FLEXware ICS Plus

Integrated Combiner Solution for PV Rapid Shutdown and AFCI

FWPV6-FH600-SDA

BKR-CTRL-DC

PNL-75-DC-RT

Rapid Shutdown Initiator (RSI)

ICSPLUS-1 Package for Battery-Based PV Systems
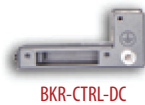
➤ End-to-end solution listed to UL1741 with photovoltaic rapid shutdown systems (PVRSS)

➤ Arc fault circuit interrupter (AFCI) listed to UL1699B with local and remote indication

➤ Type 3R enclosures rated for indoor or outdoor installation

➤ Flexible design—install the combiner box vertically or horizontally and mount to racking or under an array

➤ Interoperable with compatible third-party PV rapid shutdown devices (PVRSE with dry contact)

➤ Three complete packages simplifies the design and ordering process

OutBack provides a fully-compliant PV rapid shutdown system (PVRSS) combiner solution with the FLEXware ICS Plus. The FLEXware ICS Plus meets the following 2014 National Electric Code (NEC) requirements:

NEC 690.11—Arc fault protection (protects against arc faults due to loose connections, damaged wires or other DC component failures)

NEC 690.12—Rapid shutdown (provides a means for first responders to safely de-energize controlled conductors)

NEC 690.15—DC combiner disconnect (opens all ungrounded circuit conductors from all sources of power)

The FLEXware ICS Plus is rated to 600VDC for integration in a wide range of systems and designed for ease of service and clean wire management. Packaged systems include 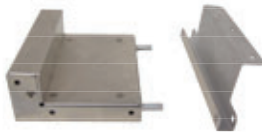easy-to-order, complete solutions for battery-based systems requiring one, two or four combiner boxes, while individual components can be ordered for alternative system needs, including use with grid-direct PV inverters.

When used with OutBack power conversion and energy storage components, the system will represent the only single-brand UL and NEC-compliant solution from rooftop to battery.

Packages	ICSPLUS-1	ICSPLUS-2	ICSPLUS-4
Description	FLEXware ICS Plus package for battery-based PV systems	FLEXware ICS Plus package for battery-based PV systems	FLEXware ICS Plus package for battery-based PV systems
Compatibility	Six PV strings (one charge controller)	Twelve PV strings (two charge controllers)	Twenty-four PV strings (four charge controllers)
Combiner Box	(1) FWPV6-FH600-SDA	(2) FWPV6-FH600-SDA	(4) FWPV6-FH600-SDA
RSI	1	1	1
BKR-CTRL-DC	1	1	1
Relay-Trip Breaker	PNL-75-DC-RT	PNL-75D-DC-RT	PNL-75Q-DC-RT
Rapid Shutdown	Yes	Yes	Yes
External Disconnect	Yes	Yes	Yes
PV AFCI	Yes	Yes	Yes

Combiner Box	FWPV6-FH600-SDA	Product Image
Description	FLEXware ICS Plus DC combiner box with PV rapid shutdown, AFCI and disconnecting means compatible with up to 6 PV strings, opens up controlled conductors within 10ft of PV array	
Enclosure	**Material**: Powder-coated aluminum **Rating**: Outdoor rainproof, UL type 3R **Security**: Lockable	
Mounting Options	Vertical to horizontal, external feet provided for mounting	
Number of String Inputs	6	
Total Maximum Current	96A	
Voltage Rating	600VDC	
Output Terminals	#14 - 2/0	
Input Terminals	Cable glands #14 to 8 AWG (2.08 to 7.7mm^2)	
Operating Temperature	-25 to 60℃	
Overcurrent Protection	Includes (6) 600VDC DIN rail fuse holders (fuses sold separately)	
Switch	Can be locked in off position	
Accessories	**FUSE-15-600VDC**: Box of ten, 15A fuses **FUSE-20-600VDC**: Box of ten, 15A fuses **FH-30-1000VDC-DIN**: 30A, 1000VDC fuse holder **LBL-PVRSS**	
Dimensions H x W x D (in/cm)	15.5 x 19.5 x 4.5 / 39.4 x 49.5 x 11.4	
Weight (lb/kg)	~12 / 5.4	
Certifications	UL1741 with PVRSS, UL 1699/1699B, CSA 22.2 107.1-01 with PVRSS, FCC Part 15 Class B	

Rapid Shutdown Initiator	RSI	Product Image
Description	FLEXware ICS Plus RSI initiates a PV rapid shutdown event and provides indication for solar status and AFCI	
Enclosure	**Material**: Powder-coated aluminum **Rating**: Outdoor rainproof, UL type 3R	
Mounting Options	Vertical	
Input Terminals	24-16 AWG (.20 to 1.31mm^2)	
Compatibility	Can control up to 6 FWPV6-FH600-SDA combiners and 2 relay-trip breakers	
Operating Temperature	-25 to 60℃	
Switch	Can be locked in off position	
LED Indication	Solar on, solar off, AFCI	
Dimensions H x W x D (in/cm)	14.1 x 7.3 x 3.75 / 35.8 x 18.5 x 9.5	
Weight (lb/kg)	~4 / 1.8	
Certifications	UL1741 with PVRSS, UL 1699/1699B, CSA 22.2 107.1-01 with PVRSS, FCC Part 15 Class B	

DC Breaker Control & Power Supply	BKR-CTRL-DC	Product Image
Description	FLEXware ICS Plus DC breaker control and power supply, provides isolated 24VDC from battery bank	
Compatibility	Powers up to 2 relay-trip breakers and 6 FLEXware ICS Plus combiner boxes	
Nominal Battery Bank Voltages	24, 32, 36, 48VDC	
Operating Temperature	-25 to 60℃	
Width Dimension (in/cm)	Varies from .75-2.0 / 1.9-5.1 (1 panel-mount space)	
Certifications	UL1741 with PVRSS, UL 1699/1699B, CSA 22.2 107.1-01 with PVRSS, FCC Part 15 Class B	

Relay-Trip Breakers	PNL-75-DC-RT	PNL-75D-DC-RT	PNL-75Q-DC-RT	Product Images
Description	75A, 300VDC relay-trip breakers that open up controlled conductors at or near the charge controller or inverter in a rapid shutdown event			
Number of Poles	1	2	4	
Terminals	1/4" stud	1/4" stud	1/4" stud	
Width Dimension (in/cm)	1.5 / 3.9 (2 panel-mount spaces)	2.2 / 5.7 (3 panel-mount spaces)	3.8 / 9.6 (5 panel-mount spaces)	