MODULAR POWER SERIES 2

1RU Redundant Hot Swap Modular DC Power System



Features

- Supports up to three hot-swappable DC power modules
- Available with 1500-, 1000- and 700-watt DC power modules
- Supports 48-, 24- or 12-volt applications
- TCP/IP Ethernet is standard with support for 10/100/1000 Mbps speeds provides full remote monitoring and power control capabilities via SNMP or graphical user interface (GUI)
- Battery Management Module provides single or dual 100-amp battery breakers with comprehensive battery management of sealed lead acid and lithium-ion battery types
- Dedicated RS-485 MODBUS interface connected directly with supported lithium-ion batteries, allowing direct reporting of battery conditions through SNMP or GUI
- Load Distribution Module provides four breaker-protected outputs with comprehensive remote monitor of each output, and full remote ON/OFF control of each individual output
- Digital inputs for monitoring and reporting environmental alarms, such as smoke, fire, and door alarms

Description

The ICT Modular Power Series 2 provides up to 4,500 watts of hot swappable, managed DC power critical communication networks. Available for 48-, 24- or 12-volt DC applications, the Modular Power Series 2 DC power system is preconfigured at the factory to provide fast, easy installation at the site.

The Intelligent Control Module with Gigabit Ethernet provides full remote monitoring and control of all system functions, and supports 10-, 100-, and 1000- megabits per second speeds.

The Battery Management Module provides a 150-amp low voltage disconnect, single or dual 100-amp battery breakers with advanced battery management functions for both sealed lead acid and lithium-ion battery types, including battery state of charge, estimated run time remaining, and battery discharge testing. An RS-485 MODBUS interface provides direct communication with battery management systems (BMS) of supported lithium-ion batteries, reporting of battery conditions and alarms directly from the BMS.

Up to two Load Distribution Modules can be factory installed for supporting up to eight load devices. Rated at 20 amps max. each, every output can monitor and report load current conditions, and individual outputs can be remotely power cycled manually, or based on user-defined criteria, reducing site visits and operating costs, and increasing network uptime.

The ICT Modular Power Series 2 is designed, manufactured and supported in North America to meet the need for wireless communications, broadband and other critical DC power applications.

Applications

- Critical wireless communications networks
- Fixed wireless access networks
- Fiber networks
- Land mobile radio networks
- Distribution antenna systems
- Traffic management systems
- Oil, gas, utilities
- Industrial DC power

ELECTRICAL SPECIFICATIONS - POWER MODULES	700 Watt		1000 Watt	1500 Watt	
AC input voltage (nominal)	120/240VAC		120/240VAC	120/240VAC	
Input voltage range	100-300VAC		100-300VAC	90-300VAC (derate to 50% power at 90VAC)	
AC input current (per module) a 230VAC nom.	3.5A max.		6.0A max.	8.0A max.	
AC input current (per module) a 115VAC nom.	7.0A max.		11A max.	8.0A max.	
Power factor (typical)	0.99		0.99	0.99	
Frequency	50/60Hz		50/60Hz	50/60Hz	
Output voltage (nom.)	+/- 27.6 VDC	+/- 13.8 VDC	+/- 55.2 VDC	+/- 55.2 VDC	+/- 27.6 VDC
Output voltage range (adjustable)	23.0 - 31.0VDC	11.5 - 15.5VDC	46.0-62.0VDC	46.0 - 62.0 VDC	23.0 - 31.0 VDC
Power output per module (230VAC nom.)	700W	700W	1000W	1500W	1500W
Power output per module (115VAC nom.)	700W	700W	1000W	900W	900W
Output current per module (230VAC nom.)	25A	50A	20A	27A	54A
Output current per module (115VAC nom.)	25A	50A	20A	16A	32A
Efficiency (peak)	91%	90%	91%	95%	94%
Output ripple (rms)	30mV	30mV	60mV	60mV	40mV

MECHANICAL

AC input connector	Terminal Block, #8 - #22 AWG
DC output connectors	Busbars with 1/4-20 x 7/8" bolts
Remote alarm connectors	Terminal Block (#16 -24 AWG)
Mounting	1RU, 19 in rack mount
Weight	8.1lbs / 3.7 kg
Dimensions - H x W x L	1.74 x 19.0 x 16.3 in. / 44 x 483 x 414mm

