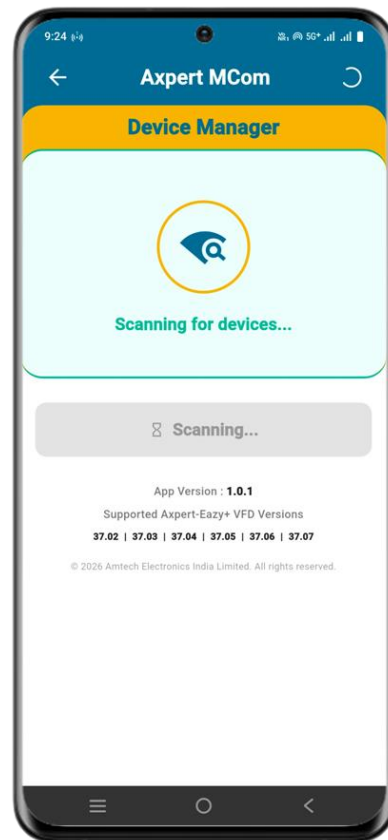


Figure 3.11: Searching for Connected Device

13. The application will start detecting the device's assigned IP address and will show the assigned IP address.
14. Click on that detected IP to initiate the session.
15. Assign a Device Name for your reference. Enter the Station ID (Modbus ID), which can be verified via the device's DOP parameter and then click on "Connect to Device" button.

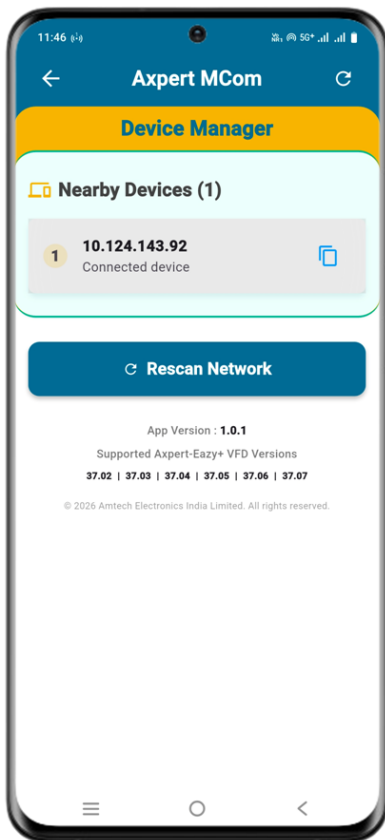


Figure 3.12: Detected Device IP Address

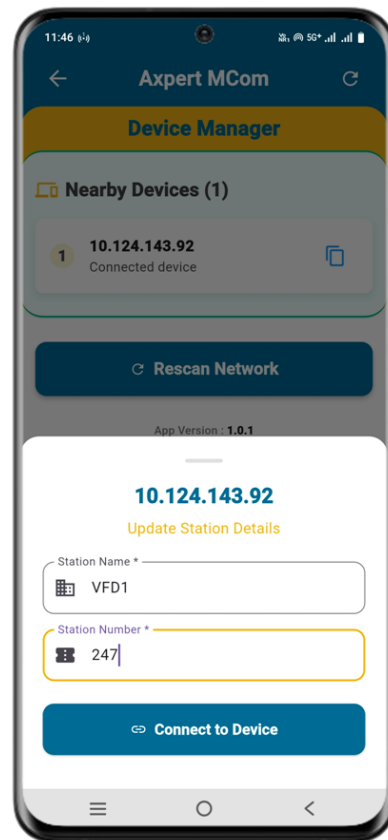


Figure 3.13: Assign Station Name & Number

16. After clicking the “*Connect to Device*” button, if the station number is correct for the corresponding device, then the application will send success notification and if not then it will send retry again notification.

