



The Power of Reliability



Energy Manager Series Instruction Manual 855-371-000

SAFETY GUIDELINES

Principles of Safe Operation and Maintenance

Safety must always be the top priority of all personnel involved in the installation, operation, and maintenance of this unit as it operates at high voltages that could be potentially lethal. Technicians must adhere to the appropriate standards and manufacturer's recommendations to minimize hazards.

Do not attempt to perform the tasks described in this manual if you are not a qualified professional.

It is essential that all safety devices and emergency response systems be fully operational and within their certification periods before starting any service.

Visual Communication

This manual uses extensive visual aids and tries to adhere to ANSI and ISO safety symbol standards. These symbols describe the following situations:



WARNING indicates a hazardous situation that, if not avoided, may result in death or severe injury or damage to equipment and property.



CAUTION indicates a hazardous situation that, if not avoided, may result in minor or moderate injury or damage to equipment and property.



NOTICE indicates practices not related to physical injury but may result in equipment damage, environmental hazards, loss of data, and other undesirable consequences.

General Alerts



Risk of serious personal injury or damage to equipment and property. Always observe the following:

- Installation must be done by qualified technicians.
- Shut off or disconnect all DC power sources before connecting or disconnecting wiring.
- Carefully observe wiring polarity when making input and output connections.
- Securely tighten all connections.
- Do not attempt to service any internal parts. Refer all product service to an authorized ICT Ltd. service facility.

**Risk of personal injury or damage to equipment and property. Always observe the following:**

- Use wire and connectors rated for the maximum load current and size of fuse or circuit breaker in accordance with NEC Section 210.20(A) and keep cable lengths as short as practical.
- Install unit in a restricted access location (such as an equipment rack) to limit unintentional contact with terminals and wiring.
- Keep sources of moisture away from unit.
- Ensure all breakers are in the "OFF" position before connecting or disconnecting wiring.
- Do not energize the unit before the chassis ground is connected.
- DC-AC Inverters should not be connected to the outputs of the distribution unit. DC-AC Inverters create significant inrush current and may damage the circuitry or interfere with the operation of load distribution panels that they are connected to. Connecting a DC-AC inverter in this way may void the product warranty.

**Risk of damage to equipment, environmental hazards, loss of data and other undesirable consequences. Always observe the following:**

- The unit must be properly handled, mounted, and installed.
- Do not block air inlet or outlet openings.
- Due to environmental factors which are common at outdoor communications sites, power surges from lightning strikes, electrostatic discharge, and utility power feeds can occur. These surges can damage connected equipment.
- Third-party surge suppression devices must be utilized to protect AC input power feeds, and exposed DC power conductors and data cables. To provide optimal protection, these protection devices should be installed at both ends of the exposed conductor, in close proximity to installed equipment.
- Consult with manufacturers of surge suppression devices to select appropriately rated protection device(s) and proper installation methods.
- ICT's product warranty does not cover damage caused by power surges and electrostatic discharge events including lightning.



NOTE: Due to the breaker-detection circuitry internal to the unit, it may be possible to measure a voltage on the terminal(s) with no load connected, even if that terminal's breaker is open circuit. This is normal operation. The breaker-detection circuitry is a high-impedance circuit, and while a voltage may be present on the output terminal, it is a signal voltage and does not support loading. A load device connected to the output will immediately pull this voltage to zero volts.

Product Alerts



Risk of personal injury or damage to equipment and property. Always observe the following:

- Ensure that the input voltage is between -30 and -60 VDC. This unit will not power up with positive voltage.
- Ensure the total power consumption of the loads does not exceed the 150 amps (continuous) rated capacity of each power bus.
- Ensure continuous load current through each output channel does not exceed 80% of the breaker rating in accordance with NEC Section 210.20(A).
- Use wire that is rated $\geq 95^{\circ}\text{C}$.
- Ensure that the orientation of the circuit breakers are correct when inserting into the breaker openings — the breaker switch must be on the bottom side of the unit. Failure to insert the breakers correctly may damage the unit and any devices connected to them.

GENERAL INFORMATION

Document Number: 855-371-000

Model: ICT300DB-12IRC

Date and Revision: May 2024, Revision 1.0

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Disclaimer

ICT shall not be held liable for any damage or injury involving this product if it has been subjected to misuse and exposure to environmental conditions not conforming to the product's limits of operation, improper installation, or maintenance.

The illustrations in this manual are for illustrative purposes only. Review the drawings before proceeding. If there are questions and concerns regarding the product, refer to the FAQs section or contact ICT.

Contact Information

- North America toll-free: +1 877.930.0717 ext. 810
- International: +1 604.856.6303 ext. 810
- E-mail: technical@ictcorporate.com

ICT LIMITED WARRANTY

The warranty period on ICT products is two (2) years from date of purchase from an authorized ICT reseller or OEM with valid proof of purchase, or from date of shipment from the ICT manufacturing facility. The warranty period for a repaired product or part is ninety (90) days or the remainder of the unexpired term of the new product warranty period, whichever is greater. Repair or replacement of a defective product or part does not extend the original warranty coverage period.

The ICT Limited Warranty is only intended for the benefit of the original purchaser and user of this product. This Warranty is not transferable or assignable without the prior written permission of ICT. ICT's sole obligation and liability under this warranty is limited to either repairing or replacing defective products at the sole discretion of ICT. When repairing or replacing the products, ICT may use products or parts that are new, equivalent to new or re-conditioned. Parts repaired or replaced during the warranty period will be under warranty for the remainder of the warranty period.

No claim will be accepted unless written notice of the claim is received by ICT in accordance with ICT's Return Material Authorization (RMA) procedure, as soon as reasonably possible after the defect is discovered. A valid product serial number must be provided with the RMA claim to prove eligibility. The RMA procedure is available on the ICT website at www.ict-power.com/support/warranty-repair/.

The Purchaser shall at their own risk and cost return the defective product to ICT's factory or designated repair center once an RMA is issued by ICT. Return of the products to the customer after repair is completed shall be prepaid by ICT unless otherwise mutually agreed between the parties. Products shipped to ICT which have incurred freight damage will not be covered by this Warranty and any repairs or replacement parts, components or products needed will be invoiced in the full current price amount and returned freight collect to the Purchaser. It is the Purchaser's responsibility to check the product upon receipt for any damage during shipping and to contact the carrier or shipper regarding such damage. Product that is returned as defective, which is determined to operate within published specifications will be returned to the Purchaser freight collect.

ICT assigns to the Purchaser any warranties which are made by manufacturers and suppliers of components of, or accessories for, the ICT product and which are assignable. ICT makes no representations as to the effectiveness or extent of such warranties, assumes no responsibility for any matters which may be warranted by such manufacturers or suppliers and extends no additional coverage under this Warranty to such components or accessories.

In no event shall ICT be liable for any special, indirect, or consequential damages such as, but not limited to, loss of use, business or goodwill, loss of revenue, or loss of profits, which may result, either directly or indirectly, from defects in products provided by ICT.

This Warranty will be void if the product has been subjected to misuse, neglect, accident, exposure to environmental conditions not conforming to the products' limits of operation, improper installation or maintenance, improper use of an electrical source, defects caused by sharp items or by impact pressure, a force majeure event, has been modified or repaired by anyone other than ICT or its authorized representative, has been subjected to unreasonable physical, thermal or electrical stress, improper maintenance, or causes external to the unit including but not limited to general environmental conditions such as rust, corrosive atmospheres, sustained temperatures outside the specified operating range of the equipment, exposure to power surges and/or electrical surges, improper grounding, mold or dust, animal or insect damage, water damage or immersion in liquid of any kind, or if the serial number has been altered, defaced, or removed.

ICT does not control the installation and use of any ICT product. Accordingly, it is understood this does not constitute a warranty of performance or a warranty of fitness for a particular purpose. This Warranty represents the entire agreement between ICT and Purchaser with respect to the subject matter herein and supersedes all prior verbal or written communications, representations, understandings, or agreements relating to this subject.

Return Material Authorization Procedure

1. Request RMA number from ICT through telephone, e-mail, or website from Monday to Friday between 8:00am and 4:30pm Pacific Time.

- North America toll-free: +1 877.930.0717 ext. 810
- International: +1 604.856.6303 ext. 810
- E-mail: technical@ictcorporate.com
- ICT website: <https://ict-power.com/support/warranty-repair>

2. Provide the following information when requesting an RMA:

- ICT model number
- Serial number
- Return ship-to address
- The preferred shipping courier and account number, if applicable
- An estimate of what the possible failure cause might be

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1.0 INTRODUCTION

The ICT300DB-12IRC is a dual-feed DC power distribution unit for negative 48-volt DC applications that provides two 150 amps (continuous) bus inputs; with six independently controlled and monitored output channels each rated at 50 amps (maximum) per bus in a 2RU chassis for 19-inch rack mounting. Overcurrent protection for each output is provided on the front panel with 80-volt DC rated, user-insertable, low profile, miniature circuit breakers that are orderable separately.

Each bus can accommodate a supply voltage from -30 to -60 volts DC with continuous input current of 150 amps to be distributed at 50 amps maximum on each of the six output channels. Each channel has independent current sensing, overcurrent protection, alarms, and output on/off control.

Remote monitoring and control are available through the integrated security-protected Ethernet communications port on the front of the unit.

The unit has a built-in web server with an embedded web-based graphical user interface (GUI) that can be accessed using any standard commercial web browser. The GUI displays all panel information; allows full access to channel configuration settings; provides remote channel on/off control; and can be set up to send an alarm to user-defined e-mail accounts in the event a fault occurs. The GUI can also be used to configure and download a data log of up to 30 days of time-stamped event information. Full monitoring and control are also available using an SNMP-based management system.

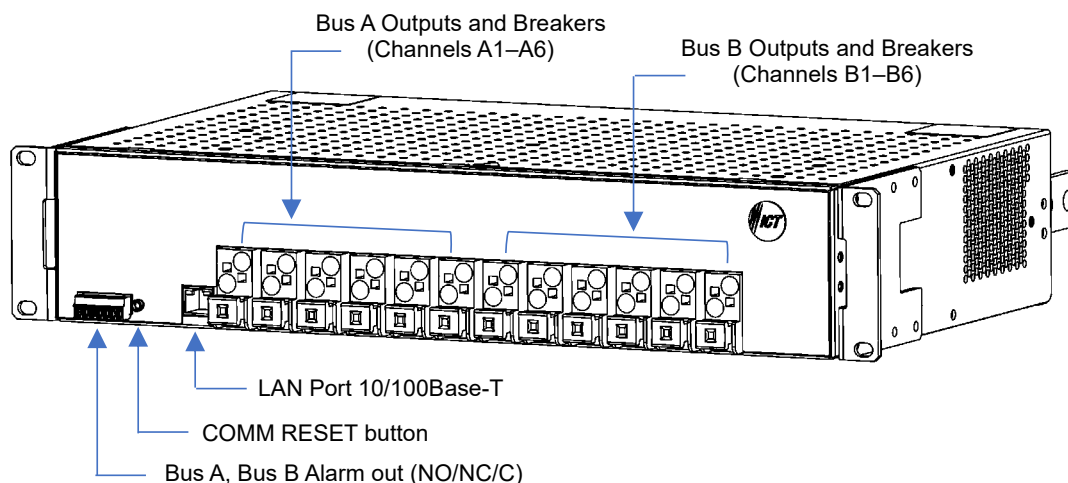


Figure 1. Front Panel

1.1 Common Features

- 300 amps continuous system current rating / 150 amps per bus
- Six independently controlled and monitored output channels per bus rated at 50 amps maximum each
- Independent form-C alarm contacts for each bus
- Field-replaceable circuit breakers for fast configuration and maintenance
- -30°C to +60°C operating temperature range
- 2-year warranty
- Optional cable management assembly for both input and output cables
- -30 to -60 VDC operating voltage

1.2 Intelligent Model

- TCP/IP remote management and power control of system and individual outputs
- On-board web server means no software to maintain
- Easy to use GUI
- Remote firmware update capability
- HTTPS, SMTP, SNMP (v1, v2c, v3), TLS 1.2 protocols supported
- Monitoring and alarm reporting of each output
- Alarms can be sent to multiple e-mail accounts
- Each output has adjustable load-shedding settings
- Network watchdog
- Data logging
- Password protection

2.0 INSTALLATION



Risk of serious personal injury or damage to equipment and property. Always observe the following:

- Shut off or disconnect all DC power sources before connecting or disconnecting wiring.
- Carefully observe wiring polarity when making input and output connections.
- Securely tighten all connections.



Risk of personal injury or damage to equipment and property. Always observe the following:

- Use wire and connectors rated for the maximum load current and size of fuse or circuit breaker in accordance with NEC Section 210.20(A) and keep cable lengths as short as practical.



- Each output load must not exceed 50 amps maximum.
- Install unit in a restricted access location (such as an equipment rack) to limit unintentional contact with terminals and wiring.
- Keep sources of moisture away from unit.
- Ensure all breakers are in the "OFF" position before connecting or disconnecting wiring.
- Do not energize the unit before the chassis ground is connected.
- Ensure the total power consumption of the loads does not exceed the 150 amps (continuous) rated capacity of each power bus.
- Ensure that the input voltage is between -30 and -60 VDC. This unit will not power up with positive voltage.

