



ENERGY RE-CONNECT
POWER DROP BACKUP

ERC-9005AF

"PowerEdge PdbU - Always on Matters"

SPECIFICATION

| DESCRIPTION | KEY FEATURES |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>This document is the technical specification for the Energy Reconnect Battery Backup POE Unit.</p> <p>ERC-9005AF provides reserve power in the case of a loss of the main POE or auxiliary power supplies to the powered device due to accidental power loss or vandalism.</p> <p>Device is enclosed in a plastic rugged enclosure for protection and can be easily mounted as a free standing or wall hanging near the powered device such as security camera.</p> <p>The battery backup unit was designed to provide enough backup power for average security camera up to 11 W loads for at least 60 minutes.</p> <p>ERC-9005AF incorporates two internal lithium-ion batteries or ext. battery pack and power conversion stages to power cameras in cases of lost main power sources.</p> | <ul style="list-style-type: none"> • Provides reserve power in case of loss main power sources • Can provide at least 60min of reserve power for average security camera • Small form factor • Supports 10/100/1000 BASE-T Ethernet • RoHS Compliant • Ambient temperature: -20 to +50 °C • The unit can be mounted as free standing or wall hanging. |
| | APPLICATIONS |
| | <ul style="list-style-type: none"> • "PowerEdge PdbU" a native PoE Platform, situated at the edge of the network, that provides reliability back-up, connectivity, physical intrusion alarms and Cyber "Sandbox" functionality which guarantees continuous operations of mission critical devices such as; Surveillance Cameras, Access Control devices, IoT, SCADA, Cyber IP Gatekeeper, among others. |

