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IBXDTUVJ AMF20 Diesel Generator Controller User Manual

Model: AMF20

1. INTRODUCTION

This manual provides essential information for the safe and efficient installation, operation, and maintenance of the IBXDTUVJ AMF20 Diesel Generator Controller. The AMF20 is designed for automatic start and stop control of diesel generator sets, offering comprehensive monitoring and protection functions. Please read this manual thoroughly before attempting any installation or operation.

2. SAFETY INFORMATION

Always observe the following safety precautions to prevent injury, damage to the equipment, or property loss:

- Installation and maintenance should only be performed by qualified personnel.
- Disconnect all power sources to the generator and controller before performing any installation, wiring, or maintenance.
- Ensure proper grounding of the generator and controller.
- Wear appropriate personal protective equipment (PPE), including safety glasses and insulated gloves.
- Never operate the generator or controller in wet conditions or with wet hands.
- Verify all wiring connections are secure and correct before applying power. Incorrect wiring can cause severe damage or fire.
- Keep the controller free from dust, moisture, and extreme temperatures.

3. PRODUCT OVERVIEW

3.1 Front Panel Layout

The front panel of the AMF20 controller features a display, control buttons, and status indicators for easy operation and monitoring.



Image 3.1: Front view of the AMF20 controller, showing the LCD display, mode selection buttons, start/stop controls, navigation keys, and I/O status indicators. The branding 'IntelLite NT AMF 20' and 'ComAp' are visible.

LCD Display: Shows operational parameters, alarms, and menu options.

Mode Buttons (Mode O<->O, Mode O->O): Used to select different operating modes, such as manual, automatic, or test.

Start Button (Green): Initiates the generator start sequence.

Stop Button (Red): Shuts down the generator.

Horn Reset Button: Silences audible alarms.

Fault Reset Button: Resets active fault conditions after the cause has been addressed.

Navigation Buttons (Page, Up, Down, Enter): Used to navigate through menus and confirm selections on the LCD display.

I/O Indicators: Lights indicating the status of various inputs and outputs.

3.2 Rear Panel and Connections

The rear panel provides all necessary terminal blocks for connecting the controller to the generator, mains, and other external devices.