2.1 Unpacking and Inspection

Perform a physical check of the unit as it is being taken out of the box to ensure it has not been damaged during shipping. Check that the accessories under the package contents section were shipped with the unit.

NOTE: In case of shipping damage, your freight carrier should be notified immediately.

2.2 Package Contents

- Distribution panel
- Two rack-mounting ears (installed)
- One 1/4-inch grounding bolt (installed)
- Instruction Manual (USB drive, in bag)
- Two plastic screw-on covers (in packaging slot)
- Bag containing the following:
 - Six #8-32 screw for installing plastic screw-on covers
 - Eight 3/8-inch nuts for input terminal connection
 - Eight 3/8-inch bolts for input terminal connection
 - Sixteen 3/8-inch washers for input terminal connection
 - One 7-pin alarm output connector plug

2.2.1 Tools and Parts Needed

- 9/16-inch wrenches for the input connection
- 7/16-inch wrench for the chassis ground connection
- Wire stripper
- Four #10-32 Phillips screws to connect rack ears to rack
- #2 Phillips screwdriver for the plastic screw-on covers and rack ear connections
- 3/32-inch flathead screwdriver for the form-C alarm relay connector and alarm wire connection
- 3/16-inch flathead screwdriver to connect cables to the breakers
- Cable ties (if using the ICT-CMA cable management assembly)

2.2.2 Other Requirements

Use appropriate circuit breakers (available from ICT) for each output channel to be used. Circuit breakers must be ordered separately from the following list for use on the ICT300DB-12IRC unit.

Table 1. Breakers

ICT Model	Rating (80 VDC)
ICT-MCB20	20 A
ICT-MCB32	32 A
ICT-MCB40	40 A
ICT-MCB50	50 A
ICT-MCB63	63 A

2.2.3 Optional Accessories

Cable Management Assembly

The cable management assembly (ICT-CMA) is an optional accessory used to support cables for the output or input sides of the unit. This can be ordered separately (available from ICT).

2.2.4 Installation Recommendations

Input Terminal Lugs

Each bus input is rated 150 amps and the terminal lugs used to connect the input wires to the bus bars need to be rated accordingly. It is recommended to use two-hole lugs.

Ferrule Terminals

The ICT Miniature Circuit Breakers can accommodate up to 6 AWG wires. It is recommended to terminate the output cables with ferrule terminals to ensure ease of cable insertion as well as proper electrical contact.

2.3 Quick Install Guide

- Unpack and check that the unit and all materials have been delivered.
- Obtain the recommended tools.
- Install the optional cable management assembly (if desired).
- Mount the unit into a 19-inch rack.
- Connect the chassis ground according to the site design, and in accordance with local electrical code standards.
- Connect the alarms (if required).
- Connect the network cable.
- Connect and energize the DC inputs.
- Configure the software settings.
- De-energize the unit and install the breakers.
- Connect the loads.
- Verify the system wiring.
- Energize the loads.

2.4 Cable Management Assembly Installation (optional)

The Cable Management Assembly (ICT-CMA) can be mounted in the front or rear of the unit. Refer to the ICT-CMA user manual for more information.

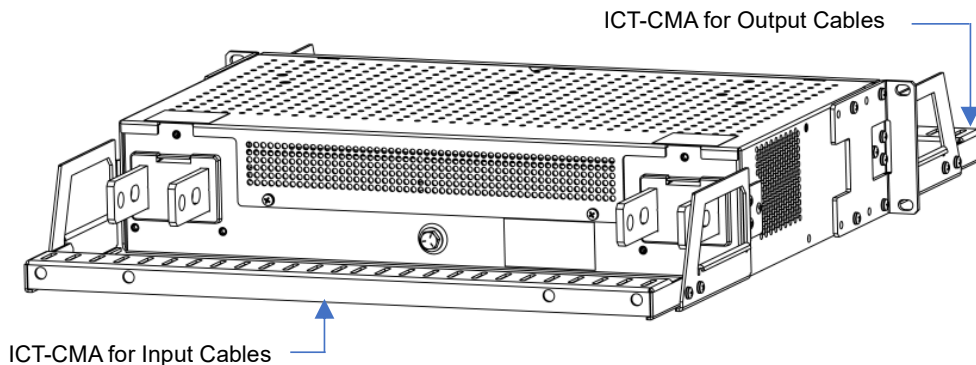


Figure 2. Distribution Panel with Cable Management Assembly

2.5 Rack Mounting



Do not block air inlet or outlet openings. Provide adequate open space above the unit for sufficient air flow.

Mount the unit in an enclosed standard 19-inch equipment rack or other restricted access location, using rack mounting screws (not supplied). The rack ear location can be adjusted to mid-mount the unit. Support the front/rear of the unit with rack shelf supports if required.

2.6 Ground Connection

Connect a ground bonding wire from the chassis ground stud to a nearby common grounding point, such as building's master ground bus or floor ground bus. Use a ground bonding wire that is sized in accordance with NEC Table 250.122 (see Table 2). Ensure that the selected ground bonding wire is rated to handle either the largest fuse/breaker on the distribution unit or the maximum current on the distribution unit, whichever is greater.



NOTICE

All DC outputs of ICT's DC distribution systems are isolated from chassis ground (floating). DC output returns can remain isolated from ground (DC-I) or can be grounded (DC-C), as per site grounding requirements and/or local or national electrical codes. Ensure that all relevant electrical code standards are followed.

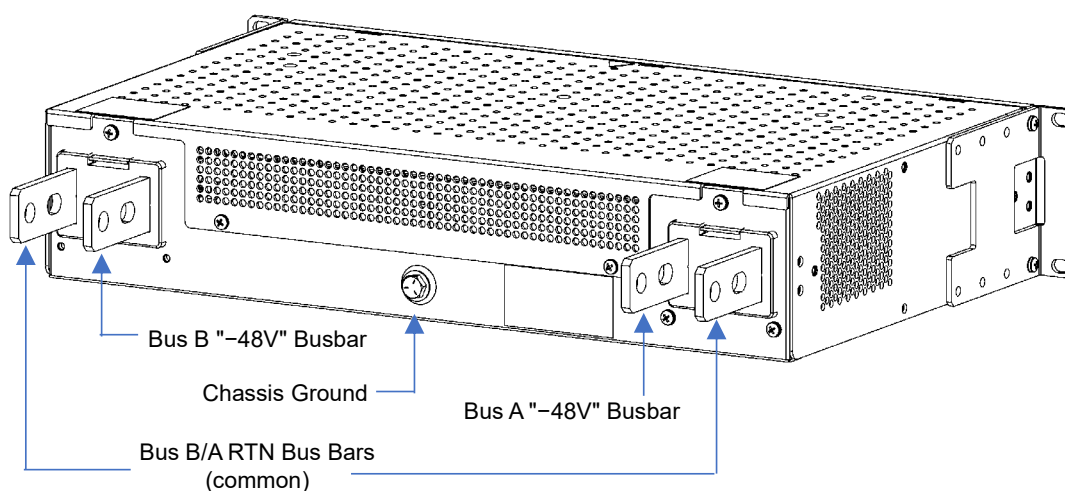


Figure 3. Rear Panel

Table 2. Minimum Size Equipment Grounding Conductors for Grounding Raceway and Equipment

Maximum Circuit Breaker Size	Conductor Size (AWG or kcmil)	
	Copper	Aluminum or Copper-Clad Aluminum
15	14	12
20	12	10
30	10	8
40	10	8
60	10	8
100	8	6
200	6	4
300	4	2

This is sourced from "National Electrical Code 2005 Edition", p. 70-112.

2.7 Alarm Connections

Connect the two form-C relay Bus Alarm outputs to an external monitoring system, if needed, by stripping and terminating 16–28 AWG alarm wiring in the alarm 7-pin connector plugs and installing the connector in the front panel. Each Bus Alarm output will trigger for any breaker open, or other alarm related to any channel on that bus (factory default). If required, using the Graphical User Interface (GUI), some alarm conditions may be muted so that they will not trigger the form-C alarm output.

Table 3. Alarm Output Connector

Pin Number	Name	Function
1	NO	Bus A: Alarm NO (alarm state)
2	NC	Bus A: Alarm NC (alarm state)
3	Common	Bus A: Alarm output common
4		Unused
5	NO	Bus B: Alarm NO (alarm state)
6	NC	Bus B: Alarm NC (alarm state)
7	Common	Bus B: Alarm output common

2.8 Network Cable Connection

Connect a 10/100 Base-T Ethernet cable to the RJ45 LAN port on the front panel to allow for remote monitoring and control of the unit.

NOTE: See the Network Monitoring and Control section for information on configuring and using the built in GUI, e-mail, or SNMP functions (see Section 4.7).

2.9 Input Connections



Ensure that the input voltage is between –30 and –60 VDC. This unit will not power up with positive voltage.

1. De-energize the DC source and open any disconnect switches.
2. Connect the main Bus A "RTN" line to the power supply return using wire and dual-hole lug connectors rated for up to 150 amps continuous current.
 - a. Feed a stripped wire into a lug terminal then crimp the lug terminal.
 - b. Insert the supplied bolts into the lug connectors then securely fasten (facing outwards) to Bus A "RTN" bus bar with supplied hardware (see Figure 4).
 - c. Torque the fasteners to 150 in-lbs. (17 Nm).

3. Connect the Bus A "-48V" line through a suitably rated disconnect switch (set in the open position) and a fuse or circuit breaker rated for 150 amps continuous operation to the power supply output, using wire and dual-hole lug connectors rated for up to 150 amps continuous current. Repeat bus bar wiring (a, b and c) for Bus A "-48V" bus bar.

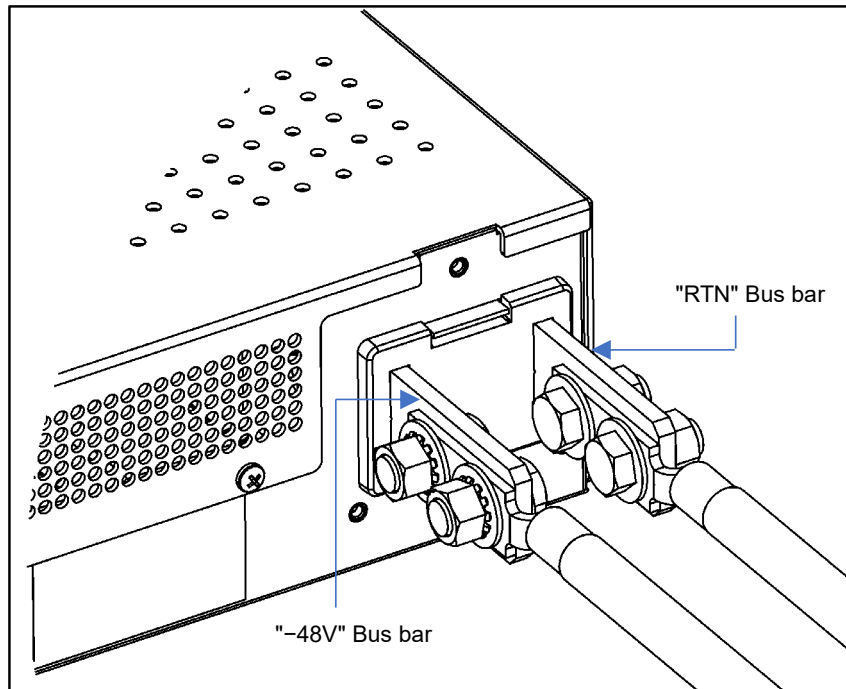


Figure 4. Input Connections

4. Repeat input wiring for the Bus B "RTN" and "-48V" bus bars, its power source and overcurrent protection device using wires and dual-hole lug connectors rated up to 150 amps continuous current if Bus B outputs are to be used.
5. If using the ICT-CMA for the input cables, anchor the cables to the ICT-CMA in the desired positions using cable ties.
6. Install the plastic screw-on covers using the screws provided.
7. Energize the DC source and close any disconnect switches.

NOTE: Bus A/B "RTN" and Breaker "+" are internally connected and share a common ground. The Bus A/B "-48V" terminals are isolated, and can support operation from separate -30 to -60 V power sources. They share a common return potential.

2.10 Software Configuration

Configure the software (see Section 4).

2.11 Installation of the Breakers



Risk of personal injury or damage to equipment and property. Always observe the following:

- Ensure that the breakers are in the correct orientation when inserting into the breaker openings — the breaker switch must be on the bottom side of the unit as shown in Figure 4. Failure to insert the breakers correctly may damage the unit and any devices connected to them.
- Ensure that the switch on the breaker is in the OFF position ("Off" when switch displays green, "On" when switch is pressed and displays red) — do not apply pressure to the breaker switch while installing the breakers.
- If the breakers are not fully installed or are not installed "square" they may cause intermittent power loss or unexpected behavior for the load devices.

1. De-energize the DC source and open any disconnect switches.
2. Install breakers in the 12 front locations of the panel by inserting into the breaker openings (breaker switch must be on the bottom side of the unit as shown in Figure 5), ensuring that the breakers are securely seated in the breaker sockets.
3. Refer to Section 2.12 for instructions on connecting load wires to breakers.