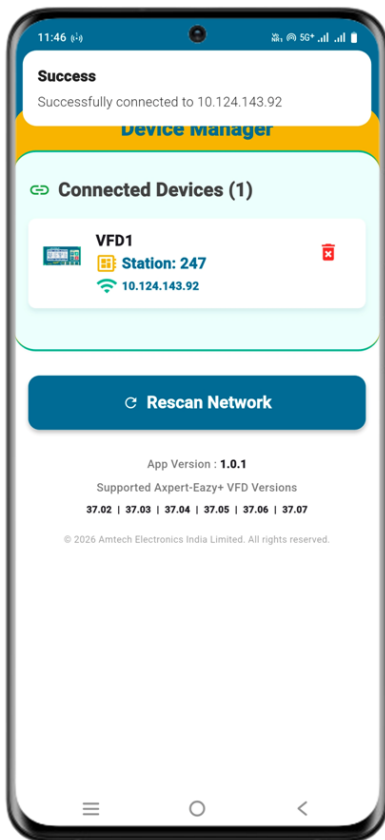


Figure 3.14: Successful connection of Application & Device with success notification

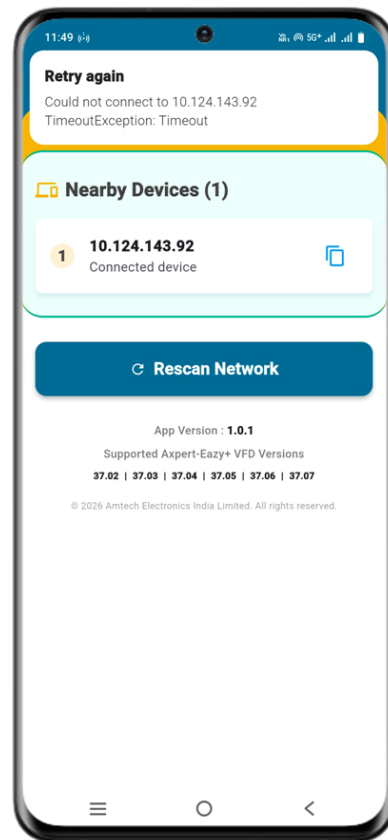


Figure 3.15: Retry again Notification

Phase 5: Connected Product and Dashboard Overview

17. A list of the connected product will appear on your “*Device Manager*” page after doing the entire configuration.
18. Click on one of the connected devices in the listed “*Device Manager*” to enter into the specific dashboard of the device.

