Manuals+
Q & A | Deep Search | Upload

Victron Energy NT-1231

Victron Energy Cyrix-ct 12/24-Volt 120A Intelligent Battery Combiner User Manual

Model: NT-1231

1. Introduction

The Victron Energy Cyrix-ct 12/24-Volt 120A Intelligent Battery Combiner is a microprocessor-controlled heavy-duty relay designed to automatically connect batteries in parallel when one of them has reached a pre-set voltage (indicating that the battery is being charged). It disconnects when the voltage decreases below float level (indicating that one or more batteries are being discharged).
This device serves as an efficient replacement for diode isolators, offering virtually no voltage loss. This eliminates the need to increase the output voltage of alternators or battery chargers.

Image 1.1: Front view of the Victron Energy Cyrix-ct 12/24-Volt 120A Intelligent Battery Combiner.

2. Key Features

- **Intelligent Battery Monitoring:** The Cyrix-ct monitors voltage trends (increasing or decreasing) and reverses previous actions only if the trend has reversed for a specific duration. The time delay adjusts based on voltage deviation.
- **Overheating Protection:** The unit will automatically disengage if the contact temperature becomes excessive due to prolonged overload. It will re-engage once it has cooled down to a safe operating temperature.
- **Emergency Start Assist:** A push button or switch can be connected to manually engage the Cyrix-ct, connecting batteries in parallel for 30 seconds. This feature is useful for starting an engine if the primary starter battery is discharged.
- **Zero Voltage Loss:** Unlike traditional diode isolators, the Cyrix-ct ensures virtually no voltage drop, preserving charging efficiency.