Breaker Switch

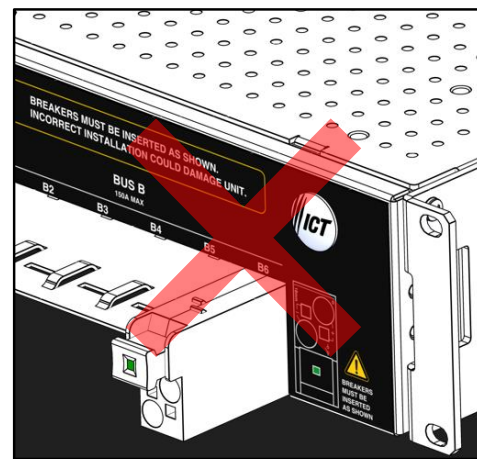


Figure 5. Correct Breaker Orientation Figure 6. Incorrect Breaker Orientation

The circuit breaker switch also acts as a locking mechanism such that the breaker can only be disengaged from the unit when the switch is in the OFF position. It also serves as the circuit breaker handle when pulling out the breaker.

2.12 Load Connections



Risk of personal injury or damage to equipment and property. Always observe the following:

- DC-AC Inverters should not be connected to the outputs of the distribution unit. DC-AC inverters create significant inrush current and may damage the circuitry or interfere with the operation of load distribution panels that they are connected to. Connecting a DC-AC inverter in this way may void the product warranty.
- Ensure that the combined current draw on the outputs does not exceed the output capacity of the bus (150 amps).
- Leave breakers turned off until the software has been configured (see Section 4).

Make connections to the load using wire and connectors appropriately rated for the maximum output current capability of the unit.

Each bus provides six remotely controlled and monitored outputs, with front panel overcurrent protection provided by the miniature circuit breakers.

The maximum current rating for each bus is 150 amps. Each output can accept 50 amps maximum current.

The unit may be operated with either Bus A or Bus B powered, or both.

NOTE: All Breaker "+" and Bus A/B "RTN" are internally connected and share a common ground.

For each output that is being used:

1. Connect the load to the breaker using appropriately rated wire inserted and secured into the breaker terminals. The breaker terminals will accept 6–18 AWG. Connect the –48 volt DC (hot) lead to the breaker terminal marked "–", and the return lead to the "+" breaker terminal.
 - a. Ferrules are recommended to ensure ease of wire insertion as well as proper electrical contact. Strip a wire based on the length of the ferrule, feed the stripped wire into the ferrule then crimp before connecting to the breaker.

If not using ferrules, strip 18 mm of a wire before connecting to the breaker.

- b. Connect the wire to the breaker by inserting a flathead screwdriver into the spring access hole (square hole) to open the spring clamp, insert the wire into the breaker terminal, then release the flathead screwdriver.
2. If needed, remove the installed wire by inserting a flathead screwdriver into the spring access hole (square hole) to open the spring clamp, pull the wire, then release the flathead screwdriver.

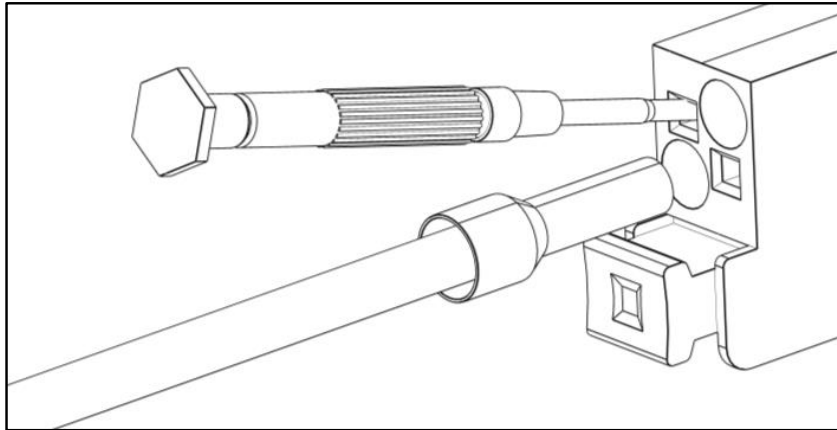


Figure 7. Removing Load Wire/Ferrule from Breaker

3. If using the ICT-CMA for the load output cables, anchor the cables to the ICT-CMA in the desired positions using cable ties.

NOTE: The outputs use normally open relays.

2.13 System Wiring Final Verification

Check that all connections to the power distribution panel are correct and properly tightened.

2.14 Energize Loads

1. Energize the DC source and close any disconnect switches.
2. Switch on the output breakers 1 to 12 (if installed) to energize any loads connected to the distribution panel outputs.

2.15 Mixed Polarity or Voltage Installation (not applicable)

The ICT ICT300DB-12IRC supports -48 VDC only.

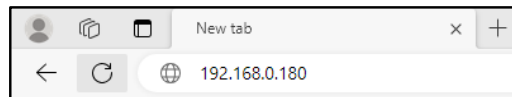
3.0 OPERATION: FRONT DISPLAY PANEL (not applicable)

4.0 OPERATION: GRAPHICAL USER INTERFACE

Connect to the ICT ICT300DB-12IRC via Ethernet for full remote monitoring and control using any standard web browser on a network connected computer or phone. No additional software is required.

4.1 Log In/Log Out

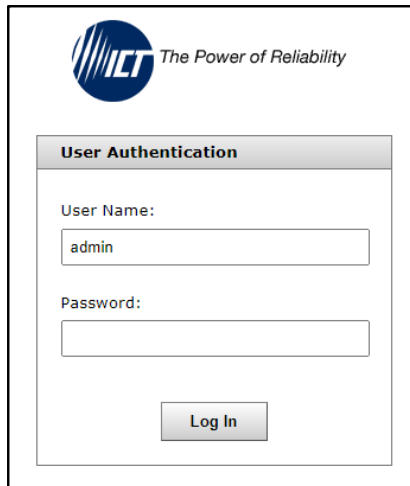
1. Connect to the ICT Dual Feed Intelligent Distribution Panel by entering the IP address of the unit in the location/address field of the browser as shown:



The default IP address of the unit is "192.168.0.180", but any unit connected to a network with a DHCP server will be assigned a different IP address automatically.

The IP address of any ICT unit on a local network can be found by running the ICT "IP Address Discovery tool", after installing it on a Windows computer connected to the same network (tool available for download from ICT <http://www.ict-power.com/resources/tools-utilities/>). This tool does not support macOS.

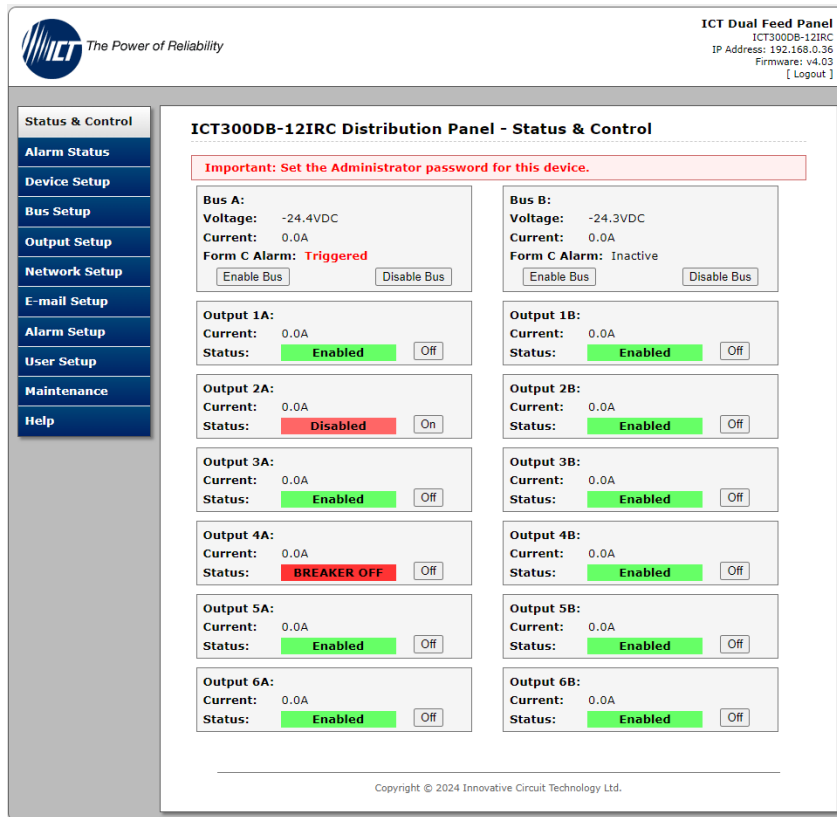
2. Log into the unit's built-in server when prompted with the username and password. The default username is "admin", and no password is required as the factory default.

A screenshot of the "User Authentication" login form. At the top left is the ICT logo and the tagline "The Power of Reliability". Below this is a header "User Authentication". There are two input fields: "User Name:" with the text "admin" entered, and "Password:". Below the fields is a "Log In" button.

To log out of the ICT Dual Feed Intelligent Distribution Panel GUI, click on the Logout link on the top right of the browser window. The system will also automatically log off the user after 20 minutes of inactivity.

4.2 Status & Control

Once successfully logged in, the Status & Control tab will be shown in the browser.



Bus Status

Bus x: Shows name of each bus if one was assigned.

Voltage: Shows output DC voltage on this bus. This value does not specify polarity.

Current: Shows total amps being supplied by this bus.

Form C Alarm: Shows whether the unit is broadcasting a form-C alarm for that bus (Triggered or Inactive).

Enable Bus Buttons: Use these to close the six channel relays on each bus, applying power to all external loads. The outputs will be enabled in a timed sequence if the "power-on sequencing" has been enabled on the Device Setup page (see Section 4.4).

Disable Bus Buttons: Use these to open the six channel relays on that bus, disabling power to external loads on the bus.

Output Status

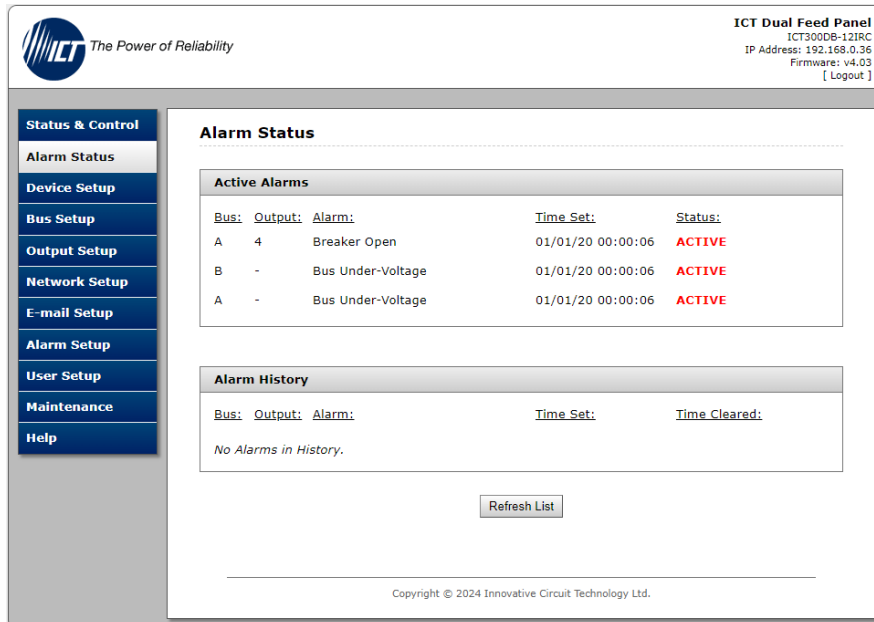
Each output on the unit will be displayed with name and status (Enabled, Disabled, BREAKER OFF). A status "Enabled (green)" indicates that the internal electronic relay on that output channel is closed or turned on. A status "Disabled (orange)" indicates that the internal electronic relay is open or turned off. A status "BREAKER OFF (red)" indicates that the mechanical breaker has been tripped.

NOTE: "BREAKER OFF" only displays when a load is connected. "Disabled" supersedes "BREAKER OFF".

Select the "On" or "Off" buttons to turn the output on or off. This will not affect the mechanical circuit breaker. The default setting is Enabled.

4.3 Alarm Status

Use this tab to monitor all active alarms and up to 100 historic alarms. The history will be cleared after the unit is rebooted.



ICT Dual Feed Panel
 ICT300DB-12IRC
 IP Address: 192.168.0.36
 Firmware: v4.03
 [Logout]

Alarm Status

Active Alarms

Bus:	Output:	Alarm:	Time Set:	Status:
A	4	Breaker Open	01/01/20 00:00:06	ACTIVE
B	-	Bus Under-Voltage	01/01/20 00:00:06	ACTIVE
A	-	Bus Under-Voltage	01/01/20 00:00:06	ACTIVE

Alarm History

Bus:	Output:	Alarm:	Time Set:	Time Cleared:
No Alarms in History.				

