



## AC Distribution, Static Switch and Manual Bypass for DAC60000 Inverters



19" 2U Mechanics and connectors      BPU69000 series External static switch      Manual bypass switch      AC-distribution 4 pcs of MCBs

### Modular Construction

MBP68200 system consists of separate modules, which can be included in the system based on customer's needs. It may include all features: static switch, manual bypass and AC-distribution or only one or two of these features.

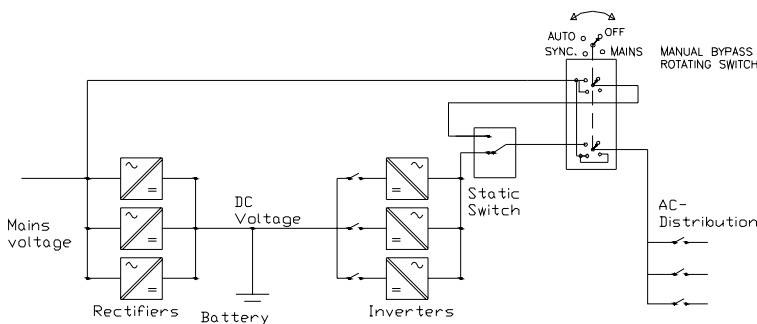


### Complete Inverter System

MBP68200 fits ideally to be used with DAC60000 units in horizontal 2U orientation. Depending on the needed power in the system 1...5pcs of 1000...1200VA inverters can be installed in parallel including external static switch, manual bypass and AC-distribution. MBP68200 and inverters are installed on top of each other in 19" cabinet.

- Voltage 100...240VAC ▪ Power rating 6kVA, max 30A ▪ 4 pole manual bypass rotating switch
- 6mm<sup>2</sup> or 10mm<sup>2</sup> screw terminals for mains in and load, 90cm cables for static switch, see details next page

### System level connection circuit:



#### Manual bypass switch positions:

- OFF  
No supply
- MAINS  
Mains supply, No mains input for static switch
- SYNC  
Mains supply, Mains input connected to static switch



**Recommendation:**  
Set the static switch to off-line mode before turning between SYNC and AUTO

- AUTO  
Inverter System supply on-line or off-line

### MANUAL BYPASS AND AC-DISTRIBUTION TYPE NUMBERS

Type	Description
MBP68200	Manual bypass 6kVA, max 30A, 19"/2Ux182mm
ADU68230	AC Distribution unit for 4 pcs of output MCBs, 19"/2Ux182mm, select any combination of MCBs from table below
MBP68260	Manual bypass 6kVA and AC Distribution unit for 4 pcs of output MCBs, 19"/2Ux182mm Select MCBs from table below, any combination is possible

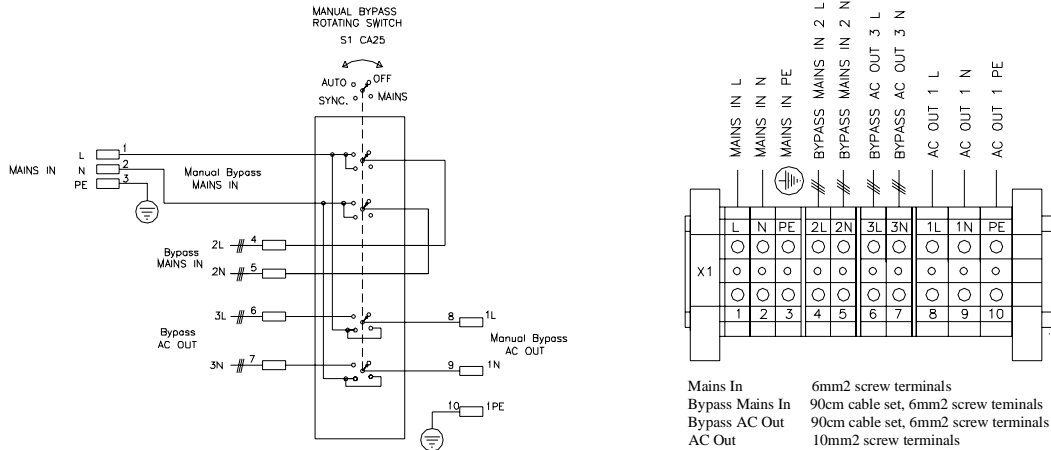
### MCB ALTERNATIVES

Type / Description	Type / Description	Type / Description	Type / Description
54100100 1A C-curve	54100600 6A C-curve	54101600 16A C-curve	54102500 25A C-curve
54100200 2A C-curve	54101001 10A B-curve	54102001 20A B-curve	54103201 32A B-curve
54100400 4A C-curve	54101000 10A C-curve	54102000 20A C-curve	54103200 32A C-curve
54100601 6A B-curve	54101601 16A B-curve	54102501 25A B-curve	54104001 40A B-curve