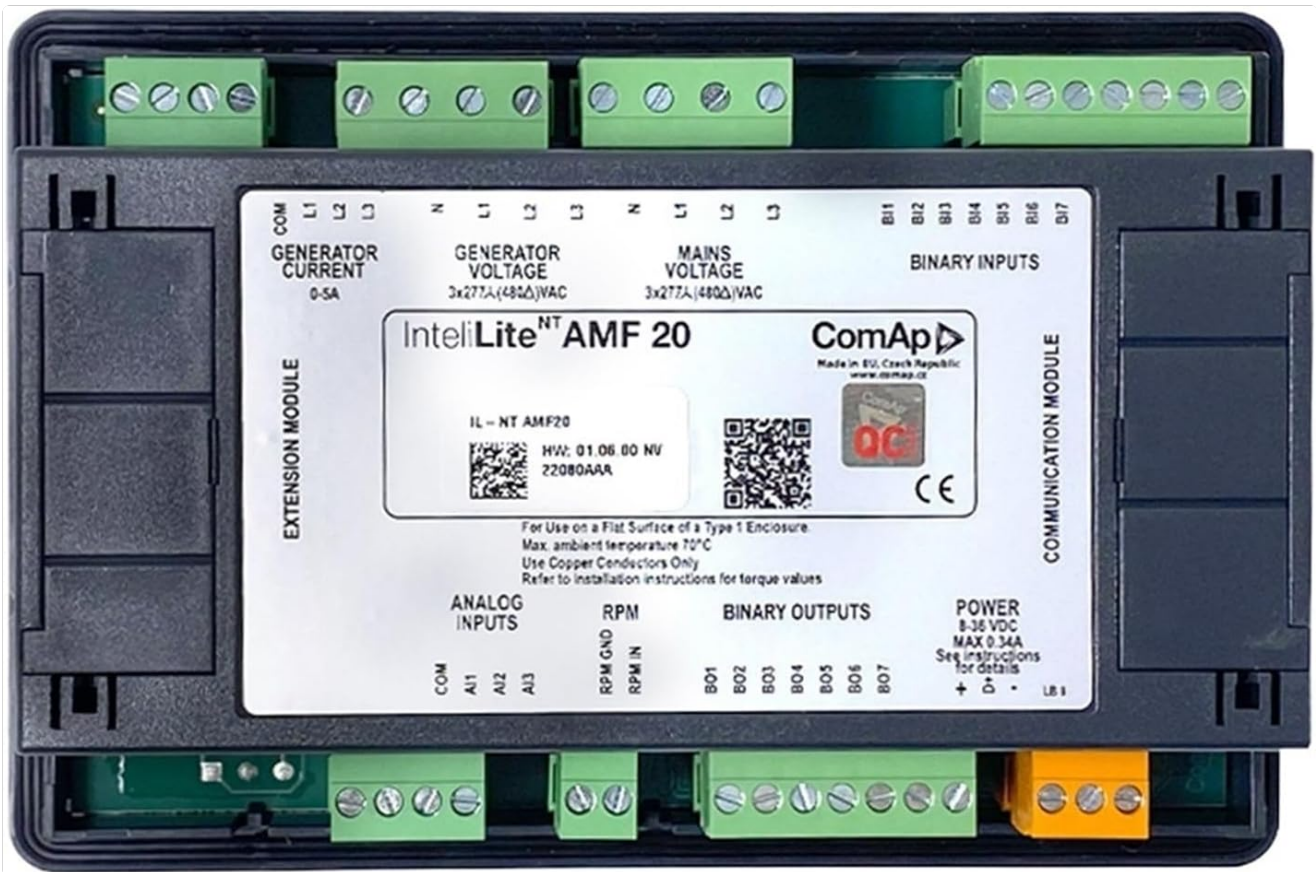


Image 3.2: Rear view of the AMF20 controller, displaying various terminal blocks for power, generator current, generator voltage, mains voltage, binary inputs, analog inputs, and binary outputs. The product barcode '48023870' is visible.

Key connection points include:

- **Generator Current (0-5A):** Terminals for current transformer (CT) inputs.
- **Generator Voltage (3x277V/480V AC):** Terminals for generator voltage sensing.
- **Mains Voltage (3x277V/480V AC):** Terminals for utility (mains) voltage sensing.
- **Binary Inputs (B1-B7):** Digital inputs for various signals (e.g., emergency stop, low fuel).
- **Analog Inputs (A1-A3):** Inputs for analog sensors (e.g., oil pressure, engine temperature).
- **Binary Outputs (B01-B07):** Digital outputs for controlling external devices (e.g., starter motor, fuel solenoid).
- **Power (8-36 VDC, Max 0.34A):** DC power supply input.
- **Extension Module:** Connector for optional extension modules.
- **Communication Module:** Connector for optional communication modules.

Important: Use Copper Conductors Only. Refer to installation instructions for specific torque values for terminal connections.

4. SETUP AND INSTALLATION

4.1 Mounting

The AMF20 controller is designed for mounting on a flat surface within a Type 1 Enclosure. Ensure the mounting location allows for adequate ventilation and keeps the ambient temperature below 70°C (158°F) for optimal performance and longevity.

4.2 Wiring

All wiring must comply with local and national electrical codes. Ensure all power is disconnected before beginning wiring.

1. **Power Supply:** Connect the 8-36 VDC power supply to the designated terminals. Observe correct polarity (+ and -). The maximum current draw is 0.34A.
2. **Generator Voltage Sensing:** Connect the generator's phase voltages (L1, L2, L3) and neutral (N) to the 'GENERATOR VOLTAGE' terminals. The controller supports 3x277V/480V AC systems.
3. **Mains Voltage Sensing:** Connect the utility (mains) phase voltages (L1, L2, L3) and neutral (N) to the 'MAINS VOLTAGE' terminals. The controller supports 3x277V/480V AC systems.
4. **Generator Current Sensing:** Connect current transformers (CTs) to the 'GENERATOR CURRENT' terminals (0-5A). Ensure correct CT ratios and polarity for accurate current measurement.
5. **Binary Inputs:** Connect external switches or sensors (e.g., emergency stop button, low fuel switch, high temperature switch) to the 'BINARY INPUTS' terminals (B1-B7) as per your system design.
6. **Analog Inputs:** Connect analog sensors (e.g., engine oil pressure, coolant temperature, fuel level) to the 'ANALOG INPUTS' terminals (A1-A3).
7. **Binary Outputs:** Connect control relays or solenoids (e.g., starter motor, fuel solenoid, alarm horn) to the 'BINARY OUTPUTS' terminals (BO1-BO7).
8. **Grounding:** Ensure the controller chassis is properly grounded to the generator's frame and the main electrical ground.