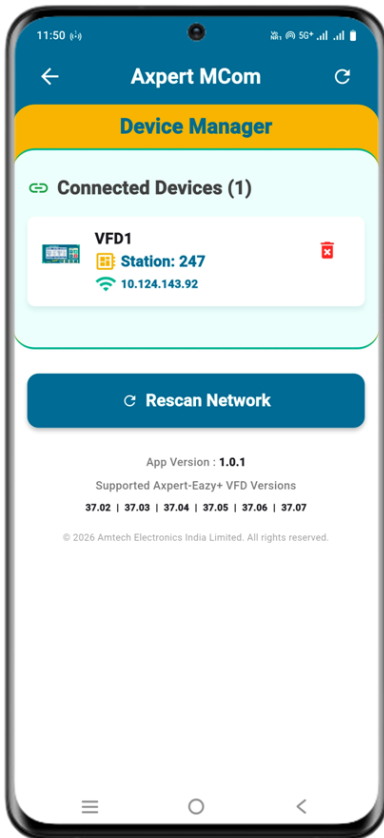


Figure 3.16: Device Manager page

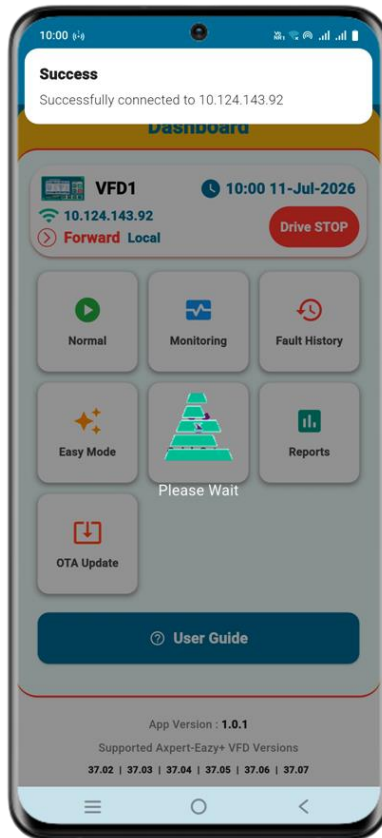


Figure 3.17: Entering to the Device Dashboard

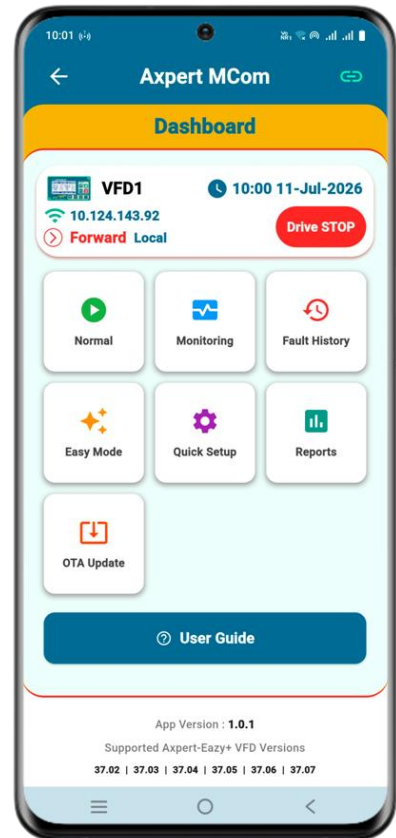


Figure 3.18: Device Dashboard

Now, the application is connected with the device and you can access features of Axpert-MCom application.

4. Device Profile Dashboard

The Dashboard displays the following information:

- Device Name
- IP Address
- Current Date and Time
- Device Status
- Motor Rotation Direction
- Device Connection Status (Online/Offline) – at top right corner green link.

The Dashboard also provides access to the following features:

- Normal Mode
- Monitoring Mode
- Fault History
- Easy Mode
- Quick Setup
- Reports
- OTA Update
- User Guide

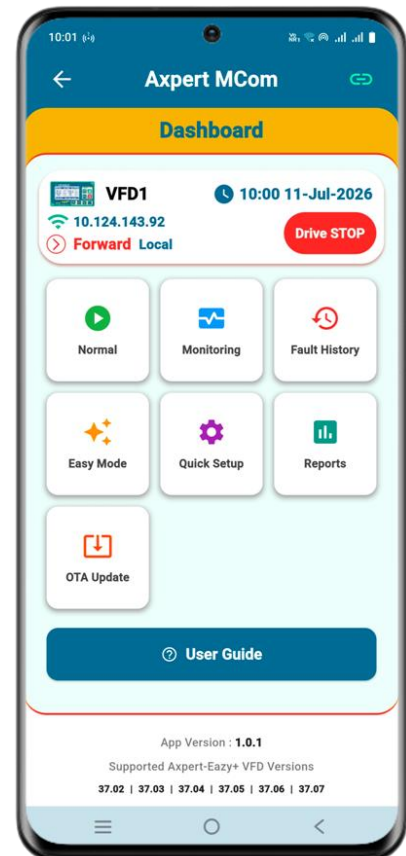


Figure 4.1: Dashboard

The live connection status of the device is displayed on the Dashboard, allowing users to verify whether the device is currently connected and communicating with the application.

5. Normal Screen

- Apart from the current status, the system also displays the current motor direction status and start control.
- Moreover, whenever a fault occurs, the product status changes to *Fault*. To ease the monitoring interface, we have developed Normal Screens.
- These screens will display few most important parameters of the product on the front screen.
- Normal screens 1 and 2 contain eight different parameters. Normal screen 3 contains two parameters. Normal screen 4 contains one single parameter.
- Four normal screens are available on home screen. User can navigate through them using buttons present at the bottom of the screen.