PRODUCT HIGHLIGHT

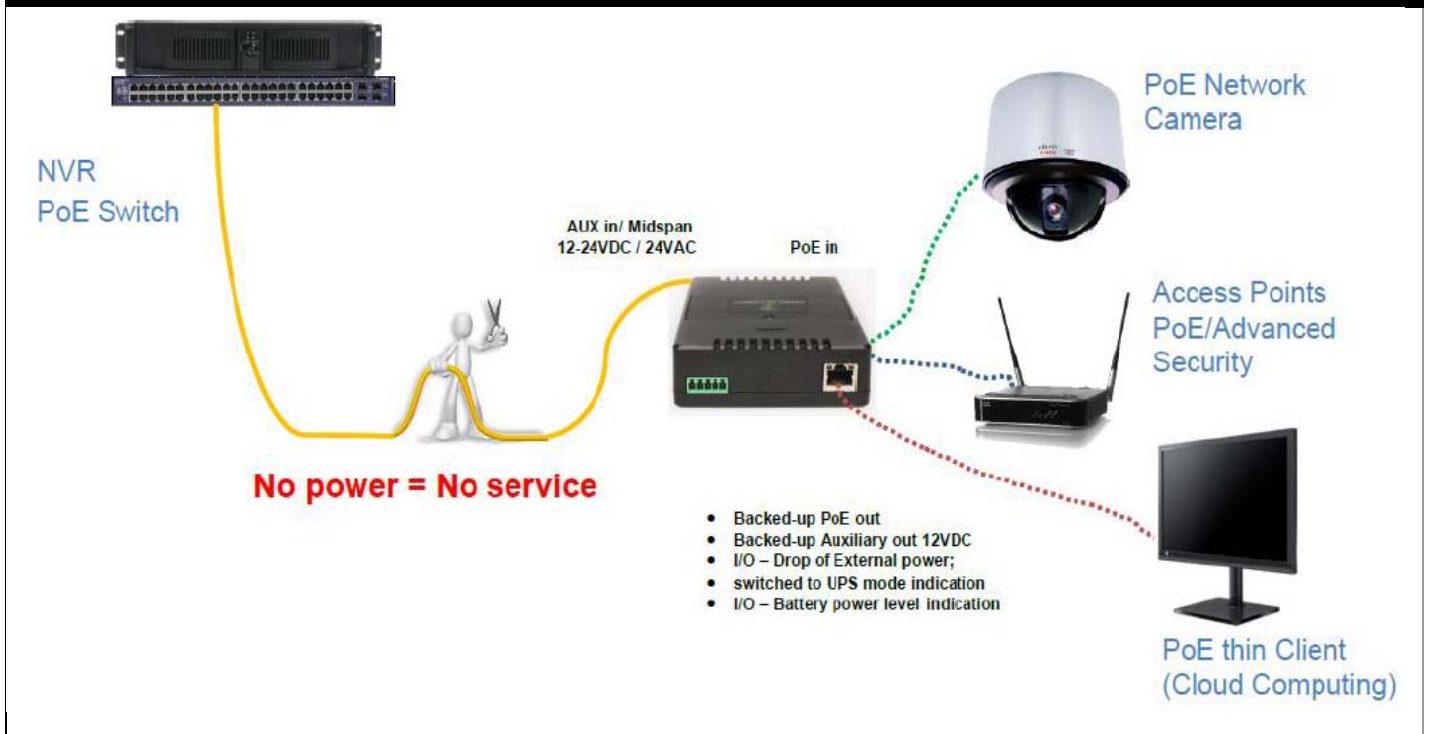


Figure 1



ENERGY RE-CONNECT
POWER DROP BACKUP

ERC-9005AF

"PowerEdge PdbU - Always on Matters"

SPECIFICATION

ABSOLUTE MAXIMUM RATINGS

| | |
|---------------------------------|-----------------|
| Input POE voltage | 57V |
| Output POE voltage | 56V |
| Input Auxiliary voltage | 30Vdc / 26.4Vac |
| Output Auxiliary Voltage..... | 12.5V |
| Pass Through Data rate | 1000Mb/s |
| Operating Temperature..... | -20°C to +50°C |
| Storage Temperature Range | -20°C to +60°C |

Note: Exceeding these ratings could cause damage to the device. All voltages are with respect to Ground. Currents are positive into, negative out of specified terminal.

ELECTRICAL CHARACTERISTICS

Unless otherwise specified, the following specifications apply over the recommended operating condition and ambient temperature of -20°C to +50°C except where otherwise noted. Typical values at +25°C.

| Parameter | Symbol | Test Conditions / Comment | Min | Typ | Max | Units |
|----------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------|------|-----|------|-------------------|
| INPUT | | | | | | |
| POE | | | | | | |
| Input voltage | V_{POE_IN} | Note: Minimum input voltage needs to be higher than voltage according IEEE802.3af | 40 | | 57 | V |
| Input current | I_{POE_IN} | According to IEEE802.3af | | | 350 | mA |
| Data Rate | D_{RATE} | Pass Through Data Rates | 10 | | 1000 | Mb/s |
| POE detection | | According to IEEE802.3af | | | | |
| Auxiliary | | | | | | |
| DC Input voltage | $V_{AUX_IN_DC}$ | | 10.8 | | 30 | V_{DC} |
| Maximum DC Input voltage ripple | $V_{AUX_IN_RIPPLE}$ | Measured with 20MHz oscilloscope bandwidth | 324 | | 792 | mV _{P-P} |
| AC Input voltage | $V_{AUX_IN_AC}$ | Frequency 47-63Hz | 21.6 | | 26.4 | V_{AC_RMS} |
| Input DC current | $I_{AUX_IN_DC}$ | | | | 1.5 | A_{DC} |
| Input AC current | $I_{AUX_IN_AC}$ | | | | 1.5 | A_{RMS} |
| Fuse Tripping Threshold | I_{FUSE} | Slow blow fuse Fuse is Internal | | 5 | | A |
| Short circuit and Overcurrent protection threshold | $I_{AUX_IN_SC}$ | | | 5 | | A |
| Lithium-Ion Battery | | | | | | |
| Capacity per battery | C | | 2600 | | | mAh |
| Number of the batteries | N_{BAT} | Batteries are connected in series | | 2 | | |
| Nominal Voltage | V_{BAT_NOM} | For one battery | | 3.7 | | V |
| Charging voltage | V_{CHARGE} | | | 4.2 | | V |
| Charge/discharge cycles | CDC | 75% capacity of C_{BAT} | 300 | | | |