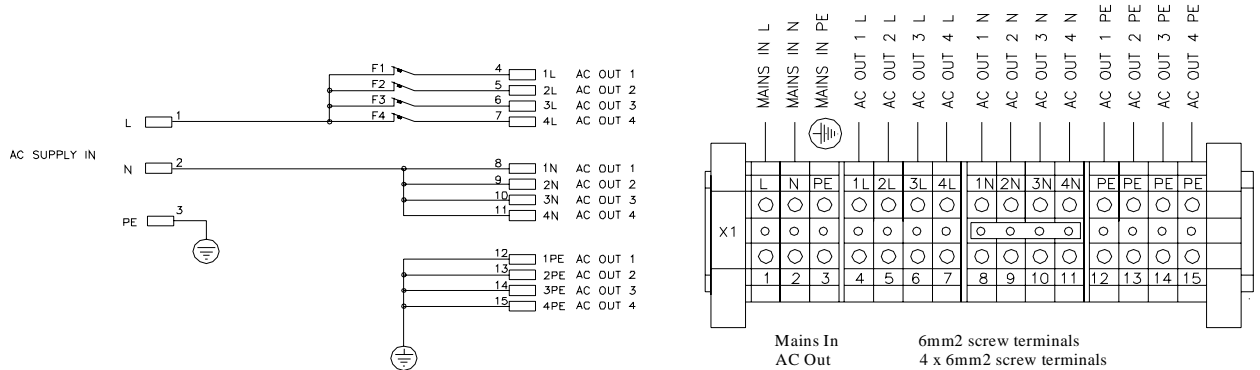
### STATIC SWITCH UNITS AND MECHANICAL PARTS

Type	Description
BPU69130VF	External static switch, 6000VA 230VAC, 14TE x 6U x 372mm module
BPU69010VF	External static switch, 3000VA 115VAC, 14TE x 6U x 372mm module
8860000C	Cover plate set for empty static switch place in 19" 2U mechanics
MSR7990	19" 2U mechanics to install 6U x 14TE static switch horizontally

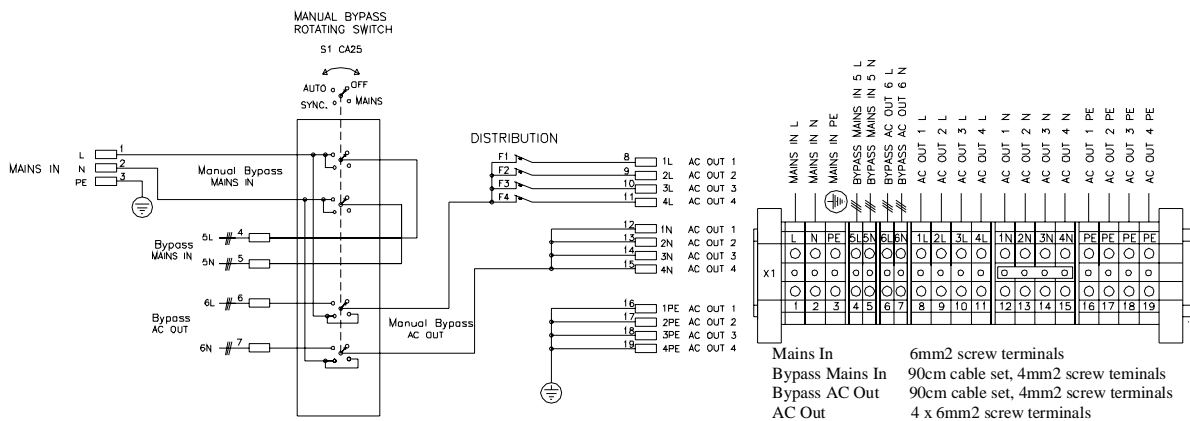
## MBP68200 CONNECTION CIRCUIT AND PIN CONFIGURATION



## ADU68230 CONNECTION CIRCUIT AND PIN CONFIGURATION



## MBP68260 CONNECTION CIRCUIT AND PIN CONFIGURATION



## Specification

### CONNECTIONS

Voltages $U_e$	98...132 VAC 196...264 VAC	3000VA/3000W 6000VA/6000W
Current $I_n$	Nominal current	30A
Frequency		45...65Hz
Safety		According to EN60950, Class I
Mains input connector	L N PE	3-pole 6mm <sup>2</sup> screw terminal
Inverter connectors	2L-3L 2N-3N or 5L-6L 5N-6N	2x2-pole 4-6mm <sup>2</sup> screw terminal
AC outputs connector	1L-4L 1N-4N 1PE-4PE	3x3-pole 6mm <sup>2</sup> screw terminal
	All connectors are located on rear panel	
Mains supply fuse	max 32A	External
Wiring	4-6 mm <sup>2</sup>	Halogen-free, 105°C

### CONTROLS

Manual bypass switch	Rotating switch K&N CA25 , 4 positions	max current 32A, short circuit max 450A
Distribution	1-3pcs of MCB MCB safety switches	On front panel, 1A-25A B or C curve