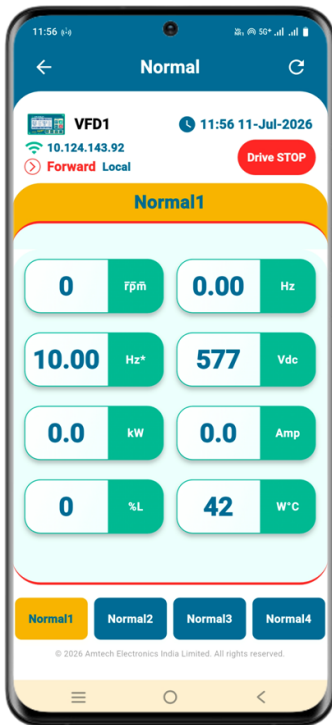


Figure 5.1: Normal 1

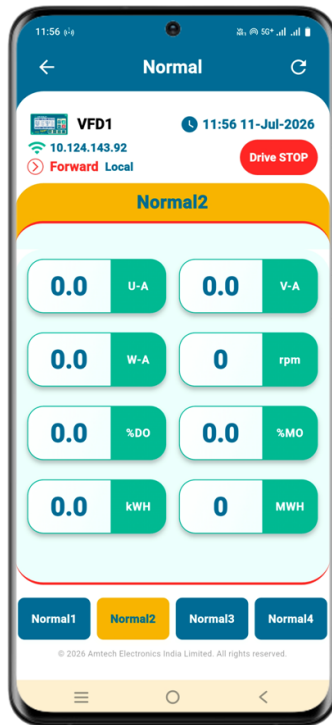


Figure 5.2: Normal 2

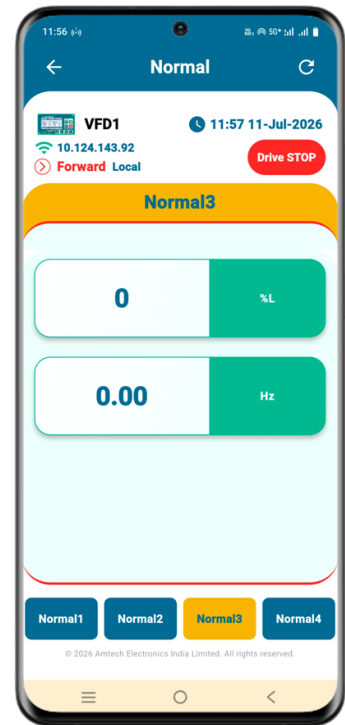


Figure 5.3: Normal 3

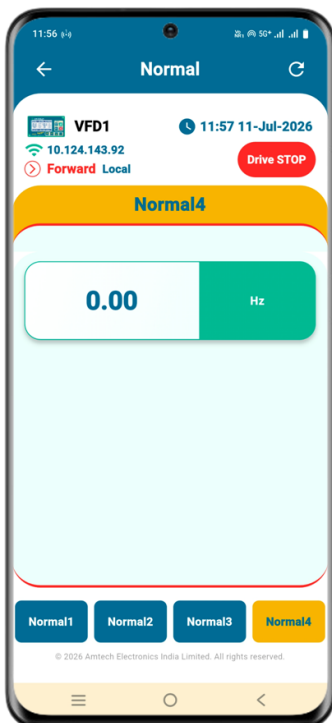


Figure 5.4: Normal 4

6. Monitoring

Parameter navigation is divided into Modes and Groups (same as our DOP). Each group contains similar set of parameters.

To view the parameters, click on the monitoring tab on the dashboard. A list of all supported modes in the product shall be displayed. Click on the mode you wish to view. The selected mode with its groups shall be displayed. The parameters name, its value and unit can be viewed.