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Active Alarms

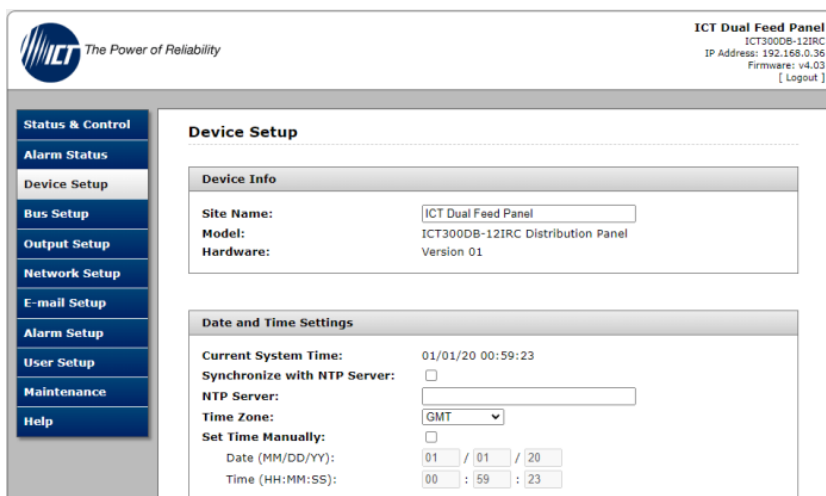
Shows the bus and output that the alarm is on; the name of the alarm; the time that the alarm started and the status of the alarm (ACTIVE).

Alarm History

Shows the bus and output that the alarm is on; the name of the alarm; the time that the alarm started; and the time that the alarm cleared.

4.4 Device Setup

Use this tab to configure the unit's name, set the date and time and enable the watchdog timer and data logging features.



The screenshot shows the 'Device Setup' configuration page for an 'ICT Dual Feed Panel'. The page has a navigation menu on the left with options like 'Status & Control', 'Alarm Status', 'Device Setup', 'Bus Setup', 'Output Setup', 'Network Setup', 'E-mail Setup', 'Alarm Setup', 'User Setup', 'Maintenance', and 'Help'. The main content area is divided into two sections: 'Device Info' and 'Date and Time Settings'. In the 'Device Info' section, 'Site Name' is set to 'ICT Dual Feed Panel', 'Model' is 'ICT300DB-12IRC Distribution Panel', and 'Hardware' is 'Version 01'. In the 'Date and Time Settings' section, 'Current System Time' is '01/01/20 00:59:23', 'Synchronize with NTP Server' is unchecked, 'NTP Server' is empty, 'Time Zone' is 'GMT', 'Set Time Manually' is unchecked, and the date and time are set to '01 / 01 / 20' and '00 : 59 : 23' respectively.

Device Info

Site Name: Enter a descriptive name for the system. This name will be used in all e-mail messages.

Model: Shows the model number of the unit.

Hardware: Shows the hardware version of the unit.

Date and Time Settings

Current System Time: Shows the current system date and time.

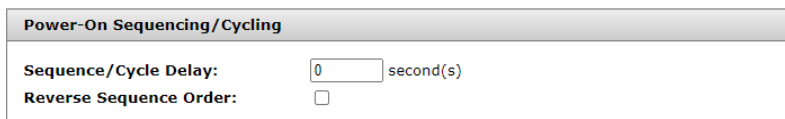
Synchronize with NTP Server: Select the check box to synchronize with NTP Server. The default is Disabled.

NTP Server: Set an NTP server address here (i.e., time.nist.gov) to automatically load network time.

Time Zone: Set the time zone this unit will be using.

Set Time Manually: Select the check box to enable manually setting the time and date.

Power-On Sequencing/Cycling



The screenshot shows the 'Power-On Sequencing/Cycling' configuration section. It contains two settings: 'Sequence/Cycle Delay' is set to '0' seconds, and 'Reverse Sequence Order' is unchecked.

Sequence/Cycle Delay: Set the time in seconds (0–60 seconds) that will be used as the delay between energizing outputs. Will affect all outputs. Set to 0 to disable. Use this feature to allow a delay between energizing loads to reduce inrush current. The default setting is 0 (Disabled).

The "Sequence Delay" time will also be used as the "Power Cycling" time delay for each output that has the "Power Cycling" feature enabled on the "Output Setup" page (see Section 4.6).

Reverse Sequence Order: Select the check box to cause the power-on sequence to run in reverse order with output 6 on first, ending with output 1, when the "Enable Bus" button is clicked on the Status & Control page.

Network Watchdog

Network Watchdog

Watchdog Timeout: minute(s)

Maximum Cycle Attempts:

Set Maximum Cycle Attempts to 0 for no limit.

Select a Watchdog to edit:

#1: (Disabled)

#2: (Disabled)

#3: (Disabled)

#4: (Disabled)

#5: (Disabled)

#6: (Disabled)

Watchdog Enabled:

Primary IP Address:

Secondary IP Address:

Cycle Outputs (Bus A): 1A: 2A: 3A: 4A: 5A: 6A:

Cycle Outputs (Bus B): 1B: 2B: 3B: 4B: 5B: 6B:

Watchdog Timeout: Set a time in minutes (1–80 minutes) for the unit to wait with no ping response from IP address before initiating a reset. Ensure this time is greater than the normal start-up time for the network hardware to prevent nuisance power cycle events at system start up. The default is 10 minutes.

Maximum Cycle Attempts: This setting will limit the maximum number of times the unit can attempt to cycle power to the output(s). If network connectivity is restored the attempts counter is reset. Rebooting the unit will also reset the counter. Set Maximum Cycle Attempts to zero for no limit. The default is 0.

Select a Watchdog to edit: Select one of the six independent watchdogs to configure. Each watchdog, if enabled, will cause the unit to periodically ping up to two remote IP addresses to verify network connection status. If there is no response from either address, the unit will cycle power on all outputs that are configured in the "Cycle Outputs" setting below. This feature is useful for re-booting a modem or other network device that is powered by one of the distribution panel outputs, to help recover the network IP connection when one of these devices becomes unresponsive. A delay time must be entered in the "Sequence/Cycle Delay" field for this function to work. Power for a cycled channel will be held in the off state for the duration set by the Sequence/Cycle delay time, then will be turned back on.

Watchdog Enabled: Select the check box to enable the selected network watchdog. The default is Disabled.

Primary IP Address: Set a primary IP address for the selected watchdog to monitor. If left blank the unit will monitor the Gateway IP address listed in the Network Setup page.

Secondary IP Address: Set a secondary IP address for the unit to monitor to verify network status.

NOTE: The Network Watchdog will only trigger if both the Primary and Secondary IP addresses fail to respond.

Cycle Outputs: Set which output(s) to power cycle when the Network Watchdog triggers.

Data Logging

Data Logging	
Data Logging:	Enabled <input type="button" value="Download Log (CSV)"/>
Log Start Date:	01/01/20 00:02:28

Data Logging: Set the check box to Enable data logging. This will keep a running record of the bus voltage, bus current, channel output currents, breaker status, and alarm inputs, recorded once per minute for the last 30 days. The default is Disabled.



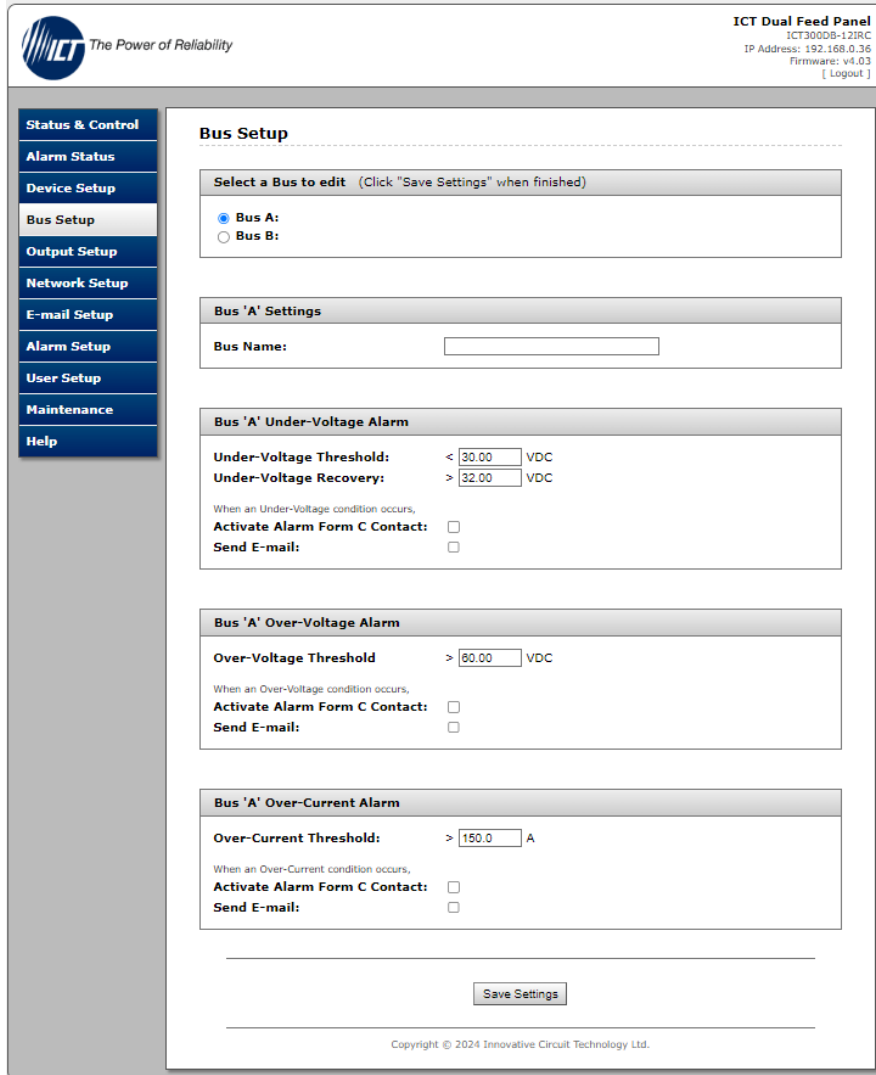
NOTICE

Updating the firmware will delete the current log file. Download the log before updating the firmware.

NOTE: Save Settings to enable any changes made.

4.5 Bus Setup

Use this tab to configure each bus.



ICT Dual Feed Panel
ICT3000B-12IRC
IP Address: 192.168.0.36
Firmware: v4.03
[Logout]

Status & Control
Alarm Status
Device Setup
Bus Setup
Output Setup
Network Setup
E-mail Setup
Alarm Setup
User Setup
Maintenance
Help

Bus Setup

Select a Bus to edit (Click "Save Settings" when finished)

Bus A:
 Bus B:

Bus 'A' Settings

Bus Name:

Bus 'A' Under-Voltage Alarm

Under-Voltage Threshold: < VDC
Under-Voltage Recovery: > VDC

When an Under-Voltage condition occurs,
Activate Alarm Form C Contact:
Send E-mail:

Bus 'A' Over-Voltage Alarm

Over-Voltage Threshold > VDC

When an Over-Voltage condition occurs,
Activate Alarm Form C Contact:
Send E-mail:

Bus 'A' Over-Current Alarm

Over-Current Threshold: > A

When an Over-Current condition occurs,
Activate Alarm Form C Contact:
Send E-mail:

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Select a Bus to edit

Select "Bus A" or "Bus B" to call up the settings for that bus.

Bus "A/B" Settings

Bus Name: Set a descriptive name for the selected bus if desired.

Bus "A/B" Under-Voltage Alarm

Under-Voltage Threshold: Set the voltage that will trigger an undervoltage alarm on this bus. Bus voltage dropping below this level will immediately trigger a bus undervoltage alarm. The default setting is 30 VDC.

Under-Voltage Recovery: Set the voltage that will clear the alarm on this bus. Bus voltage rising above this level will clear the alarm. The default setting is 32 VDC.

Activate Alarm Form C Contact: Set the check box for the Alarm relay to trigger for an undervoltage condition. The default setting is Disabled.

Send E-mail: Set the check box to have a Bus Under-Voltage alarm e-mail sent to the e-mail addresses set up on the "E-mail Setup" page (see Section 4.8). The default setting is Disabled.

Bus "A/B" Over-Voltage Alarm

Over-Voltage Threshold: Set the voltage that will trigger an overvoltage alarm on this bus. Bus voltage rising above this level will immediately trigger a Bus Over Voltage alarm. Bus voltage under this threshold for will clear the alarm. The default setting is 60 VDC.

Activate Alarm Form C Contact: Set the check box for the Alarm relay to trigger for an overvoltage condition. The default setting is Disabled.

Send E-mail: Set the check box to have a Bus Over-Voltage alarm e-mail sent to the e-mail addresses set up on the "E-mail Setup" page (see Section 4.8). The default setting is Disabled.

Bus "A/B" Over-Current Alarm

Over-Current Threshold: Set the current that will trigger an overcurrent alarm on this bus. Bus current above this level for at least 5 seconds will immediately trigger an Over-Current Alarm. The default setting is 150 amps.