### MECHANICAL

Dimensions	Height	2U (88mm)
	Width	19" (483mm)
	Depth	180mm (+ switch 30mm)
Weight	Module	2.75 kg
Enclosure	hot galvanized steel	IP20
Front plate painted		RAL7035
Finger protection		Polycarbonate plate in front of screw terminals

### ENVIRONMENTAL

Temperature range	Operating	-25°C...+50 °C
	Storage	-40°C...+70 °C
Grounding	6mm <sup>2</sup> screw terminal	1+4pcs on rear panel

## Operating and connecting the Manual bypass

### General

MBP68200 family series is manual bypass switch and/or AC-distribution unit for Enedo inverter systems. By manual bypass AC loads can be supplied directly from mains bypassing the inverter system. The inverter system can be also totally switched off by manual bypass switch. In normal operation mode (AUTO) inverter supply is distributed to loads via manual bypass. Also 1...4pcs of AC-distribution fuses can be included to MBP unit (MBP=manual bypass).

Three different variants are available:

1. MBP68200 Manual bypass switch without AC-distribution
2. ADU68230 AC-distribution unit without manual bypass
3. MBP68260 Manual bypass and AC-distribution unit

### Connecting the cables

Remove the finger protection polycarbonate plate by releasing two screws behind the module. Connect Mains in and AC load wires to screw terminals of MBP. Make the strain relief by cable ties and fasten the finger protection plate to original position.

## Mains connection

Connect the mains cable to the screw terminals 1-3 (L N PE) according to pin configuration on the MBP's rear panel via the strain relief. Fasten the cable by cable tie to the holder located beside the screw terminal. Use 1-phase power cable cross-section  $3 \times 0.75 \dots 6,0\text{mm}^2$ . The external maximum mains fuse is 32A. Make sure that both mains input and bypass output are switched off from sub-rack before connecting the MBP.

## Loads connection

Connect the load cable to the screw terminals 8-16 (L N PE) according to pin configuration on the MBP's rear panel via the strain relief. Fasten the cable by cable tie to the holder located beside the screw terminal. Use 1-phase power cable cross-section  $3 \times 0.75 \dots 6,0\text{mm}^2$ . The external maximum mains fuse is 32A. Make sure that both mains input and bypass output are switched off from sub-rack before connecting the MBP.

## Mounting the Static switch

Remove the front cover plate by releasing four screws front the MBP module. Assemble the static switch inside the MBP and mount 4pcs of M2,5 screws in the front panel of static switch. Connect pre-assembled "mains in" and "AC out" cables to static switch unit's mating connectors on front panel.

## Mounting the MBP units

The module is mounted to the 19" rack cabin by 4pcs of M5 screws from the front panel.

## Operating manual bypass switch

### PROCEDURE

When inverter system is started from OFF mode, the rotating switch is turned clockwise (OFF -> MAINS -> SYNC -> AUTO). When system is turned off this will be done in opposite order (AUTO -> SYNC -> MAINS -> OFF). The switch can't be turned directly from OFF position to AUTO position or vice versa.

Recommendation is to use off-line mode in static switch when operating manual bypass. Do not turn on inverter outputs before manual bypass is turned to normal operating AUTO mode. Static switch will be powered in SYNC mode. Wait minimum 15 seconds in SYNC mode until static switch has started to off-line mode and then turn manual bypass to AUTO mode. Start the inverter outputs when manual bypass is in AUTO mode, see inverter manual for further details. Now the system is set to normal operating mode, where default and backup supplies can be set in static switch parameters.

When system will be turned off, turn off first inverter AC outputs (see inverter manual) in AUTO mode, which forces static switch to off-line mode. Then turn manual bypass counterclockwise to the needed position. Static switch will shut down in MAINS position, but loads will be still powered from direct grid supply without backup. Turn the manual bypass to MAINS position if the static switch needs to be swapped or to OFF position if system will be turned off.

### MANUAL BYPASS ROTATING SWITCH POSITIONS

OFF	<p>No supply</p> <p>No voltage in the output. No mains input for the static switch</p>
MAINS	<p>Mains supply, no backup</p> <p>Mains connected to the output. No mains input for the static switch.</p> <p>Mains mode is typical service mode. In this position the inverter system including static switch is bypassed and AC power is supplied to load directly from mains network.</p>
SYNC	<p>Mains supply, no backup</p> <p>Mains connected to the output. Mains input connected to the static switch, static switch starts-up in this position</p> <p>In Sync mode the supply to loads is still from mains bypassing the inverter system, but now static switch AC input is connected. <u>Wait min. 15 seconds in SYNC mode</u> until static switch starts.</p> <p>Make sure that system is in off-line mode before turning to AUTO mode. Do not start inverter AC outputs yet</p>
AUTO	<p>Inverter System supply (online/offline), battery backup</p> <p>Static switch output (automatic selection inverter AC output or mains) connected to the output. Auto mode is the normal operating mode.</p> <p>In start-up procedure: Turn on inverter AC outputs. System is ready for normal operating mode</p> <p>In shut-down procedure: Turn off inverter AC outputs before turning manual bypass to SYNC position</p>