ENVIRONMENTAL

Operating temperature range	-30° to +60° C
Output derating	2% /°C (above 50° C)
Storage temperature	-45° to +85° C

DESIGN STANDARDS

Safety	UL/CSA 62368-1
Emissions	EMC compliance with CE Class A, UL/CSA 60950-1, UL/CSA 62368-1, ICES-003, EN55032, EN 61000-3-2 and EN 61000-3-3 (1500-watt)
	EMC compliance with CE Class B, FCC Part 15,UL/CSA60950-1, UL/CSA 62368-1, ICES-003, EN 61000-6-2 and EN 61000-6-3 (700-watt)

FACTORY INSTALLED OPTIONS [(a)]

POWER SHELF WITH INTEGRATED INTELLIGENT CONTROL MODULE

Front display	High resolution OLED with function keys
Remote communications	TCP/IP - RJ45 Ethernet connector on rear
I.P. protocols	10/100/1000 BASE-T, HTTPS, HTML, SNMPv3
Inputs	4 digital, 1 analog temp sensor contacts
Monitoring functions	DC, AC status, load output currents
Control functions	Disable DC outputs, open LVD, disable or power cycle load outputs

POWER SHELF WITH LOAD DISTRIBUTION MODULE

Load outputs	4
System current rating	80A
Max. breaker size	25A[(b)]
Max. current per output	20A
Protection	Hydraulic/magnetic circuit breakers[(c)]
Remote current monitoring	Yes, with ICM installed
Remote output control	Yes, with ICM installed

POWER SHELF WITH BATTERY MANAGEMENT MODULE

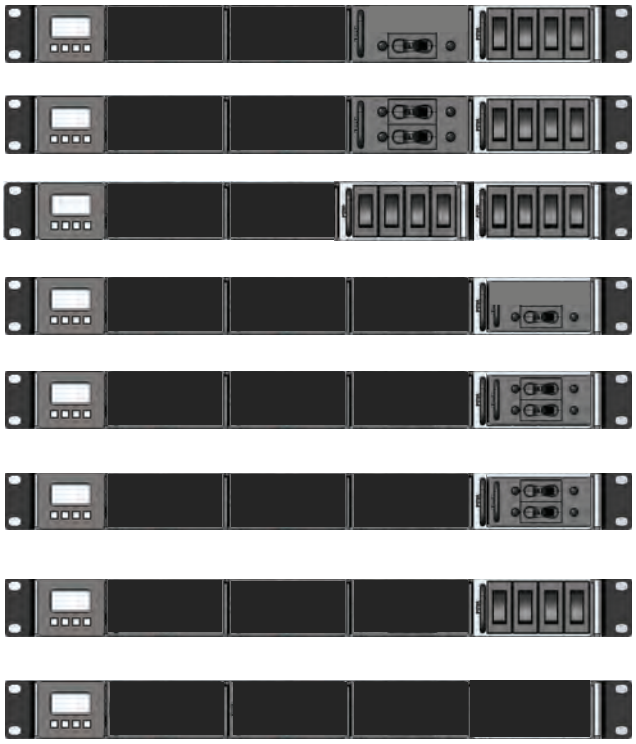
Circuit breaker	Single or Dual 100A
Low voltage disconnect	150A contactor
Battery terminal	Busbar with 3/8" bolt

(a) Battery Management Module and Load Distribution Module require Power Shelf with integrated Intelligent Control Module (ICT-IPS).
(b) Breakers and wiring should be continuously operated at no more than 80% of their current rating.
(c) Load breakers must be ordered separately.

STEP 1 Select Power Shelf

Select the Power Shelf that meets your requirement for DC voltage, battery management, and load distribution features.

