

## POWER SUPPLY SYSTEMS FOR HIGHER PROTECTION CLASS

Our IBB IP power supply systems offer a protection class up to IP 55.

Together with our Industrial building blocks it is suitable for a variety of applications, and can be tailored to fit your specific needs.

Combining our Industrial building blocks into a complete system solutions for multi DC or AC outputs.



# IBB IP

24V<sub>DC</sub>, 48 V<sub>DC</sub>, 60 V<sub>DC</sub>, 110 V<sub>DC</sub>, 125 V<sub>DC</sub>, 220 V<sub>DC</sub> & 230 V<sub>AC</sub> systems

Doc 323539.DS3\_DSsheet\_IBB\_IP – rev3

### MODULAR ARCHITECTURE

The modular architecture, industry-leading efficiency, compact size, innovative design and comprehensive monitoring and control features provide significant benefits over the current industry standard.

IBB IP power systems and building blocks are built around our Flatpack2 High Efficiency (HE) rectifiers and designed for a number of power-critical Industrial applications, including Power Generation & Distribution, Rail, Marine Offshore and other demanding industries.



### APPLICATIONS

#### Power Utilities

- Low & High Voltage switchgear
- Transformer & Substations
- Power Generation & Distribution
- Control & protection
- SCADA Communication
- Emergency lighting

#### Offshore and process industry

- Safety and Automation Systems (SAS)

#### Marine

- Communication systems onboard ships

#### Railway & Metro infrastructure

- Control & protection
- Power conversion
- Signaling
- GSM-R
- Safety Svstems

### KEY FEATURES

- PROTECTION CLASS UP TO IP55
- PRE-ENGINEERED BUILDING BLOCKS
- MODULAR ARCHITECTURE
- UP TO 300 A DC OUTPUT
- UP TO 6,75 KVA AC OUTPUT
- MULTI DC OUTPUT OPTION
- INTEGRATED DC DISTRIBUTION
- INTEGRATED AC DISTRIBUTION
- INTEGRATED BATTERY FUSE
- GRAPHICAL 3.2" TFT DISPLAY
- ETHERNET
- WEB INTERFACE
- SNMP
- MODBUS TCP/IP (RTU)
- COMPACT
- HIGH EFFICIENCY
- GLOBAL APPROVALS

### COMBINING INDUSTRIAL BUILDING BLOCKS

Combining our Industrial building blocks into a complete system features solutions for multi DC or AC outputs

Our pre-engineered building block features solutions for plain DC or AC output, or combined multi DC or AC output.

Each powercore includes power modules for DC or AC output and are connected together into a complete system.

Controller functions can be connected to a master controller or separated into individual systems according to your demand.

Both DC and AC distribution can be integrated into the cabinet, together with battery fuse protection. All DC & AC inputs/outputs and signaling is connected to terminals in the bottom of the cabinet for easy cable management.

### POSSIBLE COMBINATIONS

- Plain DC output 24-220 VDC
- Plain AC output 230 VAC single phase
- Multi output DC systems with DC/DC to 24-220 VDC
- Combined DC (24-220VDC) and AC output (230 V single phase)
- Combination of multi DC output and AC output

### IBB IP INCLUDING OUR BUILDING BLOCKS



### PRE-ENGINEERED AND TESTED BUILDING BLOCKS

Each building block is pre-engineered and tested before they are integrated into the cabinet.

Each building block is working as a standalone solution and can be assembled and tested before they are integrated into the system cabinet. On the rear side of the powercore there are copper bars for input and output DC connections. The different powercores can easily be attached to each other to create a system for multi DC output voltage, or a combination of DC and AC output.

All connections to load and battery breakers are also made from the copper bars on the rear side of the powercore. This type of assembly will give a very flexible solution for a variety of applications, and can be tailored to fit your specific needs.

### AVAILABLE BUILDING BLOCKS

- IBF AC/DC (24-220 VDC up to 300 A)
- IBF DC/DC (24-220 VDC up to 300 A)
- IBF DC/AC (48-220 VDC input, 6,75 kVA single phase output)

### BACK SIDE CONNECTION OF BUILDING BLOCKS



24V<sub>DC</sub>, 48 V<sub>DC</sub>, 60 V<sub>DC</sub>, 110 V<sub>DC</sub>, 125 V<sub>DC</sub>, 220 V<sub>DC</sub> & 230 V<sub>AC</sub> systems