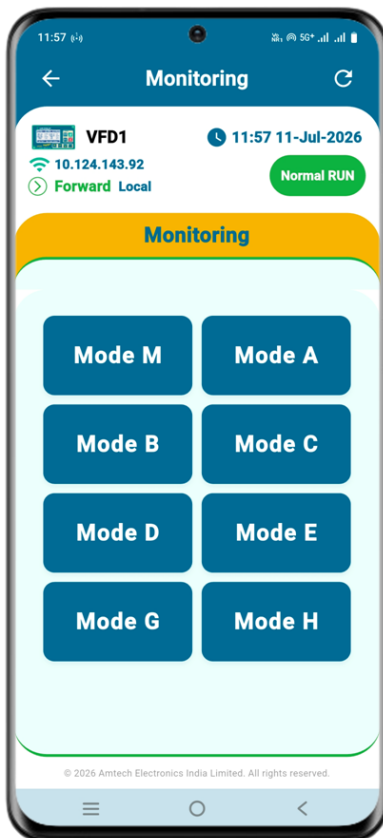


Figure 6.1: Monitoring Mode

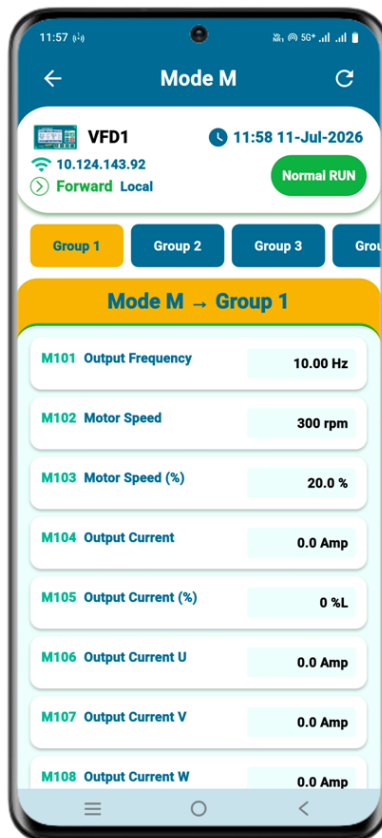


Figure 6.2: Mode M Group 1

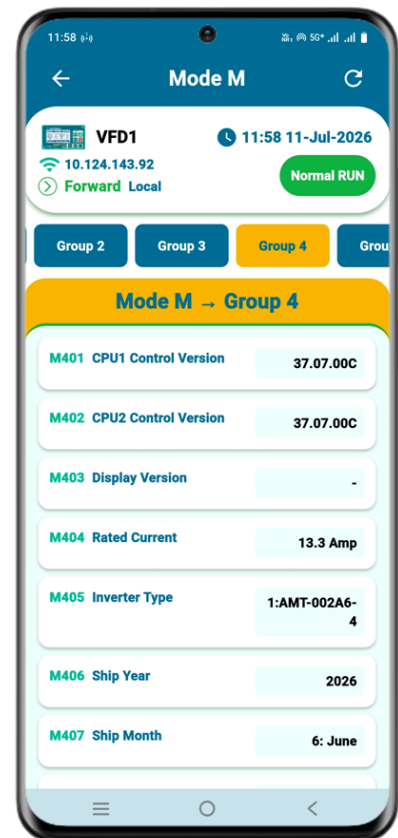


Figure 6.3: Mode M Group 4

7. Fault History

For better convenience, a direct access to the list of faults has been implemented. User can view fault history with 8 parameters along with the time and date separately for each fault occurred. The fault history shows total 20 most recent faults.

8. Easy Mode

Only basic parameters are displayed as listed below:

- A101 Set Frequency, A106 Minimum Frequency, A107 Maximum Frequency, A102 Frequency
- Reference Input, A117 Extended Parameter A
- A201 Acceleration Time1, A202 Deceleration Time1
- A301 Start Control, A304 Stop Mode, A305 Motor Direction
- A401 Control Mode, A404 V/F Selection, A413 Manual Torque Boost Setting,
- B101 Rated Input Voltage, B102 Rated Motor Voltage, B103 Rated Motor Current, B104 Rated
- Motor Frequency, B105 Rated Motor Speed, B106 Rated Motor Output, B107 Motor Poles, B112Encoder Pulses

9. Quick Setup

For fast and easy commissioning of the product during installation, a Quick setup module has been implemented.

