Merlin-2™
AN/PRC-117F Radio Power Adapter

The Merlin-2™ is an alternative power source for the AN/PRC-117F radio system. It receives input from a wide variety of AC and DC power sources. Its primary function is to power the radio system. The Merlin-2™ exports significant power to run laptops, auxiliary speakers, and other accessories. It also integrates with BX-XX90 batteries contained within the radio battery box. If BB-2590 or BB-390 batteries are used, the Merlin–2™ provides efficient battery charging; in all cases when a battery is available, it serves as a UPS (Uninterrupted Power Source) for the radio.

Merlin-2™ Power Module

The *hot swap* feature allows battery change-out and maintenance without radio interruption or crypto-fill loss. It *configures automatically and requires no controls*. LED indicators display the status of input power, radio power, battery health, and auxiliary devices. Peak Power Tracking algorithms efficiently convert power from solar panels to the DC output and/or charge batteries for power storage.
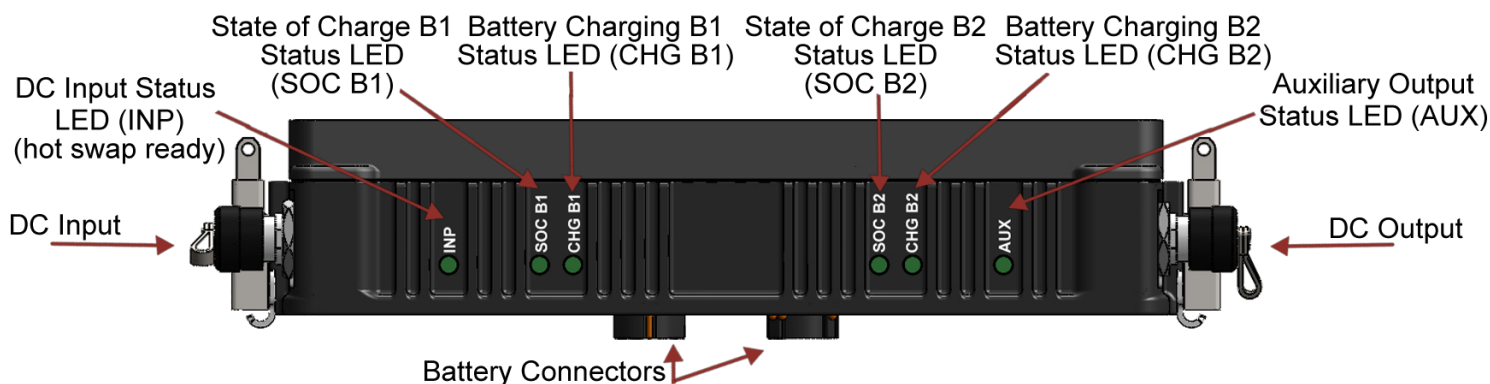
The Merlin-2™ is compact and rugged, allowing the radio to be used in all conditions, vehicle mounts, and radio racks without restriction. It does not compromise the environmental integrity of the radio. It attaches to the existing radio and battery pack latches without modification or tools.

FEATURES	BENEFITS
Uses two standard, full size rechargeable batteries	● No reduction in runtime when powered from batteries ● Uses BB-2590/U (preferred) or BB-390B/U (alternate) batteries ● Programmable charging algorithms ensure future growth capability
Uses existing battery box	● No tools required for installation or use ● Using existing parts reduces system cost and weight ● Eliminates need to store battery box when using the Merlin-2™
Mechanical latching system allows hot swap of battery	● Able to change-out battery and recharge extra batteries without power interruption to the radio or crypto-fill loss (when powered externally)
Compact size and weight	● Light weight and easy to install ● Totally integrated with battery box and radio
Functions with a variety of input and output accessories	● Operates using a wide range of input sources including: solar, NATO, AC/DC, Zinc-Air batteries, BX-XX90, fuel cell, and personal vehicle power ● Outputs power to a variety of accessories including speakers, laptop computer and small personal electronics – Inverter compatible ● Profile consistent with installed base of vehicle mounts
Solar Portable Alternative Communications Energy System (SPACES) interoperable	● User friendly – No user controls required ● Compatible with Iris Technology SPACES elements ● SmartCables configure the loads to the auxiliary output
Also compatible with AN/PRC-138, AN/PRC-150 and AN/PSC-5D radios	● Multi-Band Multi-Mission Radio (MBMMR) Systems ● Highly interoperable with currently fielded equipment

Iris Technology Corporation

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State of Charge B1 Status LED (SOC B1) Battery Charging B1 Status LED (CHG B1) State of Charge B2 Status LED (SOC B2) Battery Charging B2 Status LED (CHG B2) Auxiliary Output Status LED (AUX)

DC Input Status LED (INP) (hot swap ready)

DC Input

INP SOC B1 CHG B1 SOC B2 CHG B2 AUX

DC Output

Battery Connectors

The Merlin-2™ monitors and displays the status of the radio, battery, input, and output power via dedicated LED lights.

PHYSICAL AND ELECTRICAL PROPERTIES

Parameter	Characteristics
Weight of Merlin-2™	2.02 lbs (.92 kg)
Size of Merlin-2™	10.69"(L) x 2.06" (W) x 3.03" (H) 271.53 mm (L) x 52.32 mm (W) x 76.96 mm (H)
Input Connector	MS3114-E8-4P
Output Connector	MS3114-E8-4S
Radio Connector	SC-C-179492
Environmental	MIL-STD-810, MIL-STD-461
Housing Material	Aluminum
Operating Temperature Range	-40°F (-40°C) to +131°F (+55°C)
Storage Temperature Range	-59°F (-50°C) to +160°F (+71°C)
Input Voltage	9-36 VDC @ 12 ADC (max)
Input Power (typical)	280 W @ 24 VDC
Radio Power	26.5 VDC @ 3.5 ADC (nominal)
Output Voltage	12 or 24 VDC @ 5 Watts for Powered Speakers or 12-28 VDC @ 4 ADC for Auxiliary Outputs (100 W max)
Efficiency	97%
LiIon Battery Charge Time	3 hours (typ)

COMPONENTS

Iris Part Number	Part Description
78535-101299	Merlin-2™ Kit (* included in kit)
78535-101201	Merlin-2™ Power Module *
78535-102040	Input, Converter, AC/DC 220W *
78535-102018	Cable, Input, NATO *
78535-101604	Case, Hard *
78535-102017	Cable, Input, AUTO
78535-102019	Cable, Input, SAEP
78535-102020	Cable, Input, EXTN
78535-102021	Cable, Input, ZINC
78535-102022	Cable, Input, CLMP
78535-102023	Cable, Output, ZINC
78535-102024	Cable, Output, EXTN
78535-102025	Cable, Output, AUTO
78535-102026	Cable, Output, PANA
78535-102028	Cable, Output, SPKR
78535-102049	Solar Panel, 62W
78535-102030	Cable, Input, Splitter

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