<b>Model</b>	<b>2-16 kW</b>
IBF AC/DC	
<b>INPUT DATA</b>	
Voltage range	115 - 400 V <sub>AC</sub> Δ or Y
Surge protection	OVP Class 2
Input protection rectifiers	Individual fuse
AC Input protection	MCB
<b>OUTPUT DATA</b>	
Nominal voltage range	24-220 V <sub>DC</sub>
Maximum current	300 A
Maximum power	16 kW
Output protection rectifiers	Blocking OR-ing FET or fuse
<b>OTHER SPECIFICATIONS</b>	
Monitoring unit	Smartpack 2

BUILDING BLOCK: IBF AC/DC



<b>Model</b>	<b>2-16 kW</b>
IBF DC/DC	
<b>INPUT DATA</b>	
Voltage range	85-300 V <sub>DC</sub>
Surge protection	-
Input protection DC/DC converters	Individual fuse
DC Input protection	MCB
<b>OUTPUT DATA</b>	
Nominal voltage range	24-220 V <sub>DC</sub>
Maximum current	300 A
Maximum power	16 kW
Output protection DC/DC converters	Blocking OR-ing FET or fuse
<b>OTHER SPECIFICATIONS</b>	
Monitoring unit	Smartpack 2

BUILDING BLOCK: IBF DC/DC



Specifications are subject to change without notice

<b>Model</b>	<b>2,25-6,75 kVA</b>
IBF DC/AC	
<b>INPUT DATA</b>	
Nominal voltage range	48-220 V <sub>DC</sub>
Surge protection	-
AC input protection	MCB
DC Input protection	MCB
<b>OUTPUT DATA</b>	
Nominal voltage	230 V <sub>AC</sub>
Maximum current	29,4 A <sub>AC</sub>
Maximum power	5,4 kW/6,75 kVA
AC Output protection	MCB
<b>OTHER SPECIFICATIONS</b>	
Monitoring unit	In STS 207

BUILDING BLOCK: IBF DC/AC



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## FLATPACK2 HE RECTIFIER OR DC/DC CONVERTER



**Model** 2000 W

Flatpack2 HE

### INPUT DATA

Voltage range	85-300 V <sub>AC/DC</sub>
Frequency	0-66 Hz
Maximum current	11,9 A <sub>RMS</sub>
Power factor	0,99, 50-100% load

### OUTPUT DATA

Nominal voltage range	24-220 V <sub>DC</sub>
Maximum current	9,2-84 A
Maximum power	2000 W
Output protection	Blocking OR-ing FET or fuse

### OTHER SPECIFICATIONS

Efficiency	>94 %
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## INVERTER INV222



**Model** 2,25 kVA

INV 222

### INPUT DATA

Nominal voltage range	48-220 V <sub>DC</sub>
Nominal input current	9,2-41,6 A
Frequency	DC
Internal input fusing	External fuse req.

### OUTPUT DATA

Nominal voltage	230 V <sub>AC</sub>
Maximum current	9,8 A <sub>AC</sub>
Maximum power	1,8kW/2,25 kVA
Frequency	50 Hz

### OTHER SPECIFICATIONS

Efficiency	>90%
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## STATIC SWITCH STS207



**Model** 7,0 kVA

STS 207

### INPUT DATA

Nominal voltage source 1	230 V <sub>AC</sub>
Nominal voltage source 2	230 V <sub>AC</sub>
Frequency	50 or 60 Hz
Mains input fuse	63 A

### OUTPUT DATA

Nominal voltage	230 V <sub>AC</sub>
Maximum current	30,4 A <sub>AC</sub>
Switching capacity	7,0 kVA
Transfer time	<4ms

### OTHER SPECIFICATIONS

Efficiency	>99%
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24V<sub>DC</sub>, 48 V<sub>DC</sub>, 60 V<sub>DC</sub>, 110 V<sub>DC</sub>, 125 V<sub>DC</sub>, 220 V<sub>DC</sub> & 230 V<sub>AC</sub> systems

Model	Controller
Smartpack2	
<b>INPUT DATA</b>	
Voltage sense input	0-430 V <sub>DC</sub>
Current sense input	20-60 mV shunts
Battery/load fuse sense	NO/NC
Earth fault detection	1* isolation input
<b>OUTPUT DATA</b>	
LVD contactor outputs	10-420 V, 1A
Relay outputs	NO-C-NC, 0-220 V
Web	Web interface
Networking	SNMP
<b>OTHER SPECIFICATIONS</b>	
Display	32k colour TFT

Specifications are subject to change without notice



Model	I/O Monitor
Type 3	
<b>INPUT DATA</b>	
Digital input	6* NO/NC
<b>OUTPUT DATA</b>	
Relay outputs	NO-C-NC, 0-75 V
<b>OTHER SPECIFICATIONS</b>	
CAN bus connection	