ELECTRICAL CHARACTERISTICS

Unless otherwise specified, the following specifications apply over the recommended operating condition and ambient temperature of -20°C to +50°C except where otherwise noted. Typical values at +25°C.

| Parameter | Symbol | Test Conditions / Comment | Min | Typ | Max | Units |
|--------------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------|------|-----|------|-------------------|
| Operating time | T _{BAT_OPER} | Fully charge @11W output on POE or @10W auxiliary outputs For up to 300 charge/discharge cycles | 60 | | | Min |
| Operating temperature range | T _{CHARGE} | Charge | 0 | | 50 | °C |
| | T _{DISCHARGE} | Discharge | -20 | | 50 | °C |
| OUTPUT | | | | | | |
| POE | | | | | | |
| Output voltage | V _{POE_OUT} | Option 1: There is POE signal on the POE input (Output is directly connected to the input) | 40.5 | | 56 | V |
| | | Option 2: No POE on the input Powered from battery or Aux. input | 38 | | 40.5 | V |
| Output current | I _{POE_OUT} | Option1: | 275 | | | mA |
| | | Option2: | 290 | | | |
| Output Power | P _{POE_OUT} | When batteries are fully charged: | | | 11 | W |
| | | Batteries charging: Note: The power is the Total power of P _{POE_OUT} + P _{AUX_OUT} | | | 10 | |
| Auxiliary | | | | | | |
| Output Voltage | V _{AUX_OUT} | For all connection options. See Table 1 | 12 | | 12.4 | V _{DC} |
| Output Voltage ripple | V _{AUX_OUT_RIPPLE} | For all connection options. See Table 1 | | | 300 | mV _{p-p} |
| Output Current | I _{AUX_OUT} | For output power of 10W | 0.8 | | | A |
| Output Power | P _{AUX_OUT} | For all connection options. See Table 1 | | | 10 | W |
| Reset Timer | | | | | | |
| ON time | T _{ON} | Timer periodically power off POE and Aux. Outputs | | 24 | | H |
| OFF time | T _{OFF} | | | 1.5 | | Sec |
| LED Indicators (see table 1) | | | | | | |
| Isolation Parameters | | | | | | |
| Chassis (GND) to All Inputs, Outputs | | IEEE802.3af | 1500 | | | V _{AC} |



ENERGY RE-CONNECT
POWER DROP BACKUP

ERC-9005AF

"PowerEdge PdbU - Always on Matters"

SPECIFICATION

ELECTRICAL CHARACTERISTICS

Unless otherwise specified, the following specifications apply over the recommended operating condition and ambient temperature of -20°C to +50°C except where otherwise noted. Typical values at +25°C.

| Parameter | Symbol | Test Conditions / Comment | Min | Typ | Max | Units |
|-------------------------------|--------|--------------------------------------------------------------------------------------------------------------|-------|-----|------|-------|
| Environmental Data | | | | | | |
| Operating Ambient Temperature | | Continuous Operation | -20 | | +50 | °C |
| Storage Ambient Temperature | | | -20 | | +60 | °C |
| Operating Humidity | | Non-Condensing, Per IEC 68-2-56 | 0 | | 90 | % |
| Storage Humidity | | Non-Condensing | 0 | | 90 | % |
| Operating Altitude | | | 0 | | 2000 | m |
| Vibration | | IEC60068-2-6 Class 4M4 (IEC60721-3-4) | | | | |
| Shock | | IEC60068-2-27 Class 4M3 (IEC60721-3-4) | | | | |
| General Data | | | | | | |
| Reliability | | Calculated MTBF. Continuous operation @ TA = 25°C. Calculation method: Relex Bellcore Software Version 5.30. | 25000 | | | Hours |
| Life Time | | Expected Life Time @ TA = 40°C | 10 | | | Years |
| Warranty | | | 2 | | | Years |