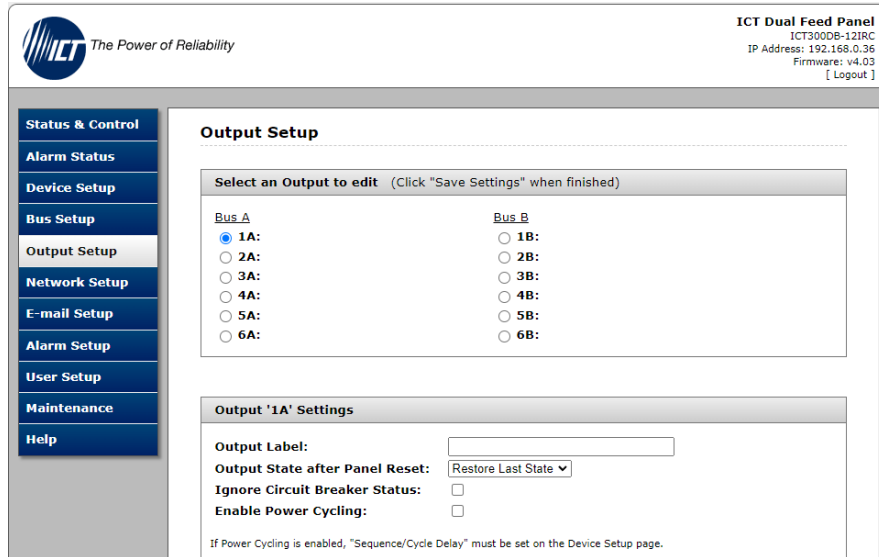
Activate Alarm Form C Contact: Set the check box for the Alarm relay to trigger for an overcurrent condition. The default setting is Disabled.

Send E-mail: Set the check box to have a Bus Over-Current alarm e-mail sent to the e-mail addresses set up on the "E-mail Setup" page (see Section 4.8). The default setting is Disabled.

NOTE: Save Settings to enable any changes made.

4.6 Output Setup

Use this tab to configure the settings for each output channel on Bus A and Bus B.



Select an Output to edit

Select the output to be edited in this section. Make any required changes, and then click on the "Save Settings" button at the bottom of the page to save any edits.

Output Settings

Output Label: Enter a descriptive label for the selected output channel. The default setting is blank.

Output State after Panel Reset: Sets the state for the output after an input power failure, or soft reset of the panel. The default setting is Restore Last State. Select one of the following:

- **Restore Last State:** This will return the output relay to the state prior to the reset event (default).
- **Enable Output:** This will turn the output on, regardless of its previous state.
- **Disable Output:** This will turn the output off, regardless of its previous state.

Ignore Circuit Breaker Status: Select to disable alarms from this output. Will prevent false alarms on an unused channel. The default setting is Disabled.

Enable Power Cycling: Select this box to enable output power cycling for the selected output. Enabled outputs will automatically be re-enabled after the "Sequence/Cycle Delay" time whenever the output is disabled using the "Output Off" button on the "Status & Control" page, or when the Network Watchdog is triggered. This feature is useful for remotely

resetting power to a router or other hardware required for the network connectivity of the unit. The default setting is Disabled.

NOTE: The "Sequence/Cycle Delay" time must be set on the "Device Setup" page with duration long enough for the connected network hardware to fully reset for this function to be effective. Multiple outputs that are disabled using Power Cycling will be re-enabled in sequence from output #1 to output #6.

Output Load-Shedding

Load shedding will disable specified outputs when the bus voltage reaches a preset threshold for at least 30 seconds. This will save battery capacity for mission-critical load devices by turning off non-critical load devices. Loads will be reconnected if Load-Shedding Auto Recovery is enabled, and the bus voltage exceeds the Auto Recovery Threshold for 60 seconds.

Output '1A' Load-Shedding	
Enable Load-Shedding:	<input type="checkbox"/>
Load-Shedding Threshold:	<input type="text" value="40.00"/> VDC
Load-Shedding Auto Recovery:	<input type="checkbox"/>
Auto Recovery Threshold:	<input type="text" value="44.00"/> VDC

If enabled, Load-Shedding will disable this output if the system voltage drops below the threshold for at least 30 seconds.

Enable Load-Shedding: Set this box to enable load-shedding on this output. The default setting is Disabled.

Load-Shedding Threshold: Set the voltage (1.00–60.00 VDC) at which the selected output will be disabled. The default setting is 40.00 VDC.

Load-Shedding Auto Recovery: Set this box to allow the output to be automatically reconnected when the bus voltage is above the "Recovery Threshold". The default setting is Disabled.

Auto Recovery Threshold: Set the voltage (1.50–60.50 VDC) at which the selected output will automatically be reconnected. This value must be at least 0.5 V above the Load-Shedding Threshold voltage. The default setting is 44.00 VDC.

NOTE: Outputs that have been disabled on the Status & Control page will reconnect automatically if "Load-Shedding Auto Recovery" is enabled for that output. To prevent this, ensure that the "Load-Shedding Auto Recovery" is not enabled.

Output Over-Current Alarm

Output '1A' Over-Current Alarm	
Over-Current Threshold:	> <input type="text" value="0.0"/> A
When an Over-Current condition occurs on this Output,	
Activate Alarm Form C Contact:	<input type="checkbox"/>
Send E-mail:	<input type="checkbox"/>
Disable this Output:	<input type="checkbox"/>
This alarm will have no effect if the threshold is set to 0 Amps.	

Over-Current Threshold: Set the current (1.0–50.0 amps) that will trigger an overcurrent alarm on this output. Output current above this level for at least 5 seconds will trigger the Over-Current Alarm. Disable this alarm by setting the threshold to 0 amps. The default setting is 0 (Disabled).

Activate Alarm Form C Contact: Set the check box for the Alarm relay to trigger for an overcurrent condition. The default setting is Disabled.

Send E-mail: Set the check box to have a Bus Over-Current alarm e-mail sent to the e-mail addresses set up on the "E-mail Setup" page (see Section 4.8). The default setting is Disabled.

Disable this Output: Set this box to disable the output if an overcurrent alarm occurs. This function may be used as an electronic circuit breaker which can then be remotely reset by clicking the "Output ON" button on the Status & Control page. The default setting is Disabled.

Output Under-Current Alarm

Output '1A' Under-Current Alarm	
Under-Current Threshold:	< <input type="text" value="0.0"/> A
When an Under-Current condition occurs on this Output,	
Activate Alarm Form C Contact:	<input type="checkbox"/>
Send E-mail:	<input type="checkbox"/>
This alarm will have no effect if the threshold is set to 0 Amps.	

Under-Current Threshold: Set the current (1.0–50.0 amps) that will trigger an undercurrent alarm on this output. Output current below this level for at least 5 seconds will trigger the Under-Current Alarm. Disable this alarm by setting the threshold to 0 amps. The default setting is 0 (Disabled).

Activate Alarm Form C Contact: Set the check box for the Alarm relay to trigger for an undercurrent condition. The default setting is Disabled.

Send E-mail: Set the check box to have a Bus Under-Current alarm e-mail sent to the e-mail addresses set up on the "E-mail Setup" page (see Section 4.8). The default setting is Disabled.

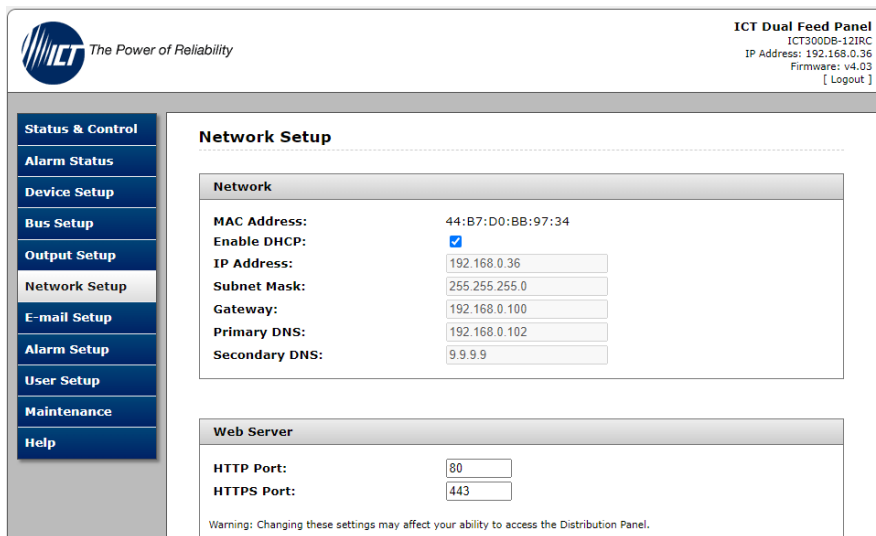
NOTE: Save Settings for each channel and then repeat the setup process for all output channels to be used, or Copy Settings to All.

4.7 Network Setup

Use this tab to configure the unit's network settings.



Saving any changes to the network settings will cause the unit to re-start, output power will be unaffected.



The screenshot shows the 'Network Setup' page of the ICT Dual Feed Panel. The page has a sidebar menu on the left with options: Status & Control, Alarm Status, Device Setup, Bus Setup, Output Setup, Network Setup (selected), E-mail Setup, Alarm Setup, User Setup, Maintenance, and Help. The main content area is titled 'Network Setup' and contains two sections: 'Network' and 'Web Server'. The 'Network' section has the following fields: MAC Address (44:B7:D0:BB:97:34), Enable DHCP (checked), IP Address (192.168.0.36), Subnet Mask (255.255.255.0), Gateway (192.168.0.100), Primary DNS (192.168.0.102), and Secondary DNS (9.9.9.9). The 'Web Server' section has HTTP Port (80) and HTTPS Port (443). A warning message at the bottom states: 'Warning: Changing these settings may affect your ability to access the Distribution Panel.'

Network

MAC Address: Shows the MAC address assigned to the unit.

Enable DHCP: Set the check box if the network uses a DHCP server to automatically assign IP addresses. The default is Enabled.

To manually assign a static IP address to the unit uncheck this box, then set the following parameters.

IP Address: Set a unique IP address for the unit.

Subnet Mask: Set the mask for the subnet the unit is located on.

Gateway: Set the IP address of the default router (Gateway) used for connecting attached devices to different networks.

Primary DNS: Set the IP address of the Primary DNS Server for the network.

Secondary DNS: Set the IP address of the Secondary DNS Server for the network.

Web Server



NOTICE

Changing the web server port numbers may cause loss of communication with the unit.

The following ports may be changed within a range of 1 to 65,565 if required:

HTTP Port: Set the port used for HTTP traffic between the unit and the browser. The default HTTP port is "80", and if this is changed, the new HTTP port number must be appended to the URL used to access the unit (e.g., use URL "http://192.168.0.180:8000" for IP address "192.168.0.180", port "8000").

HTTPS Port: Set the power used for HTTPS traffic between the unit and the browser. The HTTPS (HTTP Secure) protocol uses encrypted data transfer between web browsers and servers for higher security. The default HTTPS port is "443". Append any changed HTTPS port to the end of the URL for the unit.

To access the unit through a secure HTTPS connection, use "https://" at the start of the unit's URL (e.g., "https://192.168.0.180:8888" for IP address "192.168.0.180", HTTPS port "8888").

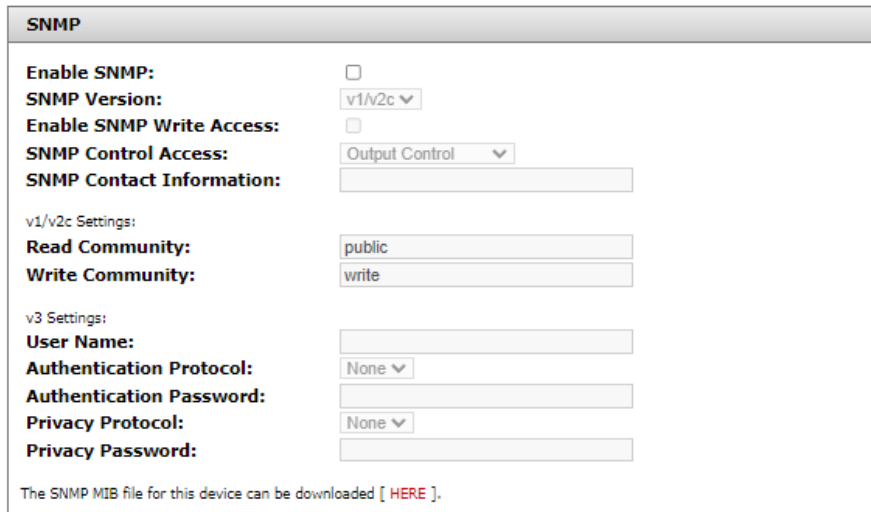
UDP Port: This port is used when applying firmware upgrades to the unit. The default UDP port is 9393.

SNMP

SNMP (Simple Network Management Protocol) is an industry standard protocol for network management software. Enabling the SNMP function on the unit will allow standard SNMP management software to connect to the SNMP agent running on the unit and read real-time system information such as bus voltage, and channel currents. The unit can send SNMP traps to the external management software when an alarm or fault occurs.