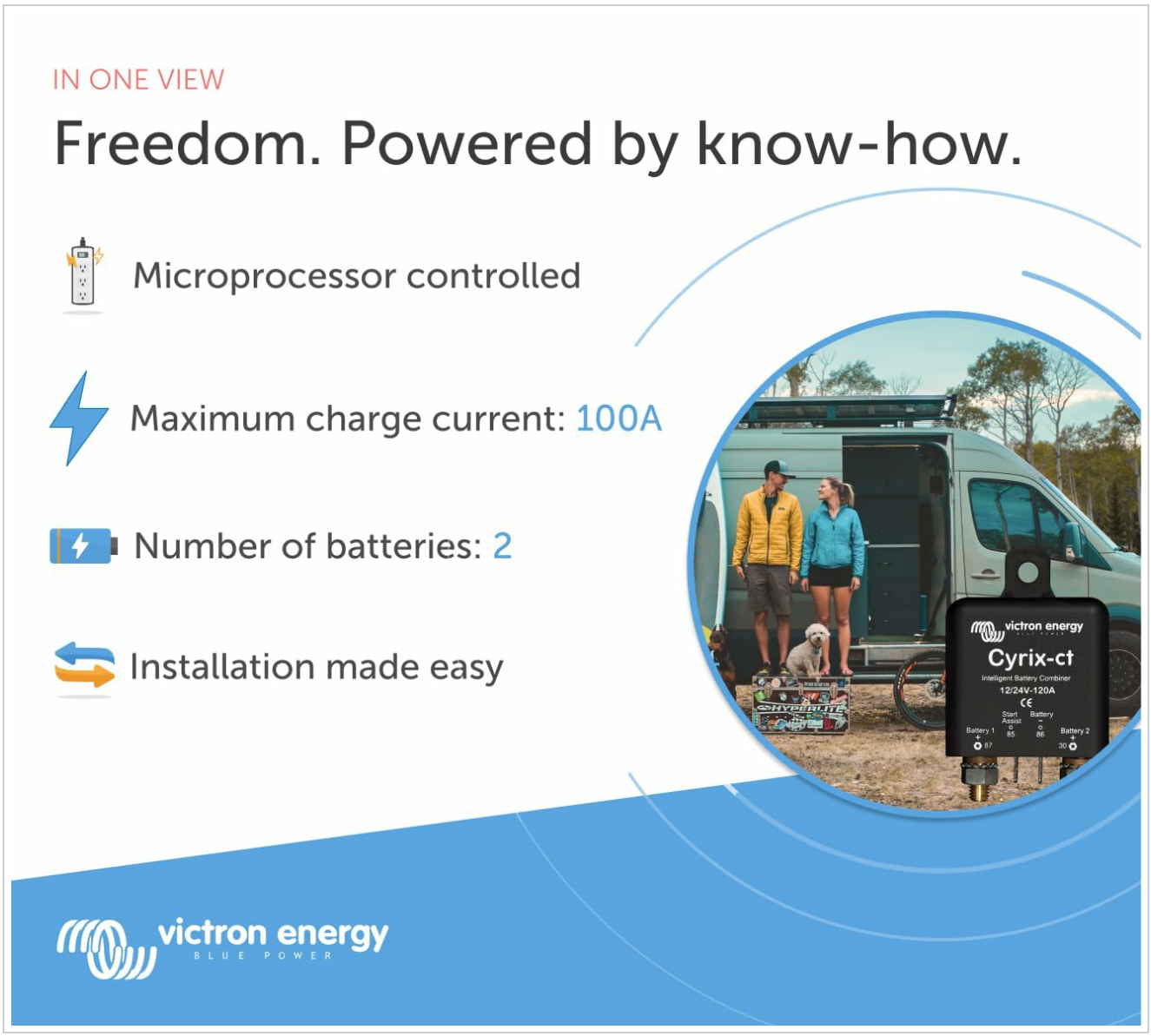

Image 2.1: Overview of Cyrix-ct features, highlighting microprocessor control, 100A maximum charge current, support for two batteries, and ease of installation.

3. Setup and Installation

The Cyrix-ct is designed for 12V, 24V, or 48V installations with a negative common ground. Follow these steps for proper installation:

1. **Disconnect Batteries:** Ensure the negative terminals of both batteries are disconnected before beginning installation.
2. **Mounting Location:** Place the Cyrix-ct as close as possible to the smallest battery, typically the starter battery.
3. **Positive Connections:** Connect the positive terminals of both batteries to the brass bolts on the Cyrix-ct, marked with numbers 30 and 87 respectively. Install a fuse in series with each positive connection. The fuse size should be appropriate for the wire cross-section used, but must not exceed 120A.
4. **Negative Connection:** Connect the negative terminal of the Cyrix-ct (marked 86) to the common negative bus or chassis ground. Reconnect the negative terminals of both batteries.
5. **Optional Start Assist:** An emergency start push button can be wired to the 'Start Assist' connection (85) if desired. Pressing this button momentarily will engage the relay for 30 seconds. Alternatively, a parallel connect switch can be used to engage the relay as long as the switch remains closed.