PROTECTION

| | | |
|---------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Short circuit protection on auxiliary | Fuse and Current limit protection circuit | |
| Short circuit protection on a buck for auxiliary output | SC protection circuit in a buck for auxiliary output | |
| Surge protection on POE and Aux. inputs | Enhance level per ITU-T.K45 | +/-6kV 10/700us Line to ground 25 Ohm external resistor $I=6kV/(15+25/8)=331A$ |
| | GR-1089 Core 6 Ports type 3b/5b See Appendix C | Peak surge suppression level for combination waveform 1.2/50us - 8/20us POE pairs 6 Ohm ext. resistor +/-800V, I=100A |
| | IEC6100-4-5 Class 4 | 4kV, 8/20usec, 2kA |



ENERGY RE-CONNECT
POWER DROP BACKUP

ERC-9005AF

"PowerEdge PdbU - Always on Matters"

SPECIFICATION

MECHANICAL SPECIFICATIONS

| | | |
|--------------------------------|--------------------------|-------------------|
| Dimensions (LxWxH) | | 132 x 98 x 30 mm |
| Enclosure material | Material is V1 rated | |
| Enclosure type | For indoor installations | |
| Minimum thickness of enclosure | | 2 mm |
| Enclosure color | | Black |
| Weight | Packaged unit | 0.65 lb (0.29 kg) |

STANDARDS COMPLIANCE

Safety Standard Approvals

| Standard Name | Criteria | Notes |
|--------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------|
| UL60950-1, EN60950-1, CA/CSA-C22.2 NO. 60950-1, UL2043 | UL, cUL mark, GS, CB report | Material should be suitable for use in environmental air space. See UL60950-1 paragraph 4.7.3.1 |

EMC

| | | |
|-----------------------------------------|---------|----------------------------------------------|
| FCC Part 15 Subpart B, EN55022, EN55024 | Class B | See surge requirements in protection section |
|-----------------------------------------|---------|----------------------------------------------|

Environmental Standards

| | | |
|------|--|--|
| RoHS | | |
|------|--|--|

Networking Standards

| | | |
|-------------|--|------------------------------------|
| IEEE802.3af | | Need to meet 1000Mb/s requirements |
|-------------|--|------------------------------------|



ERC-9005AF
"PowerEdge PdbU - Always on Matters"
SPECIFICATION

Input / Output Options power table

Table 1

| # | Inputs | | | Outputs | | | Indications | | | | |
|---|--------|-----|--------------------|---------|-----------|-----------------|--------------------|---------------------|--------------------|----------------|-----------------|
| | POE | Aux | Battery* | POE | 12VDC_Aux | Battery charger | Input Power OK | Output Power OK | Battery Discharge | Backup Mode | Battery Voltage |
| | | | | | | | POE In (RJ-45 LED) | POE out (RJ-45 LED) | POE In (RJ-45 LED) | Aux out pin #4 | Aux out pin #5 |
| 1 | ON | OFF | Standby \ Charging | ON | ON | ON | Green | Green | — | 0V | Battery Voltage |
| 2 | OFF | ON | Standby \ Charging | ON | ON | ON | Green | Green | — | 0V | Battery Voltage |
| 3 | ON | ON | Standby \ Charging | ON | ON | ON | Green | Green | — | 0V | Battery Voltage |
| 4 | OFF | OFF | ON | ON | ON | OFF | — | Green | Orange | > 4V | Battery Voltage |

* Battery input option can be the internal Batteries or an external power enhanced battery pack.
 * POE out Green indication – only when valid POE Load is connected.