Specifications are subject to change without notice



Model	CAN node
Fleximonitor	
<b>INPUT DATA</b>	
Quantity	16 multipurpose
Voltage range	-280 V <sub>DC</sub> to 280V <sub>DC</sub>
Current sense range	-100mV to 100 mV
Temperature range	-20 to +70°C
<b>OUTPUT DATA</b>	
Quantity	16
Relay outputs (with relay extension)	4 or 8
Voltage rating (with relay extension)	0-220 V <sub>DC</sub>
Current rating (with relay extension)	0,1-2,0 A
<b>OTHER SPECIFICATIONS</b>	
CAN bus connection	

Specifications are subject to change without notice



### GENERAL TECHNICAL SPECIFICATIONS

Model	Industrial DC Systems IBB IP 24-220V <sub>DC</sub> & 230V <sub>AC</sub>	
Part number	Depending on configuration	
<b>INPUT DATA</b>		
Voltage (range)	115 - 400 V <sub>AC</sub> (Δ) or (Y), Derating <185V <sub>AC</sub> , 45-66Hz	
Input protection	MCBs and SPD ( OVP Class 2)	
Rectifier protection	Individual fuse in rectifier modules	
Connection	Terminals 10mm <sup>2</sup>	
<b>OUTPUT DATA</b>		
Voltage (nominal)	24V <sub>DC</sub> , 30V <sub>DC</sub> , 48V <sub>DC</sub> , 60V <sub>DC</sub> , 110V <sub>DC</sub> , 125V <sub>DC</sub> , 220V <sub>DC</sub> & 230V <sub>AC</sub>	
Power (maximum) @ nominal input	16kW DC or 8 kW DC & 6,75 kVA AC	
Current (maximum) @ nominal input	See previous page or applicable Flatpack2 or INV 222 datasheet	
Protected battery output	1 x 2 pole NH00/NH1 Fuses (63 - 250A) or MCCB Circuit Breaker(63 - 250A) with or without fuse trip alarm	
Protected load outputs	1-24 x 2 pole (6 - 40A) MCB:s with or without fuse trip alarm	
Integrated battery shunt	100/300A	
Load connection	Terminal, max 16mm <sup>2</sup>	
Output Protection in rectifiers	Blocking OR-ing FET or fuse, Short circuit proof & High temperature protection	
<b>CONTROL AND MONITORING</b>		
Monitoring Unit	Smartpack2 and STS 207	
Local Operation	Display and keys, WEB interface via standard browser using WebPower	
Remote Operation	WebPower (WEB Interface, SNMP protocol and email)	
Alarm Relays (Connection: clamp ≤ 1.5 mm <sup>2</sup> )	6 x Potential free change over contacts (NO, NC, C) [Max 75V/2A/60W] Optional: 3 x Potential free change over contacts (NO, NC, C) [Max 280V <sub>DC</sub> /0,1A]	
Inputs	6 x Configurable (digital, analog max 75V) and 3 temperature	
Current measurements	Rectifier current and, if battery shunt is used, battery current and load current	
Alarms	Low & high output voltage alarms (Minor and major levels), Earth fault alarm, Temperature alarm, Mains outage alarm, Battery remaining capacity/low quality alarms, Battery/load breaker tripped alarm and much more	
<b>OTHER SPECIFICATIONS</b>		
Isolation	3.0 kV <sub>AC</sub> - input to output 1.5 kV <sub>AC</sub> - input to earth 0.5 kV <sub>DC</sub> - output to earth <sup>1)</sup>	
Protection Class	IP 45	
Color	RAL 7035	
Operating temperature	-40 to +45°C (-40 to +113°F), humidity 5 - 95% RH non-condensing Output power de-rates at high temperature, see datasheet for applicable rectifier	
Storage temperature	-40 to +85°C (-40 to +185°F), humidity 0 - 99% RH non-condensing	
Dimensions[WxHxD]	600 x 2100 x 600mm	
<b>DESIGN STANDARDS</b>		
	RECTIFIERS & DC/DC CONVERTERS	INVERTERS & STATIC SWITCH
Electrical safety	UL 60950-1-3 <sup>rd</sup> edition, EN 60950-1-3 <sup>rd</sup> edition	EN 60950-1
EMC	ETSI EN 300 386 V.1.4.1 EN 61000-4 T2-5" EN 61000-6-1 / -2 / -3 / -4 / -5	EN55011/22 class "B" EN 61000-4 T2-5
Environment	ETSI EN 300 019, ETSI EN 300 132 - 2	

1) 1.5kV<sub>AC</sub> for IBB with 110V & 220V Flatpack2 rectifiers

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