After all connections are made, double-check wiring for correctness and security before applying power.

5. OPERATING INSTRUCTIONS

The AMF20 controller offers various operating modes and functions accessible via the front panel buttons.

5.1 Powering On

Once correctly wired and power is supplied, the controller will power on and display its initial screen. The LCD will show system status or the main menu.

5.2 Mode Selection

- **Mode O<->O (Manual Mode):** In this mode, the generator is started and stopped manually using the Start and Stop buttons. The controller provides protection but does not automatically manage mains failure.
- **Mode O->O (Automatic Mode):** In this mode, the controller continuously monitors the mains supply. If a mains failure is detected, the controller will automatically start the generator, transfer the load, and shut down the generator when mains power is restored.

Press the respective Mode button to switch between manual and automatic operation.

5.3 Starting and Stopping the Generator

- **Start:** In Manual Mode, press the **Start** button to initiate the generator start sequence.
- **Stop:** In Manual Mode, press the **Stop** button to shut down the generator. In Automatic Mode, the generator will stop automatically when mains power is restored and stable.

5.4 Alarm and Fault Management

- **Horn Reset:** If an audible alarm sounds, press the **Horn Reset** button to silence it. The alarm indicator may remain active until the fault is cleared.
- **Fault Reset:** After addressing the cause of a fault (e.g., low oil pressure, high temperature), press the **Fault Reset** button to clear the fault condition and allow the generator to operate again.

5.5 Menu Navigation

Use the **Page**, **Up**, **Down**, and **Enter** buttons to navigate through the controller's menus, view parameters, and adjust settings. Refer to the detailed programming manual (if available from the manufacturer) for advanced configuration.

6. MAINTENANCE

Regular maintenance ensures the longevity and reliable operation of your AMF20 controller.

- **Cleaning:** Periodically clean the controller's front panel with a soft, dry cloth. Do not use abrasive cleaners or solvents. Ensure no moisture enters the unit.
- **Connections Check:** Annually, or as part of your generator maintenance schedule, inspect all wiring connections for tightness and corrosion. Loose connections can lead to intermittent operation or damage.
- **Environmental Check:** Ensure the enclosure remains sealed and protected from dust, moisture, and extreme temperatures.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates, which may offer improved features or bug fixes.

7. TROUBLESHOOTING

This section provides basic troubleshooting steps for common issues. For complex problems, consult a qualified technician.

Problem	Possible Cause	Solution
Controller does not power on	No power supply; Incorrect wiring; Blown fuse	Check DC power supply (8-36V); Verify power wiring polarity; Check for blown fuses in the power circuit.
Generator fails to start	Low fuel; Low battery voltage; Emergency stop active; Engine fault; Incorrect mode selection	Check fuel level; Check battery voltage and connections; Ensure emergency stop is disengaged; Check for active engine faults on display; Verify controller is in Manual or Auto mode.
Generator starts but does not take load	Mains power present; Load transfer fault; Incorrect settings	Check mains power status; Inspect load transfer switch/contactors; Verify load transfer settings in controller.
Alarm active on display	System fault (e.g., high temp, low oil pressure); Sensor malfunction	Identify the specific alarm message on the display; Address the underlying issue (e.g., add oil, check coolant); Press 'Horn Reset' then 'Fault Reset' after resolving.

8. SPECIFICATIONS

Parameter	Value
Model	AMF20 (InteliLite NT AMF 20)
Brand	IBXDTUVJ
Power Supply	8-36 VDC
Max Current Draw	0.34A
Generator Voltage Input	3x277V/480V AC
Mains Voltage Input	3x277V/480V AC
Generator Current Input	0-5A (via CTs)
Binary Inputs	7
Analog Inputs	3
Binary Outputs	7
Max Ambient Temperature	70°C (158°F)
Item Weight	1.76 ounces
Package Dimensions	1.18 x 0.79 x 0.39 inches

9. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the documentation provided with your purchase or contact the seller/manufacturer directly. Keep your purchase receipt as proof of purchase.

Manufacturer: IBXDTUVJ

ASIN: B0F4KMTYYW