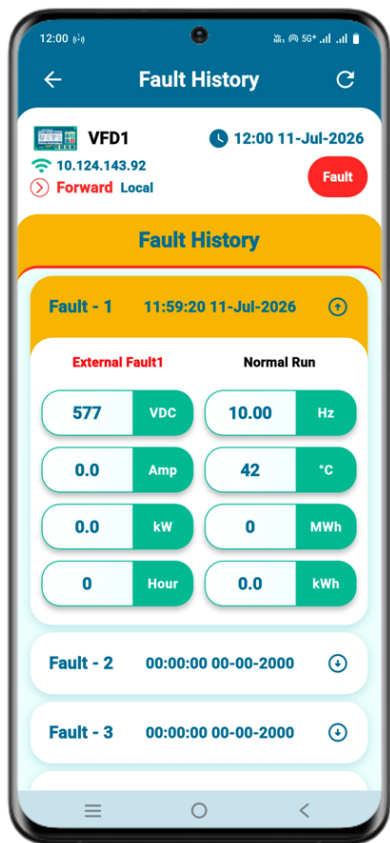


Figure 7.1: Fault History

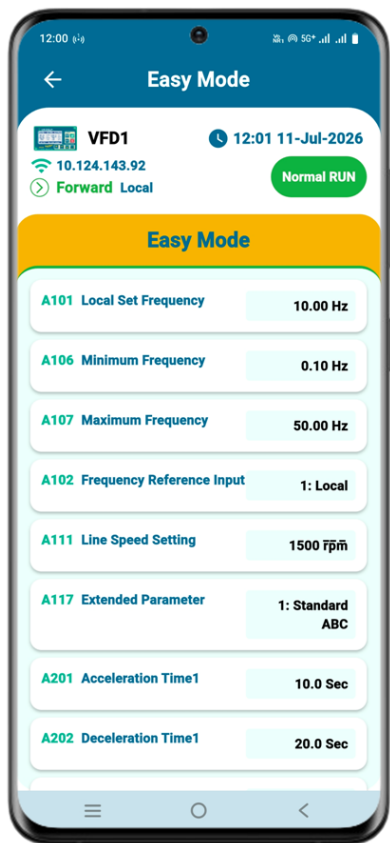


Figure 8.1: Easy Mode

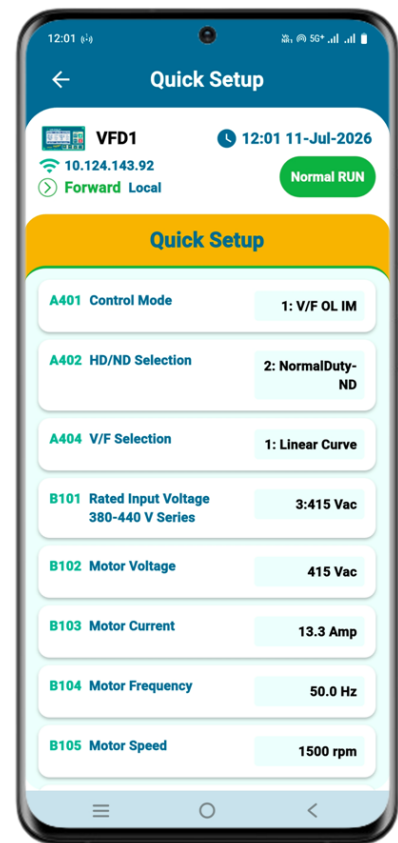


Figure 9.1: Quick Setup

10. Reports

The Reports feature allows user to monitor and analyze the operational data of the Variable Frequency Drive (VFD). This function provides access to key reports that will be generated directly by the application and stored in an Excel file for record-keeping, analysis and to share.

- The All Parameter Report provides a detailed view of the configured settings for the VFD. It lists all parameters making it easy to monitor and verify the operational setup.
- The Fault History Report provides a chronological log of fault events recorded by the VFD. This section helps users monitor abnormal conditions, analyze operational issues and maintain a record for troubleshooting. This section essentially acts as a digital logbook of the VFD's fault history.
- The Default Differ section in the application provides the details of the drive's configuration parameters. This section is particularly useful for engineers and technicians to compare current settings against factory defaults, ensuring proper identification of deviations in parameters.

The report is automatically generated by the application by clicking the Share button located at the top corner of the screen and can be stored in an Excel file for sharing.