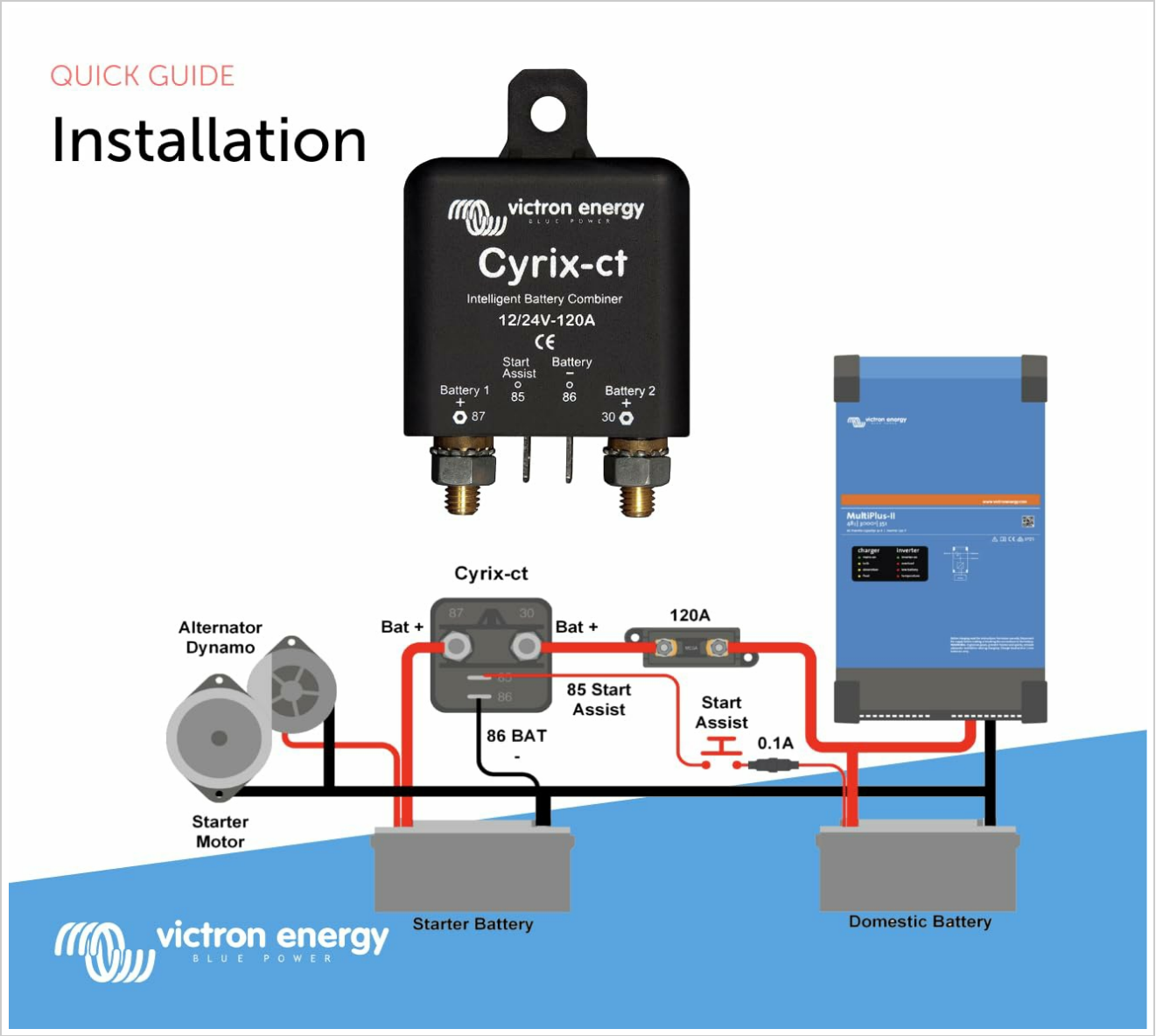

Image 3.1: Wiring diagram for the Cyrix-ct, showing connections to an alternator, starter motor, starter battery, and domestic battery, including fuse placement and optional start assist button.

4. Operating Principles

The Cyrix-ct operates automatically to manage the charging of multiple battery banks. Its intelligent design ensures optimal battery health and system performance.

4.1. Automatic Connection and Disconnection

When the voltage of one battery bank rises above a pre-set threshold (indicating it is being charged by an alternator, solar charger, or shore power), the Cyrix-ct will connect the battery banks in parallel. This allows the charging source to charge all connected batteries. When the voltage drops below a different pre-set threshold (indicating discharge), the Cyrix-ct will disconnect the battery banks, isolating them to prevent a discharged battery from draining a charged one.

4.2. Starter Battery Prioritization

In typical setups, the alternator is directly connected to the starter battery. The Cyrix-ct ensures that when the starter battery reaches its connect voltage, it engages to allow parallel charging of other batteries, such as house or auxiliary batteries. This prioritizes the starter battery's charge while ensuring auxiliary batteries also receive charge.