The information available from the SNMP agent is described in a MIB (Management Information Base) file, which can be downloaded from the ICT website: <https://ict-power.com/resources/tools-utilities/>. The MIB file

can also be downloaded from within the GUI. There are links in the SNMP section of the Network Setup tab and on the Help tab. The unique unit MIB file must then be imported into the external SNMP management software.



Enable SNMP: Select this check box to enable the SNMP agent. The default setting is Disabled.

SNMP Version: Set the SNMP version (v1/v2c, v3, or All) supported by the SNMP agent. If "All" is selected, all SNMP versions will be supported simultaneously. The appropriate settings for the selected SNMP version will need to be configured.

Enable SNMP Write Access: Select this check box to enable DC power to individual outputs through SNMP. If this box is unchecked, all information available from the SNMP agent will be read-only.

SNMP Control Access: Set the level of unit control that is allowed through SNMP. This setting is only available if Enable SNMP Write Access is enabled.

- **Output Control:** Allows remote SNMP control of the system output and LDM channel outputs only.
- **Full Device Control:** Allows SNMP client to set all unit settings through SNMP. This setting requires a different MIB file which can be downloaded from the ICT Website: <https://www.ict-power.com/resources/tools-utilities/>.

SNMP Contact Information: Set contact information, such as an operator name and phone number for the unit, which can be read via SNMP queries (this information is optional).

v1/v2c Settings

Read Community: Enter the community string/password here for read-only SNMP access. The default read community string is "public".

Write Community: Enter the community string/password here for read/write SNMP access. The default write community string is "write".

NOTE: The community strings should be changed to unique passwords before enabling SNMP, as the defaults are well known.

v3 Settings

User Name: Set the username for SNMPv3 access.

Authentication Protocol: Set the SNMPv3 authentication protocol (None, MD5, or SHA).

Authentication Password: If an authentication protocol is selected, set the authentication password.

Privacy Protocol: Set the SNMPv3 privacy protocol (None, or AES).

Privacy Password: If a privacy protocol is selected, set the privacy password.

SNMP Traps

SNMP Traps	
Trap Version:	v1 ▾
Trap Community:	public
Trap User Name:	
Authentication Protocol:	None ▾
Authentication Password:	
Privacy Protocol:	None ▾
Privacy Password:	
Trap IP Addresses:	

Trap Version: Set the SNMP version (v1 or v3) for SNMP traps sent from the system. The appropriate settings for the selected SNMP version will need to be configured.

Trap Community: Set the community string/password that will be sent with all SNMPv1 traps. Some trap receivers can filter based on Trap Community. This field is only used for v1 traps.

Trap User Name: Set the username for SNMPv3 traps. This field is only used for v3 traps.

Authentication Protocol: Set the authentication protocol for SNMPv3 traps (None, MD5, or SHA)

Authentication Password: If an authentication protocol is selected, set the authentication password for SNMPv3 traps.

Privacy Protocol: Set the privacy protocol for SNMPv3 traps (None, or AES)

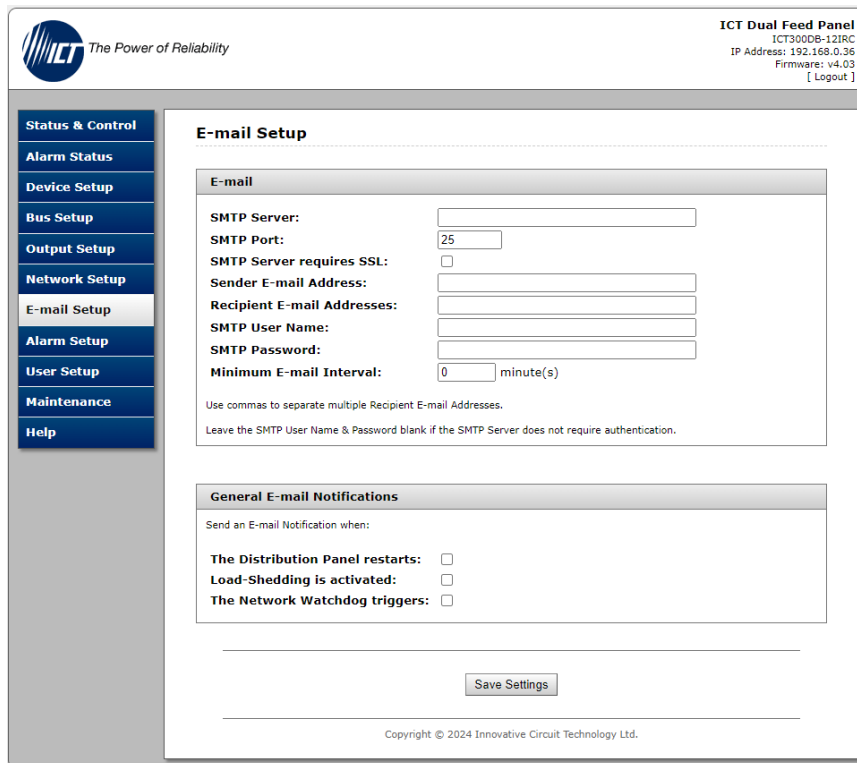
Privacy Password: If a privacy protocol is selected, set the privacy password for SNMPv3 traps.

Trap IP Addresses: Set the IP addresses for up to two devices that will receive SNMP traps from the unit.

NOTE: Save Settings to enable any changes made.

4.8 E-mail Setup

Use this tab to configure all e-mail settings to enable automatic e-mail notifications directly from the unit. The information required for this is available from the Network Administrator, or Internet Service Provider (ISP).



The screenshot shows the web interface for the ICT Dual Feed Panel. The top right corner displays the device information: **ICT Dual Feed Panel**, model **ICT300DB-12IRC**, IP Address: **192.168.0.36**, and Firmware: **v4.03**. A **[Logout]** link is also present. On the left, a navigation menu includes: **Status & Control**, **Alarm Status**, **Device Setup**, **Bus Setup**, **Output Setup**, **Network Setup**, **E-mail Setup** (highlighted), **Alarm Setup**, **User Setup**, **Maintenance**, and **Help**. The main content area is titled **E-mail Setup** and contains two sections: **E-mail** and **General E-mail Notifications**. The **E-mail** section includes fields for **SMTP Server**, **SMTP Port** (set to 25), **SMTP Server requires SSL** (checkbox), **Sender E-mail Address**, **Recipient E-mail Addresses**, **SMTP User Name**, **SMTP Password**, and **Minimum E-mail Interval** (set to 0 minutes). Below these fields are instructions: "Use commas to separate multiple Recipient E-mail Addresses." and "Leave the SMTP User Name & Password blank if the SMTP Server does not require authentication." The **General E-mail Notifications** section has a heading "Send an E-mail Notification when:" followed by three checkboxes: **The Distribution Panel restarts:**, **Load-Shedding is activated:**, and **The Network Watchdog triggers:**. A **Save Settings** button is located at the bottom of the form. The footer of the page reads "Copyright © 2024 Innovative Circuit Technology Ltd."

E-mail

SMTP Server: Set the name or the IP address of the SMTP server used for sending outgoing e-mail (e.g., "smtp.gmail.com").

SMTP Port: Set the port used by the SMTP server. The default setting is 25.

SMTP Server requires SSL: Select this check box if the SMTP server requires an encrypted SSL connection. This box should normally be checked if the SMTP port used by the SMTP server is 465. If the SMTP server uses STARTTLS (normally port 587), this box should be unchecked.

Sender E-mail Address: Set an e-mail address that will appear as the sender for all e-mail notifications sent from the unit.

Recipient E-mail Addresses: Set one or more e-mail addresses that are to receive all e-mail notifications from the unit. Use commas to separate multiple addresses.

NOTE: This field can also be used to send text message notifications to a phone (see Section 6.9).

SMTP User Name: Set an SMTP username here, if required by the SMTP server. Leave this field blank if the server does not require authentication.

SMTP Password: Set an SMTP password here, if required by the SMTP server. Leave this field blank if the server does not require authentication.

Minimum E-mail Interval: Set a minimum interval in minutes (0–60 minutes) between e-mail notifications. This time interval is used to prevent an un-intended flood of e-mail alarm notifications that could occur when an alarm limit is incorrectly configured, for example. The default setting is 0.

General E-mail Notifications

Set these options to receive an e-mail when one or more of these events occurs:

The Distribution Panel restarts: Select this check box to receive an e-mail notification when the unit restarts after a power failure or a soft reset.

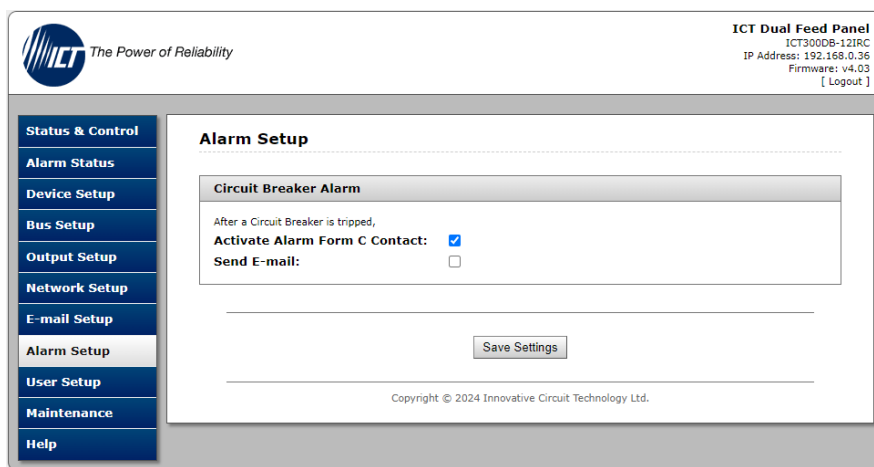
Load-Shedding is activated: Select this check box to receive an e-mail notification when any of the outputs are disabled or enabled due the voltage crossing one of the load-shed settings configured on the Output Setup page.

The Network Watchdog triggers: Select this check box to receive an e-mail notification when the Network Watchdog triggers due to a loss of the network connection.

NOTE: Save Settings to enable any changes made.

4.9 Alarm Setup

Use this tab to control the settings for the alarms.



Circuit Breaker Alarm

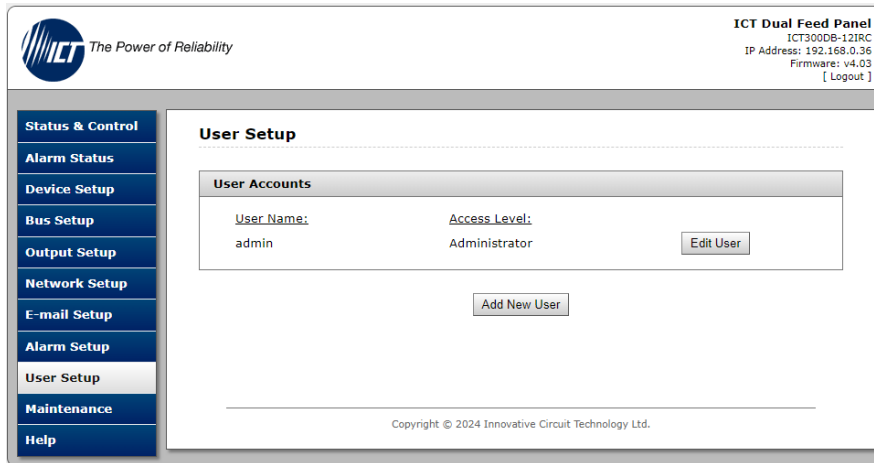
Activate Alarm Form C Contact: Set the check box to have the Bus A alarm output trigger for any breaker on channel A1 to A6 opening and have the Bus B alarm output trigger for any breaker on channel B1 to B6 opening. The default setting is Enabled.

Send E-mail: Select the check box to have an e-mail sent to the e-mail addresses set up on the E-mail Setup page when a breaker opens on any of the output channels (see Section 4.8). The default is Disabled.

NOTE: Save Settings to enable any changes made.

4.10 User Setup

Use this tab to set up and configure the usernames and passwords for up to 10 users. Set the level of access to the unit settings allowed for each user. Click on the Save Settings button at the bottom of the page to save any password changes.



NOTE: The unit has no password assigned by default, so an Administrator password should be assigned to the unit for improved security.



NOTICE

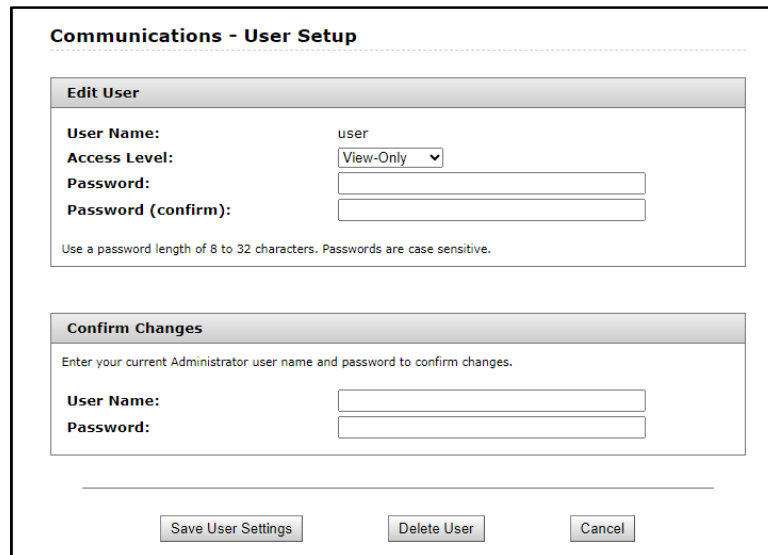
Record the new password(s) for future access. If the Administrator password is lost the unit must be reset to return the password to the blank default setting, causing loss of all other user settings (see Section 6.6).