11. OTA Update

The OTA Update feature allows you to check the current firmware version of your connected Wi-Fi module ESP8266, verify if a newer version is available and wirelessly update the device using the mobile application.

The OTA Update screen consists of the following sections:

Current Firmware

This section displays the firmware version currently installed on the connected Wi-Fi module (ESP8266).

Check Device Version

Tap Check Device Version to retrieve and display the current firmware version from the connected Wi-Fi module (ESP8266). Click the Check Update Version button to check for the latest available firmware. If an update is found, follow the prompts to upgrade your ESP8266 Wi-Fi module. Click to check for the latest available firmware version and update the ESP8266 Wi-Fi module.

Check Update Version

Click Check Update Version to see if a newer version is available and update the ESP8266 Wi-Fi module.

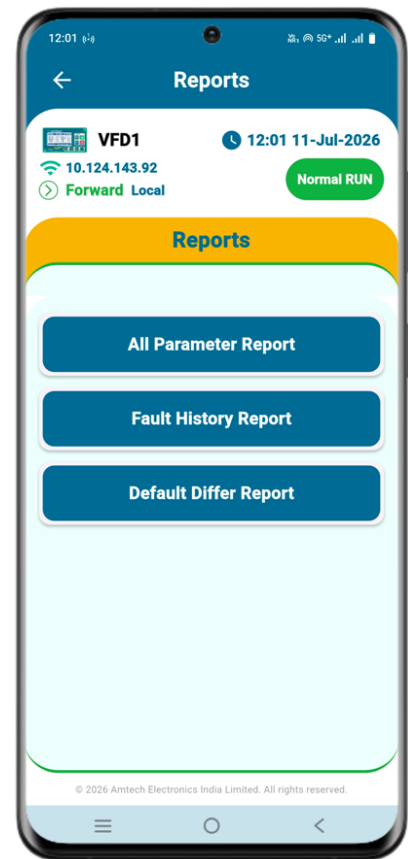


Figure 10.1: Reports

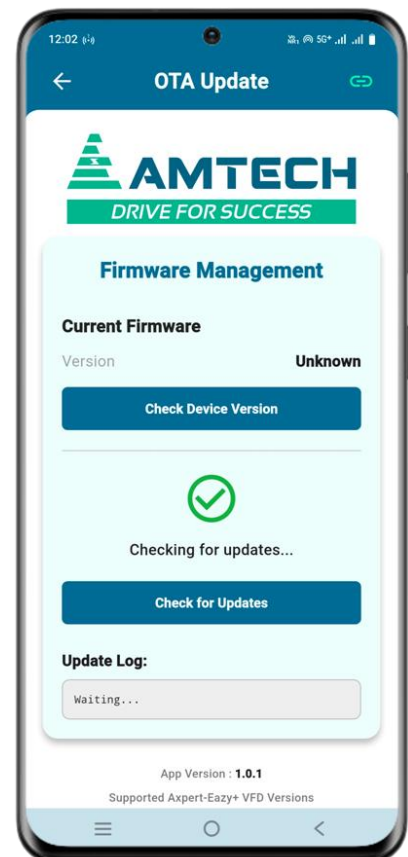


Figure 11.1: OTA Update

Update Status

The status area displays the real-time progress of the operation being performed by the application.

12. Determine the Wi-Fi / ESP Firmware Version

You can identify whether your device's Wi-Fi module contains the older firmware (Version 1) or the newer firmware (Version 2) using either a hardware inspection or a software check.

Method 1: Hardware Inspection

If you have safe and direct access to the device's control card where the Wi-Fi module is mounted, you can verify the version visually.

Locate the printed label affixed directly to the Wi-Fi module. Check the version number printed on the label:

- "1" indicates the Older Version.
- "2" indicates the Newer Version.

Safety Note: *Always ensure the device is completely powered off.*

Method 2: Software & Wireless Check

If the device is already installed and powered on, you can easily check the firmware version using the Digital Operator Panel (DOP) and a mobile device.

