



MODULAR POWER SERIES

48 and 24 Volt Redundant Hot Swap DC Power System



Features

- ▶ **Up to four hot swappable** 700 or 1500 watt, 48 or 24 volt power modules
- ▶ **100-300 volts** AC input
- ▶ **Up to 95%** efficiency
- ▶ **-30 C to +60 C** operating temperature range
- ▶ **TCP/IP Ethernet** is available and provides complete easy-to-use remote monitoring and control of the power system using secure graphical user interface or SNMPv3
- ▶ **Battery Backup with 150A LVD** is available with adjustable disconnect and reconnect voltage setpoints
- ▶ **Single or Dual** 100A battery disconnect breakers available
- ▶ **Single** 100A battery disconnect combined with load breaker option
- ▶ **User Adjustable** output voltages and battery charge current limit
- ▶ **Advanced SLA Battery Management** features include state of charge, estimated run-time remaining and discharge testing
- ▶ **Support for Li-ion** battery management systems
- ▶ Available **Load Distribution Module** provides 4 fully managed breaker-protected 20A outputs
- ▶ **Digital and Analog** inputs for site monitoring sensor reporting

Description

The ICT Modular Power Series system provides flexible, managed DC power up to 6KW for a broad range of communications and broadband applications. The foundation is the power shelf and 700 or 1500 watt hot swappable high efficiency power modules. A number of optional factory-installed modules can be selected to provide TCP/IP monitoring and control, advanced battery management features, battery breakers, low voltage disconnects, and four-position breaker-protected power distribution including load current monitoring and remote power cycling over Ethernet.

A dedicated slot holds the optional Intelligent Control Module for full TCP/IP remote monitoring and control. When combined with the optional Battery Management Module, the Intelligent Control Module also provides advanced sealed lead acid battery functions including battery state of charge, estimated run time remaining, and battery discharge testing. Li-ion battery management systems are supported as well.

One or two Load Distribution Modules can be ordered for supporting up to eight load devices. Rated at 20A max. each, every output is capable of monitoring and reporting load current conditions. Remote power control over Ethernet allows for the power-cycling or de-energizing of individual loads without having to visit the site.

The ICT Modular Power Series 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
- Radio Access Networks
- FTTP/H PON GPON
- Distributed Antenna Systems
- Security and surveillance
- Industrial DC power

ELECTRICAL SPECIFICATIONS - POWER MODULES

	700 Watt		1500 Watt	
	AC input voltage (nominal)	120/240VAC		120/240VAC (derate to 50% power at 90VAC)
Input voltage range	100-300VAC		90-300VAC	
AC input current (per module) at 230VAC nom.	3.5A max.		8.0A max.	
AC input current (per module) at 115VAC nom.	7.0A max.		8.0A max.	
Power factor (typical)	0.99		0.99	
Frequency	50/60Hz		50/60Hz	
Output voltage	+/- 55.2 VDC	+/- 27.6 VDC	+/- 55.2 VDC	+/- 27.6 VDC
Output voltage range (adjustable)	46.0 - 62.0 VDC	23.0 - 31.0 VDC	46.0 - 62.0 VDC	23.0 - 31.0 VDC
Power output per module (230VAC nom.)	700W	700W	1500W	1500W
Power output per module (115VAC nom.)	700W	700W	900W	900W
Output current per module (230VAC nom.)	12.5A	25A	27A	54A
Output current per module (115VAC nom.)	12.5A	25A	16A	32A
Efficiency (peak)	93%	91%	95%	94%
Output ripple (rms)	60mV	30mV	60mV	40mV
Max. system output current with 4 Power Modules (230VAC nom.)	50A	100A	108A	175A
Max. system output current with 4 Power Modules (115VAC nom.)	50A	100A	54A	87.5A

MECHANICAL

AC input connector	Terminal Block, #8 - #16 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 15.7 in. / 44 x 483 x 398 mm

ENVIRONMENTAL

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

DESIGN STANDARDS

Safety	EN 60950-1
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 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.

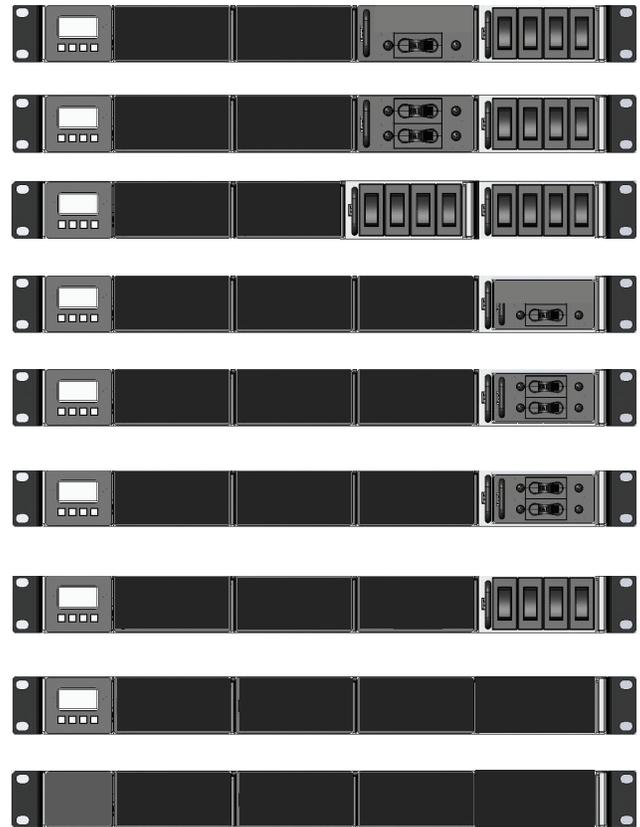
(c) Load breakers must be ordered separately.

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-IPS-BMM-LDM	ICT-IPS-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-IPS-BMMD-LDM	ICT-IPS-BMMD-LDMP
Intelligent Power Shelf with integrated Control Module and Ethernet communications. Factory-installed intelligent load distribution modules provide eight positions.	ICT-IPS-LDM-LDM	ICT-IPS-LDM-LDMP
Intelligent Power Shelf with integrated Control Module and Ethernet communications. Factory-installed 100A Battery Management Module with Low Voltage Disconnect.	ICT-IPS-BMM	ICT-IPS-BMMP
Intelligent Power Shelf with integrated Control Module and Ethernet communications. Factory-installed dual 100A Battery Breakers with Low Voltage Disconnect.	ICT-IPS-BMMD	ICT-IPS-BMMDP
Intelligent Power Shelf with integrated Control Module and Ethernet communications. Factory-installed single 100A Battery and Load Breakers with Low Voltage Disconnect.	ICT-IPS-BMML	ICT-IPS-BMMLP
Intelligent Power Shelf with integrated Control Module and Ethernet Communications. Factory-installed four position Intelligent Load Distribution Module.	ICT-IPS-LDM	ICT-IPS-LDMP
Intelligent Power Shelf with integrated Control Module and Ethernet Communications. Accepts up to four Power Modules.	ICT-IPS	
Standard Power Shelf accepts up to four Power Modules. Designed to combine with ICT-IPS Intelligent Power Shelf, ICT-JMP and ICT-PAR to provide expanded 2RU power system.	ICT-SPS	



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

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.

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