User Accounts

Shows the User Name and Access Level.

Edit User

Select to edit an existing user account. Set the access level for each user.



User Name: Shows the username.

Access Level: Set the access level:

- **Administrator:** This level has full access to the unit settings and can set up users and change passwords ("admin" is the default user).
- **Control:** User has read-only access to the unit, but can enable or disable the outputs, and change some of the basic settings.
- **View-Only:** User can only view status, cannot change any settings.

Password: Enter the password for the chosen user.

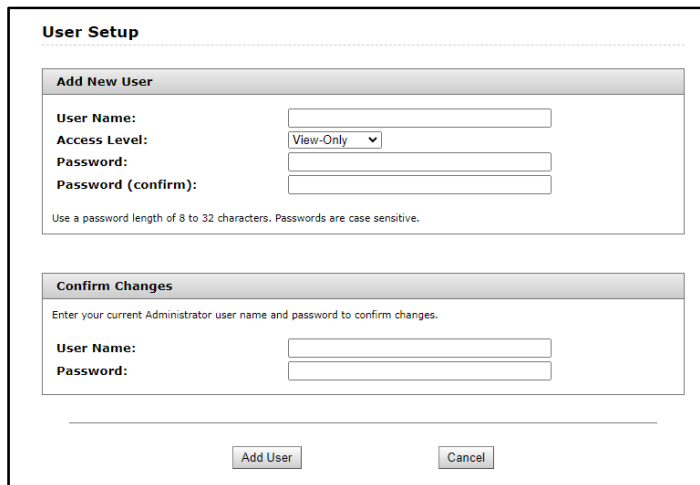
Password (confirm): Re-enter the new password to confirm the entry.

Confirm Changes

User Name: Enter admin username to confirm these changes are valid.

Password: Enter the password for the admin name to confirm the changes are valid.

Add New User



User Name: Set username.

Access Level: Set the access level:

- **Administrator:** This level has full access to the unit settings and can set up users and change passwords ("admin" is the default user).
- **Control:** User has read-only access to the unit, but can enable or disable the outputs, and change some of the basic settings.
- **View-Only:** User can only view status, cannot change any settings.

Password: Enter the new password for the chosen user.

Password (confirm): Re-enter the new password to confirm the entry.

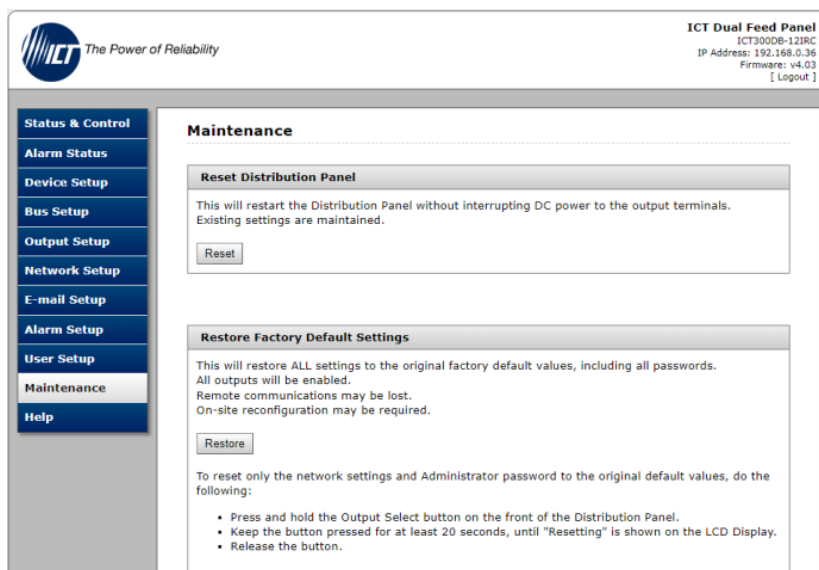
Confirm Changes

User Name: Enter admin username to confirm these changes are valid.

Password: Enter the password for the admin name to confirm the changes are valid.

4.11 Maintenance

Use this tab to reset the unit (soft reset), restore the factory default settings, or send a test e-mail to verify e-mail functionality.



Reset Distribution Panel

Select the "Reset" button to restart the unit. The channel output states will be restored according to the "Output State after Panel Reset" setting for each output on the "Output Setup" page. All other settings are maintained during the reset. This will not affect the output power.

Restore Factory Default Settings

Restart In Progress...

This page will, after 15 seconds, automatically attempt to reconnect to the Distribution Panel.

If the IP address of the Distribution Panel has changed, the connection will need to be reopened manually. Enter the IP address of the Distribution Panel in the URL field (address bar) in your browser.

Select the "Restore" button to restore "ALL" settings to the original factory default values, including the user passwords. To only restore the network

settings and passwords see the "Password Reset" section (this feature is only available to the system Administrator).



NOTICE

- Restoring the unit to Factory Default settings may cause loss of network communications due to loss of custom changes to any network settings.
- Restoring the unit to Factory Default settings will not affect the power output.

To reset only the network settings and Administrator password to the original default values, see Section 6.6.

Export and Import Settings

Export and Import Settings

Export the current configuration of the Distribution Panel to a file, or import a previously saved configuration file.

Select the "Manage Settings" button to access the Export and Import Settings page shown below. Use this page to export all system settings to an encrypted .cfg file which may be imported into other units to speed configuration. The export does not include Administrator password, Network nor Web Server settings. Use the Import Settings section on other systems to locate this file and then import it to any other Distribution Series 3.

Export and Import Settings

Export Settings

Save all settings to a configuration file:

Import Settings

Import settings from a previously saved configuration file:

Select a ".cfg" file below, then click the "Import Settings" button. The unit will restart automatically after the import is complete.

Importing settings will overwrite all current settings (except for Administrator password, Network and Web Server settings).

Configuration File: No file chosen

Firmware Update

Firmware Update

Update the Distribution Panel with the latest firmware.

Download the latest ICT300DB-12IRC firmware file from the ICT website (ict-power.com/resources/product-firmware/) to a local computer. Select the "Update Firmware" button to access the Firmware Update page shown below. Use this page to update the firmware on the unit by clicking the "Choose File" button to link the downloaded firmware then click the "Update Now" button. Do not disconnect power to the device during the update process. The device restarts automatically after the update has been completed. This will not affect the output power.

Firmware Update

To update the Intelligent Controller Module firmware:

1. Download the latest firmware from ict-power.com
2. Extract the firmware file to your local disk. Firmware files have a ".cry" extension.
3. Select the firmware file below, then click the "Update Now" button to begin the update.

Do not disconnect power to the device during the update!

The device restarts automatically after the update has completed.

Firmware File: No file chosen



NOTICE

Updating the firmware will delete the current log file. Download the log before updating the firmware.

Send Test E-mail

Select the "Send Test E-mail" button to send a test e-mail to the e-mail recipients listed on the E-mail Setup page (see Section 4.8).

Send Test E-mail

This will send a test e-mail using the settings on the E-mail Setup page.

Ping Diagnostics Tool

Use this feature to verify connectivity of any network connected unit. Enter the hostname or IP address of the target device, and then click the "Ping" button to check if the device is active.

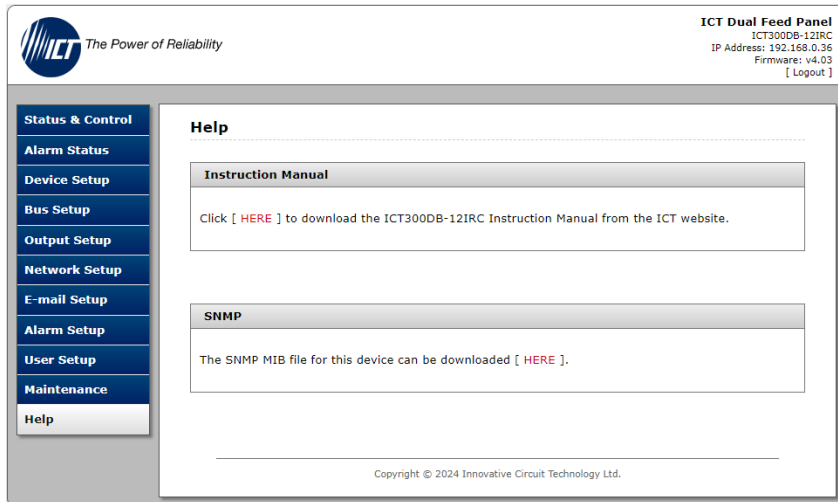
Ping Diagnostics Tool

Use this tool to verify connectivity to any network device.

Host or IP address:

4.12 Help

This tab has helpful links to ICT's website.



Instruction Manual

Click the "HERE" button to download the ICT300DB-12IRC Instruction Manual from ICT's website.

SNMP

Click the "HERE" button to download the SNMP MIB file.

5.0 OPERATION: MOBILE VERSION

Use the mobile version of the "Status & Control" page to monitor and control the unit with a smartphone web browser.

5.1 Log In/Log Out

1. Connect to the ICT Dual Feed Intelligent Distribution Panel by entering the IP address of the unit in the address field of the mobile browser, followed by "/m" (e.g., <https://192.168.0.180/m>) shown below.



For improved security, the user should normally use a HTTPS (secure) connection when accessing the unit over the Internet with the mobile web version or use a Virtual Private Network (VPN) connection.

2. Log into the unit's built-in server when prompted with the username and password. The default username is "admin", and no password is required as the factory default.

5.2 Status & Control

Once successfully logged in, the mobile version of the Status & Control page will be shown in the smartphone web browser.

ICT Dual Feed Panel		
Bus A: Voltage: -47.4VDC Current: 0.0A		
Output 1A 0.0A	Output 2A 0.0A DISABLED	Output 3A 0.0A
Output 4A 0.0A BREAKER OFF	Output 5A 0.0A	Output 6A 0.0A
Bus B: Voltage: -47.3VDC Current: 0.0A		
Output 1B 0.0A	Output 2B 0.0A	Output 3B 0.0A
Output 4B 0.0A	Output 5B 0.0A	Output 6B 0.0A

The mobile web version page provides information on the bus voltage, bus current, input alarm status, and the status and current level of each of the bus output channels. Each individual output may be manually enabled or disabled by tapping on an output cell (if the user is logged in using the administrator account).

Bus Status

Shows the voltage and total amps being used by each bus.

Output Status

Output #x cells: Use these to toggle the internal relay for each channel, enabling or disabling the power to the load on that output. Each output on the unit will be displayed with name and status (green cell, orange cell with Disabled, red cell with BREAKER OFF). A status "green cell" indicates the internal electronic relay on that output channel is closed or turned on. A status "orange cell with Disabled" indicates that the internal electronic relay is open or turned off. A status "red cell with BREAKER OFF" indicates that the mechanical breaker has been tripped.

NOTE: "BREAKER OFF" only displays when a load is connected.
 "Disabled" supersedes "BREAKER OFF".

6.0 FAQs

6.1 What is negative voltage?

With negative voltage system, the load runs off the negative (HOT) terminal while the positive terminal is the return (RTN).

Polarity in a DC power system should not be mixed without proper isolation between circuits.

6.2 Do I need surge suppression for my installation?

Surge Suppression is an important component of any communications network. Voltage surges and lightning strikes do occur and can significantly damage DC power infrastructure and connected equipment. Surge suppression devices for AC feeds, DC feeds, RF and data lines, especially those conductors which are exposed to an outside environment and are susceptible to lightning strikes are an essential requirement.

If required, resources are available from vendors who specialize in site protection to help you determine which devices are most suitable for your installation.

6.3 Why do I measure DC voltage on an output to ICT's equipment even though the circuit breaker is open or not installed?

This is normal operation; ICT equipment with intelligent monitoring features have a signal circuit used to detect and report breaker or fuse status. This signal voltage is measurable on the output terminals while the breakers are open, and no load is connected. Since this is a high impedance signal voltage only, it will not power the load device and will no longer be present once a load is connected to the output.

6.4 What type and maximum rating of breakers can be installed in the unit

- Breaker type: ICT Miniature Circuit Breakers
- Breaker maximum rating: 63 amps

6.5 How do I configure a router?

To set up the ICT300DB-12IRC with remote internet access when it is located behind a router, Port Forwarding will need to be enabled on the router to forward incoming HTTP or HTTPS traffic to the local IP address of the unit. Refer to your router's user manual for instructions on how to configure Port Forwarding.

6.6 How do I reset the password?

Reset the Administrator password, the network, and web server settings to the original factory default values by doing the following (the standard user password and other settings are not affected):

1. Press and hold the recessed "COMM RESET" button on the front panel for approximately 10 seconds.
2. Release the button.