Description	NEG 48/24VDC	POS 48/24VDC
Intelligent Power Shelf with integrated Ethernet Control Module. Factory-installed 100A Battery Management Module with Low Voltage Disconnect and four position Intelligent Load Distribution Module.	ICT-IPSe-BMM-LDM	ICT-IPSe-BMM-LDMP
Intelligent Power Shelf with integrated Control Module and Ethernet communications. Factory-installed dual 100A Battery Breakers with Low Voltage Disconnect and four position Intelligent Load Distribution Module.	ICT-IPSe-BMMD-LDM	ICT-IPSe-BMMD-LDMP
Intelligent Power Shelf with integrated Control Module and Ethernet communications. Factory-installed intelligent load distribution modules provide eight positions.	ICT-IPSe-LDM-LDM	ICT-IPSe-LDM-LDMP
Intelligent Power Shelf with integrated Control Module and Ethernet communications. Factory-installed 100A Battery Management Module with Low Voltage Disconnect.	ICT-IPSe-BMM	ICT-IPSe-BMMP
Intelligent Power Shelf with integrated Control Module and Ethernet communications. Factory-installed dual 100A Battery Breakers with Low Voltage Disconnect.	ICT-IPSe-BMMD	ICT-IPSe-BMMDP
Intelligent Power Shelf with integrated Control Module and Ethernet communications. Factory-installed single 100A Battery and Load Breakers with Low Voltage Disconnect.	ICT-IPSe-BMML	ICT-IPSe-BMMLP
Intelligent Power Shelf with integrated Control Module and Ethernet Communications. Factory-installed four position Intelligent Load Distribution Module.	ICT-IPSe-LDM	ICT-IPSe-LDMP
Intelligent Power Shelf with integrated Control Module and Ethernet Communications. Accepts up to four Power Modules.	ICT-IPSe	



STEP 2 Select Power Modules

Depending on the Power Shelf selected, up to four hot-swappable Power Modules can be installed (must be same voltage). Mixing of 700 and 1500 watt Modules not recommended.

Power Module, 12VDC, 700W output, hot swappable, floating output	ICT700-12PM
Power Module, 24VDC, 700W output, hot swappable, floating output	ICT700-24PM
Power Module, 48VDC, 1000W output, hot swappable, floating output	ICT1000-48PM
Power Module, 48VDC, 1500W output, hot swappable, floating output	ICT1500-48PM
Power Module, 24VDC, 1500W output, hot swappable, floating output	ICT1500-24PM

STEP 3 Select Load Breakers and Accessories

5 Amp Hydraulic/Magnetic breakers for use with Load Distribution Module	ICT-CB5
10 Amp Hydraulic/Magnetic breakers for use with Load Distribution Module	ICT-CB10
15 Amp Hydraulic/Magnetic breakers for use with Load Distribution Module	ICT-CB15
25 Amp Hydraulic/Magnetic breakers for use with Load Distribution Module	ICT-CB25
Output paralleling straps to install ICT-SPS as a slave power shelf to ICT-IPS	ICT-PAR
Communications cable to parallel ICT-SPS with ICT-IPS	ICT-JMP
Optional blanking panel for unused Power Module positions	ICT-BPM

INTELLIGENT POWER SHELF (IPS)

Includes fully integrated Ethernet controller to provide remote monitoring and control of system and installed options. HTTPS, SMTP and SNMP supported. Four site monitoring input contacts. Provides advanced SLA battery management features when used with Battery Management Module including temperature compensated charging, battery state-of-charge, run-time remaining, battery discharge testing. Supports Li-ion Battery Management Systems.

BATTERY MANAGEMENT MODULE (BMM)

Factory-installed option: Includes a 150A Low Voltage Disconnect and a single 100A Battery Breaker, or dual-string 100A Battery Breakers, or a single 100A Battery Breaker with a Load Breaker. Monitor and adjust LVD setpoints over Ethernet. The battery disconnect breaker will send an alarm via Ethernet and Form C contacts.

LOAD DISTRIBUTION MODULE (LDM)

Factory-installed option. Provides four breaker-protected load outputs. Monitor and power cycle each load individually via Ethernet. Sends email alarms. Automatic load shedding and network watchdog (ping) features maximize run-time for critical loads and will power cycle critical devices such as routers, possibly preventing unplanned trips to the site.

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