Connectors

| CONNECTORS DESCRIPTION | |
|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Name | Description |
| Ethernet connector POE+ Data input & POE + Data output | 2 x single port rugged RJ-45 Shielded connector: PN: 0826-1X1T-GH-F, BelFuse |
| Auxiliary Input Auxiliary Output | Field serviceable connectors: PN: 691313710002, Wurth Electronics Inc PN: OSTOQ053251, On Shore Technology Inc |
| Ext Battery pack | 2 Pin Connector PN: RASM712X, Switchcraft Inc. |



ENERGY RE-CONNECT
POWER DROP BACKUP

ERC-9005AF

"PowerEdge PdbU - Always on Matters"

SPECIFICATION

PIN DESCRIPTION - RJ45 INPUT

| Pin # | Name | Description |
|-------|-----------|-----------------------------------|
| 1 | Pair1 (-) | Bidirectional Output Data |
| 2 | Pair1 (-) | Bidirectional Output Data |
| 3 | Pair2 (+) | Bidirectional Output Data |
| 4 | Pair3 (+) | Bidirectional Output Data + Power |
| 5 | Pair3 (+) | Bidirectional Output Data + Power |
| 6 | Pair2 (+) | Bidirectional Output Data |
| 7 | Pair4(-) | Bidirectional Output Data + Power |
| 8 | Pair4(-) | Bidirectional Output Data + Power |
| 9 | Shield | Connector shielding |

PIN DESCRIPTION - RJ45 OUTPUT

| Pin # | Name | Description |
|-------|-----------|-----------------------------------|
| 1 | Pair1 (-) | Bidirectional Output Data |
| 2 | Pair1 (-) | Bidirectional Output Data |
| 3 | Pair2 (+) | Bidirectional Output Data |
| 4 | Pair3 (+) | Bidirectional Output Data + Power |
| 5 | Pair3 (+) | Bidirectional Output Data + Power |
| 6 | Pair2 (+) | Bidirectional Output Data |
| 7 | Pair4(-) | Bidirectional Output Data + Power |
| 8 | Pair4(-) | Bidirectional Output Data + Power |
| 9 | Shield | Connector shielding |

PIN DESCRIPTION - AUXILARY INPUT

| Name | Description |
|-------|--------------------------------|
| Pin 1 | Power (12-24V plus or 24V AC) |
| Pin 2 | Power (12-24V minus or 24V AC) |

PIN DESCRIPTION - AUXILARY OUTPUT

| Name | Function | Description |
|-------|-------------------------------|---------------------------------------------------------------------------------------------|
| Pin 1 | Power (+12V) | Aux output voltage |
| Pin 2 | GND (-12V) | Aux return pin |
| Pin 3 | GND | Ground reference for indications |
| Pin 4 | Backup mode Ind (See Table 1) | 0V => when POE_in or Aux_in exist. 4V-5V => when in Battery backup mode I_out < 0.5mA |
| Pin 5 | BAT_Voltage | 6V – 8.4V I_out < 0.5mA |



ERC-9005AF
"PowerEdge PdbU - Always on Matters"
SPECIFICATION

| PIN DESCRIPTION - EXT BATTERY PACK INPUT | |
|------------------------------------------|---------------------------------------------------------------------------------------|
| Name | Description |
| Pin 1 | Power (-V) |
| Pin 2 | Power (+6.4V to 8.4V Li-ion Battery Pack). See Table3 for approved Pack Part Numbers. |

Marking:

Energy Re-Connect Ltd. -

PdbU

P/N: ERC-9005AF

PoE_In - PoE 802.3af
 AUX_In - 12-24VDC/1.5A; 24VAC/0.7A
 EXT_BAT - Custom extended Battery Pack
 PoE_Out - PoE 802.3af 11Watt
 AUX_Out - 12VDC /0.8A

| MECHANICAL DESCRIPTION | |
|------------------------|-------------------------------------------|
| Dimensions (LxWxH): | 5.19 x 3.85 x 1.18 in. (132 x 98 x 30 mm) |
| Weight: | 0.65 lb (0.29 kg) |

Figure 2

PRELIMINARY DATA – Information contained in this document is pre-production data and is proprietary to Energy Re-Connect Ltd . It may not be modified in any way without the express written consent of Energy Re-Connect Ltd. Product referred to herein is offered in pre-production form only and may not have completed Energy Re-Connect Ltd’s Quality Assurance process for Release to Production. Energy Re-Connect Ltd reserves the right to change or discontinue this proposed product at any time.