The unit may also be restored to factory settings through the GUI (see Section 4.11).

6.7 How do I access the web-based configuration utility?

- Check that you are using the correct IP address for the unit by downloading and running the ICT IP Address Discovery tool (tool available for download from ICT <http://www.ict-power.com/resources/tools-utilities/>)
- Check the network cable connections to the unit and the network.
- Ensure that the network card settings on the computer are configured for accessing the IP address of the unit. To access a unit with the default IP address of 192.168.0.180, the typical network settings for the computer are:
 - IP Address: 192.168.0.100
 - Subnet Mask: 255.255.255.0
 - Gateway: 192.168.0.1
- If the HTTP port of the unit has been changed, append the new port number to the URL used to access the unit (see Section 4.7). See the Password Reset Section 4.11 for details on how to reset the port number to the factory default value.
- If the network switch allows the user to manually configure port speed and duplex settings, turn-on "Auto Negotiation" for the switch port that the unit is connected to.

6.8 How do I receive e-mails from the unit?

- See Section 4.8 E-MAIL SETUP.
- Verify that the "Send E-mail" check boxes are selected for any alarm conditions for which the user wishes to receive e-mail notifications.
- Verify the e-mail settings by going to the "Maintenance" tab on the unit's GUI and clicking on the "Send Test E-mail" button to send a test message to the designated recipient addresses. The "Send

Test E-mail" page will show an error message if the system is unable to send the e-mail.

- Check on the "E-mail Setup" page and ensure that the "SMTP Server" field is the correct address for the e-mail provider, and that the "SMTP Port" is correct (Port should be 25 for most servers).
- If the SMTP server requires SSL encryption, ensure that the "SMTP Server requires SSL" checkbox is ticked. Otherwise leave it blank.
- If the SMTP server requires authentication, ensure that the "SMTP User Name" and "SMTP Password" fields are correctly entered.

6.9 How do I receive text message alarm notifications?

The unit can send alarm notifications as text messages to a cell phone by configuring the alarm e-mails to be sent to the mobile phone service provider.

On the "E-mail Setup" page of the GUI enter the address of the phone in the "Recipient E-mail Address" field. Example with an AT&T phone: enter the recipient address "cellnumber@txt.att.net", replacing "cell number" with the 10-digit cell phone number. Cell address formats for some common North American mobile phone providers:

AT&T	cellnumber@txt.att.net
Verizon	cellnumber@vtext.com
T-Mobile	cellnumber@tmomail.net
Virgin Mobile	cellnumber@vmobl.com
Bell Mobility	cellnumber@txt.bell.ca
Rogers	cellnumber@pcs.rogers.com
Telus	cellnumber@msg.telus.com
Virgin Mobile (Can)	cellnumber@vmobile.ca



Verify formatting with the mobile provider.

6.10 How do I update the firmware?

On the ICT website, click on Resources > Product Firmware and select the product. Download the latest firmware. In the ZIP file will be a README document with step-by-step instructions or see "Firmware Update" in Section 4.11.



Updating the firmware will delete the current log file. Download the log before updating the firmware.

6.11 How do I log out of the GUI?

To log out of the ICT ICT300DB-12IRC GUI, click on the Logout link on the top right of the browser window. The system will also automatically log off the user after 20 minutes of inactivity.

7.0 PRODUCT SPECIFICATIONS

7.1 Electrical Specifications

Table 4. Electrical Specifications

Parameters	Rating
Operating Voltage	-30 to -60 VDC
Current Rating per Bus	150 A continuous
Outputs per Bus	6 (normally open)
Max Output Rating	50 A max
Meter Accuracy, Voltage	Bus voltage readings +/-1%
Meter Accuracy, Current	Channel current readings +/- 3%
Power Consumption	< 30 W (all outputs enabled) < 5 W (all outputs disabled)
Network Communications	RJ45 10/100-T port (IPv4, HTTP, HTTPS, SMTP, DNS, TCP, UDP, ICMP, DHCP, ARP, SNMP v1/v2c/v3)
Network Security	Password protection, SSL encryption for HTTPS, SMTP (TLS 1.2) and SNMPv3 protocols

7.2 Physical Specification

Table 5. Physical Specifications

Parameters	Configuration
Outputs	Floating
Alarm Output	2x Form-C contact, 0.5 A, 35 VDC max
Input Connector	Recommended dual-hole rectangular tongue terminal: 3/8-inch stud hole size and 1-inch pitch between stud holes
Output Connector	12 connector terminal pair of the circuit breaker 6-18 AWG
Alarm Output Connector	7-pin removable plug, cage clamp type 16-28 AWG
Alarm Input Connector	Not applicable
Operating Temperature	-30°C to +60°C (Derate max bus current by 2% per degree C above 50°C)
Storage Temperature Range	-40°C to +70°C
Humidity	(Operating and Storage) 30-90% (non-condensing)
Cooling	Convection (no fan)

7.3 Regulatory Specification

Table 6. Regulatory Compliance

Category	Certification
Safety, EMC-Emissions, EMC-Immunity, RoHS	CSA C22.2 No. 62368-1:19, ANSI/UL 62368-1-2021, EN 61000-3-2, EN 61000-3-3, EN 61000-6-3, EN 61000-6-4, ICES-003 Issue 7, CFR Title 47 FCC Part 15, EN 61000-6-1, EN 61000-6-2, CE, and RoHS

7.4 Mechanical Specifications

Table 7. Dimension and Weight

Physical Property	Value
Dimension ¹ - L x W x H	13.4 x 19.1 x 3.5 in. (339 x 484 x 88 mm)
Weight	17.0 lbs. (7.71 kg) ²

¹ Refer to Figure 8 for dimensions with CMA installed.

² Weight of unit as shipped. No circuit breakers. No CMA.

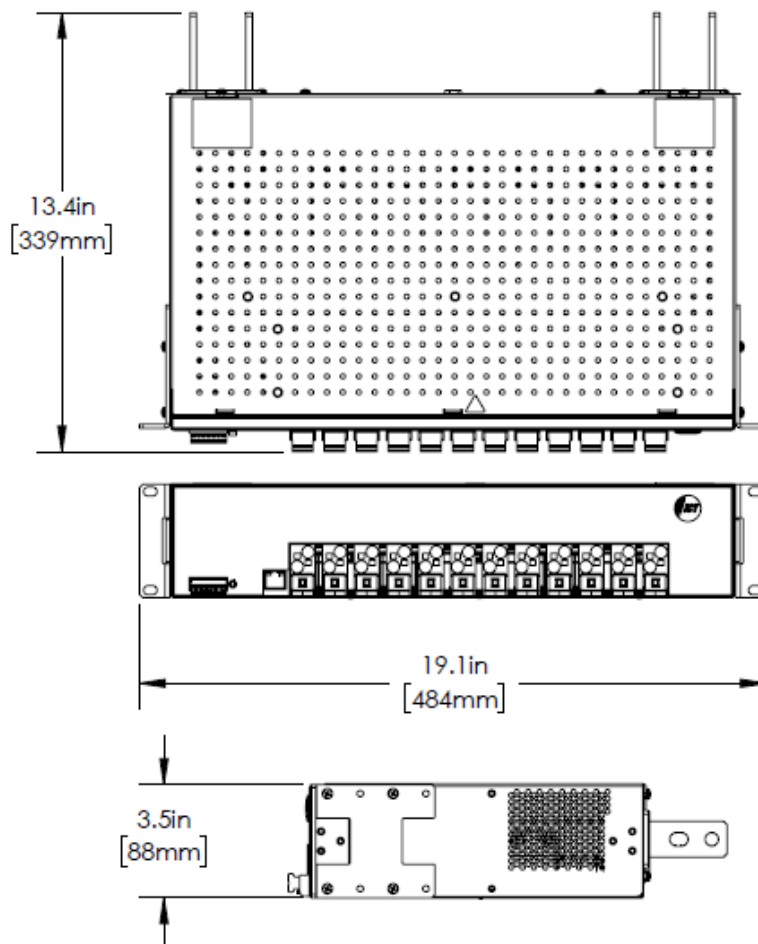


Figure 8. Dimensions

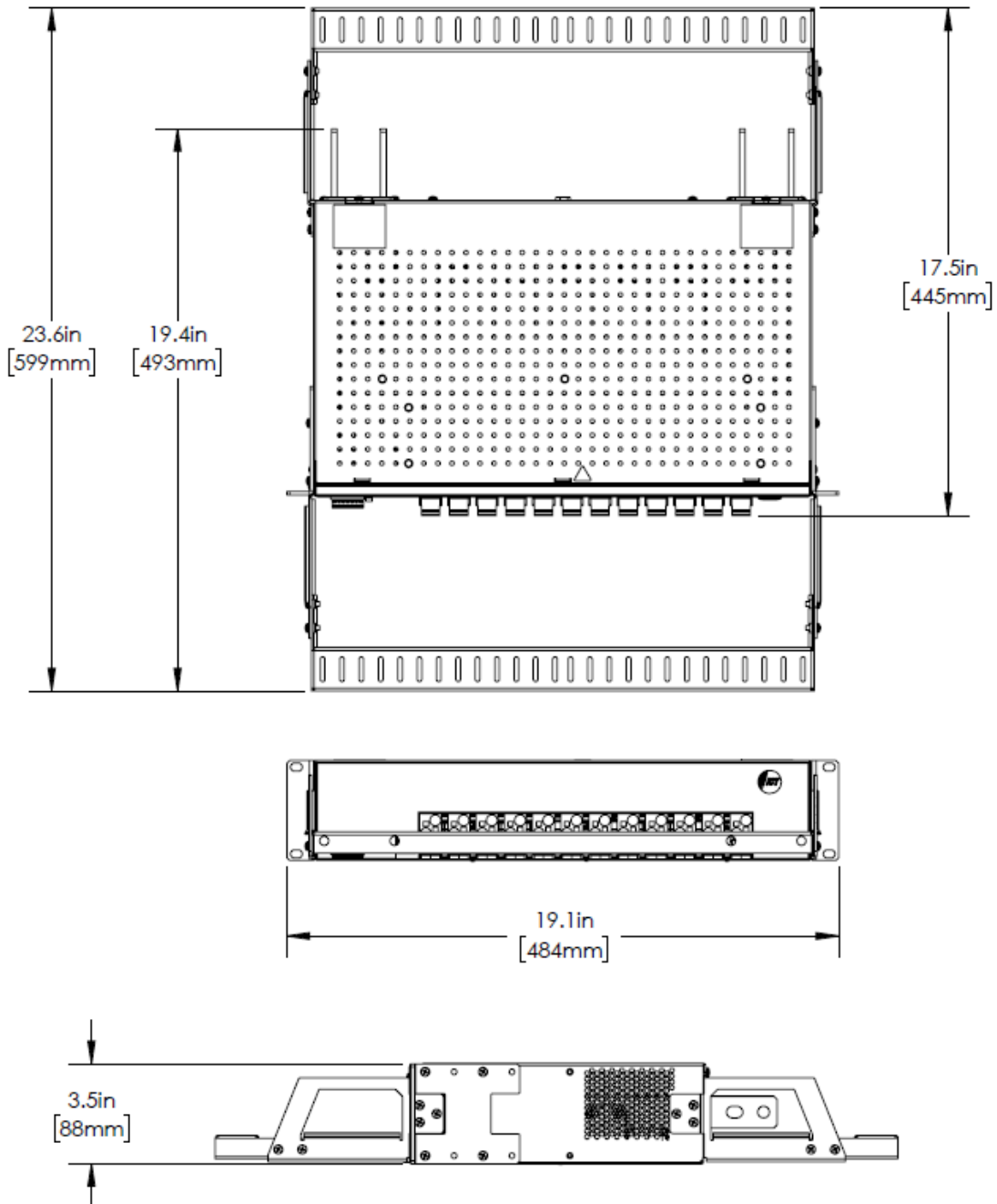


Figure 9. Dimensions of Unit with ICT-CMA installed

8.0 GLOSSARY

- 2RU Two Rack Unit; 3.5-inch (89 mm) of rack height
- A, amps Amperes
- AES Advanced Encryption Standard
- ANSI American National Standards Institute
- AWG American Wire Gauge
- CMA Cable Management Assembly
- DHCP Dynamic Host Configuration Protocol
- DNS Domain Name System
- GUI Graphical User Interface
- HTTPS Hypertext Transfer Protocol Secure
- ICMP Internet Control Message Protocol
- ISO International Organization for Standardization
- ISP Internet Service Provider
- MAC Media Access Control
- MIB Management Information Base
- NEC National Electrical Code
- NTP Network Time Protocol
- OEM Original Equipment Manufacturer
- RMA Return Material Authorization
- RoHS Restriction of Hazardous Substances
- SHA Secure Hash Algorithms
- SMTP Simple Mail Transfer Protocol
- SNMP Simple Network Management Protocol
- TCP/IP Transmission Control Protocol/Internet Protocol
- TLS Transport Layer Security
- UDP User Datagram Protocol
- V Volts
- VDC Volts, Direct Current
- VPN Virtual Private Network