1. Enable Wi-Fi: Using the device's Graphical Digital Operator Panel (DOP), navigate to the settings and turn the Wi-Fi option *"Read Only"* (enabled).
2. Scan for Networks: Open the Wi-Fi settings on your mobile device and scan for available networks.
3. Identify the Network Name (SSID):
 - If you see a network named "Axpert-[Serial Number]-V2", device's Wi-Fi module is running the Newer Firmware Version (V2).
 - If no network with named "Axpert-[Serial Number]-V2" appears, device's Wi-Fi module is running on the Older Firmware Version (V1).

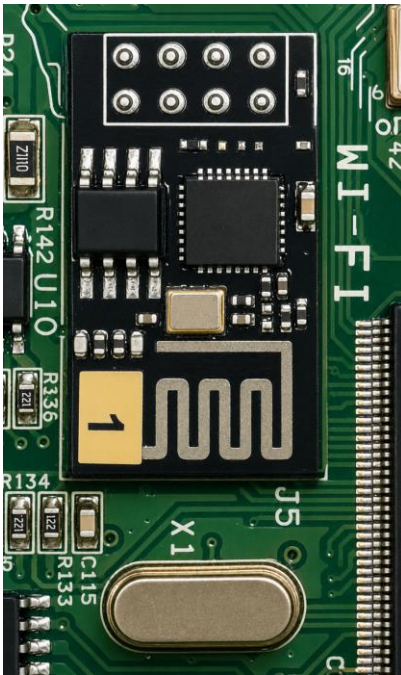


Figure 12.1: Older Version "1"

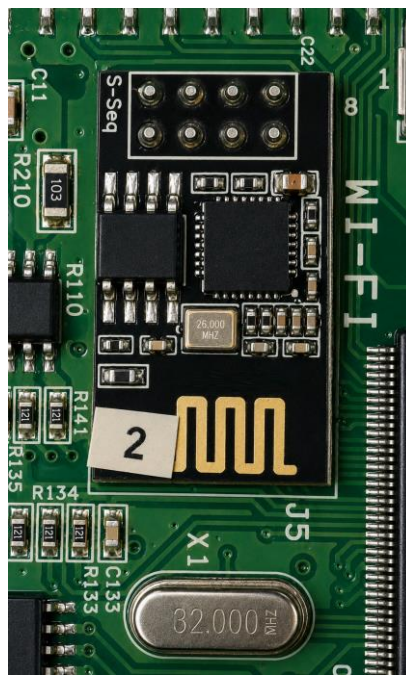


Figure 12.2: Newer Version "2"

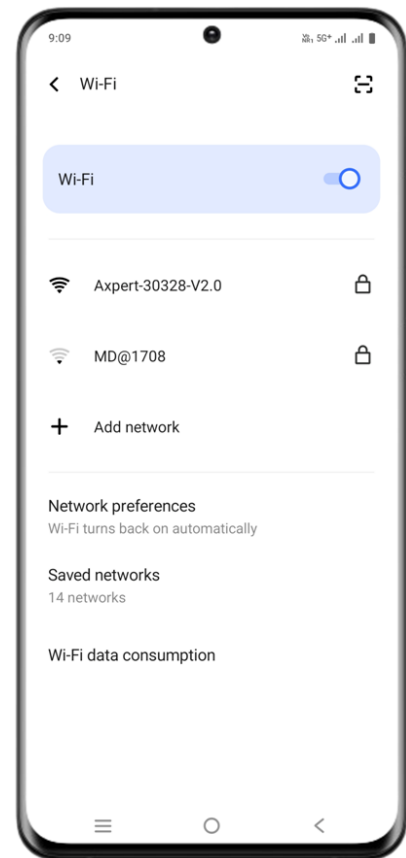


Figure 12.3: Wi-Fi Scan Screen Showing Axpert Device

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Contact Us

AMTECH ELECTRONICS (INDIA) LTD.

E-6, GIDC Electronics Zone, Gandhinagar-382 028, Gujarat, India.

Phone : +91-79-23289101, 23289102, 23289103

Fax : +91-79-23289111

E-mail : info@amtechelectronics.com

Website : www.amtechelectronics.com

Rep/Distributor Address:

