



Advanced Deployable Renewable Energy System (ADRES)

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ADRES - Product Overview



■ Key Characteristics

- 1 kWhr / system
- 28.7 to 17.5 VDC
- 30A Max Continuous Discharge Rate
- 10A Nominal Charge Rate
- AC & DC Charge Inputs
- 5V, 1.5A USB Power Port with Environmental Connector Cover
- J1939 CAN Bus Communication
- Weight 48lbs
- LED SOC Display

■ Targeted Applications

- Powering mounted/dismounted weapon systems
- Energy Storage for Photovoltaic (PV) Systems
- Distributed power for FOB
- Man Portable Energy Delivery System
- Hybrid Gensets

ADRES – System Design

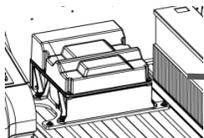
- Includes Saft's Lithium-Ion Phosphate VL43EFe cell, 8S1P module configuration
- Integrated with Saft's field proven 28V control and safety electronics
 - Internal heater to ensure operation at cold temperatures (Charge/Discharge)
 - DC input voltage capability range is between 10VDC to 36VDC.
 - AC input capability is single phase 85 to 265VAC with a frequency of 47 to 63Hz.
 - Integrates all charger inputs (AC and DC) on one connector
 - Max DC output current = 30 Amps
 - Battery requires convection cooling only
 - Utilizes CAN J1939 for serial communications and RS-422 communications
 - Integrated redundant safety electronics to prevent overcharge, over-discharge, and over temperature

ADRES – Weapon System Application

❑ Long Range Advanced Scout - Power System Components (Current State)



Used to charge Dismount Batteries



Item	Weight	QTY	Total weight
Battery Box	15	2	30
BB-2590 Batt	3.1	12	37.2
VMC+ Cable	40	1	40
Lead Acid Batt	27.5	2	55
Mounted battery box	90	1	90
VPC	9	1	9

TOTAL = 261.2 lbs

ADRES – Weapon System Application

❑ Long Range Advanced Scout - Power System Components (Future State)



Used to charge Dismount Batteries



Item	Weight	QTY	Total weight
Battery Box	15	2	30
BB-2590-Batt	3.1	12	37.2
VMC+ Cable	40	1	40
Lead Acid Batt	27.5	2	55
Mounted battery box	90	1	90
VPC	9	1	9
ADRES	48.2	1	48.2

TOTAL = 261.2 48.2 lbs

Features and Benefits Summary

- **Enhanced mission effectiveness**
 - Simplifies system architecture
 - One integrated system replaces many
 - Reduces system weight and volume

- **Increased Performance Versus Legacy Battery Systems**
 - Internal Battery Management System (BMS) - Real-time diagnostic
 - Safe electro-chemistry – LFP
 - Consistent Capacity over various discharge rates
 - Reduced charge time
 - Built-in-charger to handle vast array of AC and DC charging source
 - Ability to parallel batteries if increased kW/kWhs are required

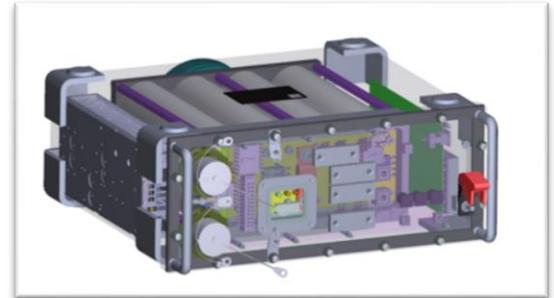
Program Background & Follow-on

■ ADRES Gen-1 unit deliveries – 3QCY15

- CERDEC – Evaluation and Test
- PM Ground Sensors – LRAS3 User Evaluations
- UN Transportation Certification Completed

■ Follow-on Phase: Gen-2 ADRES

- 13 Month design-to-cost project
- Targeting cost reduction initiatives
 - > Design to cost and manufacturability
- ETC = 4QCY16



SAFT Would Like to Thank.....