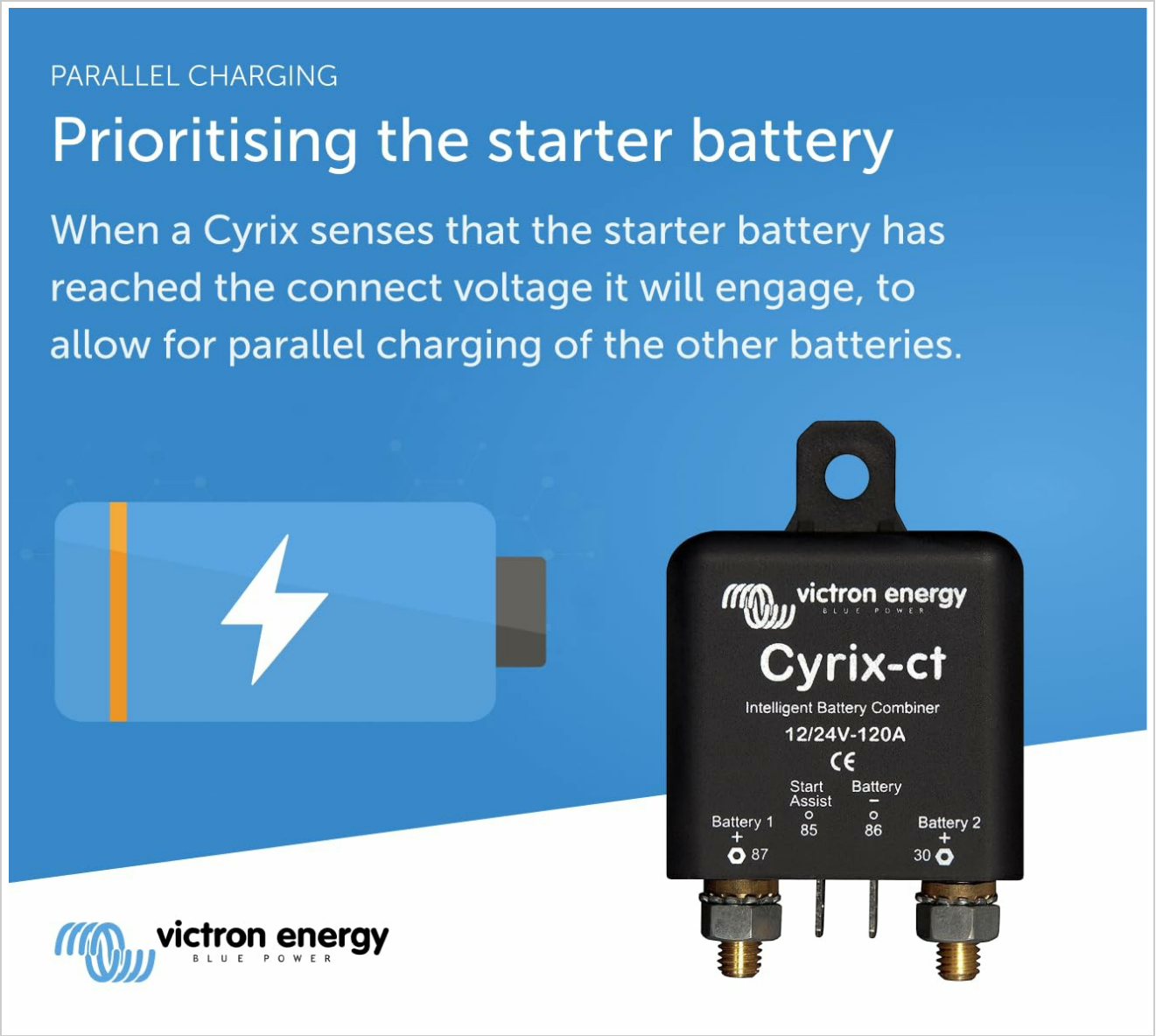

Image 4.1: Illustration of parallel charging, showing how the Cyrix-ct prioritizes the starter battery before connecting other batteries for charging.

5. Maintenance

The Victron Energy Cyrix-ct 12/24-Volt 120A Intelligent Battery Combiner is designed for maintenance-free operation. No routine user maintenance is required. Periodically inspect all wiring connections for tightness and ensure the unit is free from dirt or moisture accumulation.

6. Troubleshooting

- **Unit Not Connecting/Disconnecting:** Verify that all wiring connections are secure and correctly installed according to the diagram in Section 3. Check battery voltages to ensure they are within the expected thresholds for connection or disconnection. Consult the full product manual for specific voltage thresholds.
- **Overheating:** If the unit disengages due to overheating, allow it to cool down. This is a protective measure against excessive current draw. Ensure the current draw does not exceed the unit's 120A rating. Check for potential short circuits or excessive loads on the battery system.
- **Start Assist Not Functioning:** Confirm that the optional push button or switch for 'Start Assist' is correctly wired to terminal 85 and is functioning properly.

7. Specifications

Feature	Specification
Model Number	NT-1231
Product Dimensions	2.56 x 1.97 x 2.95 inches (65 x 50 x 75 mm)
Weight	3.88 ounces (0.11 kg)
Current Rating	120 Amps
Maximum Charge Current	100 Amps
Contact Type	Normally Open
Contact Material	Metal Used in Heavy Duty Relays
Connector Type	Plug-In
Mounting Type	Wall Mount
Number of Batteries Supported	2
Manufacturer	Victron Energy
Date First Available	June 18, 2015

Image 7.1: Dimensions of the Cyrix-ct unit, showing its compact size (80mm / 3.2 inches height, 46mm / 1.8 inches width).

8. Warranty Information

The Victron Energy Cyrix-ct 12/24-Volt 120A Intelligent Battery Combiner comes with a**5-year warranty**. For detailed terms and conditions, please refer to the official Victron Energy warranty policy available on their website.

9. Support and Resources

For further assistance, technical documentation, or to explore other Victron Energy products, please visit the official Victron Energy website. You can also utilize the VictronConnect app for monitoring and managing your Victron products.

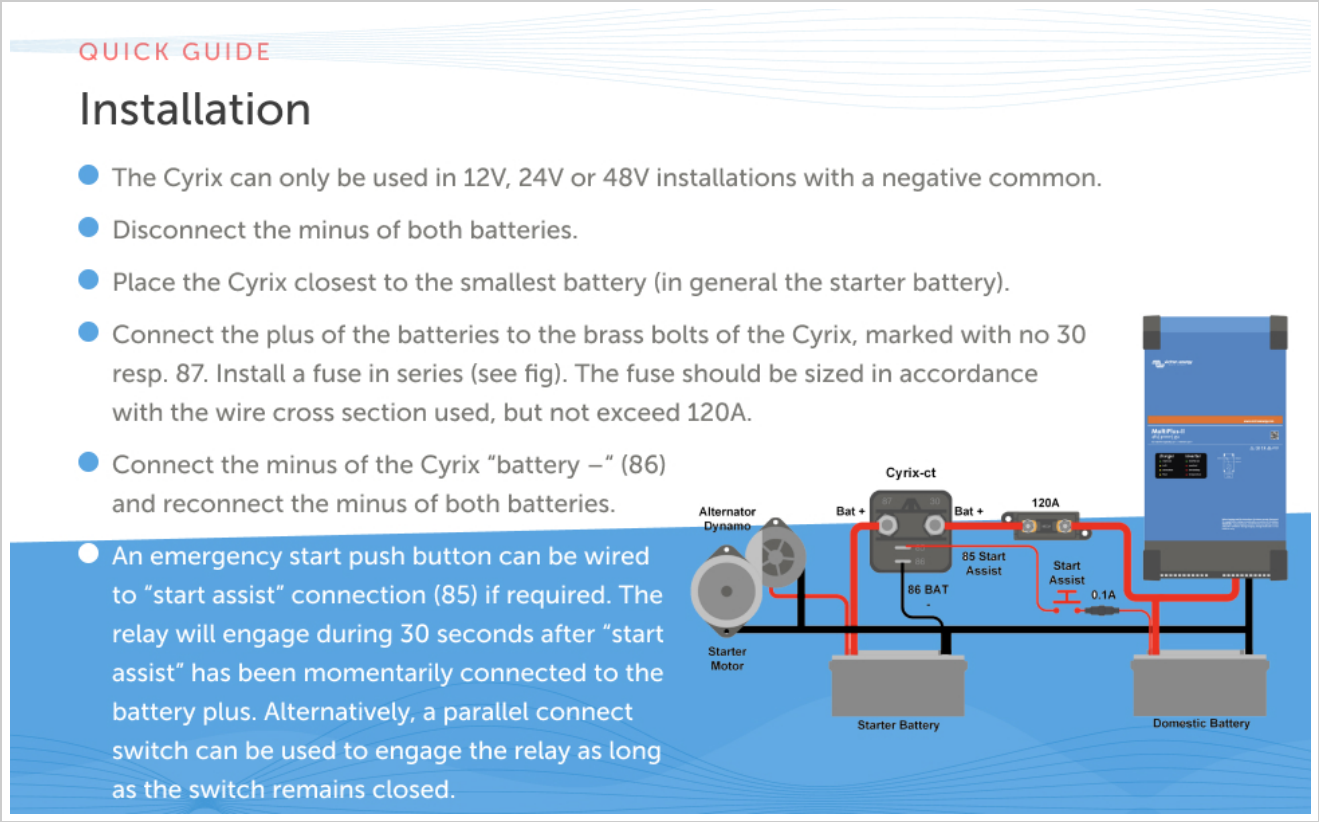

Image 9.1: Screenshot illustrating the VictronConnect app interface for remote monitoring of Victron Energy systems.

The VictronConnect app allows you to configure, monitor, update, and diagnose your Victron products. It connects via Bluetooth, USB, and WiFi/LAN/Internet.

© 2025 Victron Energy. All rights reserved.