

# DC PANELS INSTALLATION

Thank you for your purchase of a Microlog Technologies product.

## DC Panel Specifications:

Material: 0.125" 6061-T6 Aluminum Alloy for Deluxe panels

Panel Finish: Black Powder Epoxy for Deluxe panels / UL94-PVC-Acrylic for Standard panels

Voltage Rating: 12VDC (or 24 VDC option)

Amperage Rating: Bus Bars: 100A,

up to 4, 8 or 12 / 15 Ampere A-Series standard branch circuit breakers

(installed according to American Boat and Yacht Council (ABYC) Standards and Recommended Practices for Small Craft sections: E-1, E-3, E-9).

Deluxe panels have Identification LEDs on each circuits.

Overall Dimensions: 8DC-D: 7.5" x 5", 19.05cm x 12.7cm ; 12DC-D: 10.5" x 5", 26.67cm x 12.7cm

## WARNING

It is not possible within the scope of these instructions to fully acquaint the installer with all the knowledge of electrical systems that may be necessary to correctly install this product. If the installer is not knowledgeable in electrical systems we strongly recommend that an electrical professional be retained to make the installation. If either the panel front or back is to be exposed to water it must be protected with a waterproof shield.

The panels must not be installed in explosive environments such as gas engine rooms or battery compartments as the circuit breakers are not ignition proof. The main positive DC connection must be disconnected at the battery post to avoid the possibility of a short circuit during the installation of this distribution panel.

## INSTALLATION

1- Verify that the standard circuit breakers installed in the panel are correct for each branch circuit. Remove and replace any that are incorrectly sized. The circuit breaker must have a rating less than the allowable amperage of the wire, yet greater than the circuit's continuous current. Remove breakers holding bars to install extra breakers you ordered. Replace bars.

2- Disconnect all AC power originating on or off the vessel. This includes inverters, generators, shore power attachments and any other device capable of supplying AC power to the ship's circuits. DISCONNECT THE MAIN PANEL DC POSITIVE cable from batteries to eliminate the possibility of a short circuit and to disable the inverter while installing the new distribution panel.

3- Select mounting location. The Panel must be located inside the boat or vehicle in order to protect it from weather damage. Choose a location, which is accessible, close to navigational equipment. Be sure to have sufficient space behind the panel to allow wire leads to be connected easily. Select a mounting location which is not in an area where flammable vapors from propane, gasoline or lead acid batteries accumulate. The circuit breakers used in marine electrical panels are not ignition protected and may ignite such vapors. Cut opening using the panel template provided, in the mounting surface where the distribution panel is to be mounted. Do not fasten the panel to the mounting surface yet.

4- Remove the Main DC wiring if it need to be changed and install the new Main DC Wiring from battery compartment to the panel. Determine the proper wire size using the chart below:

WIRE SIZE AWG	METRIC	CM AREA		OHMS /1000 FT.	AMPA CITY		CIRCUIT AMPS										
		AWG	SAE		BOAT	ENGINE	5	10	15	25	50	75	100	125			
#18	0.8	1610	1537	6.385	20	17	10.8	5.4	3.6								
#16	1	2580	2336	4.016	25	21.3	17.2	8.6	5.7	3.4							
#14	2	4110	3702	2.525	35	29.8	27.6	13.8	9.2	5.5							
#12	3	6530	5833	1.588	45	38.3	43.8	21.9	14.6	8.8							
#10	5	10380	9343	0.9989	60	51	69.6	34.8	23.2	13.9	7.0						
#8	8	16510	14810	0.6282	80	68	110.6	55.3	36.9	22.1	11.1						
#6	13	26240	24538	0.3951	120	102	175.8	87.9	58.6	35.2	17.6	11.7	8.8				
#4	19	41740	37360	0.2485	160	136	279.6	139.8	93.2	55.9	28.0	18.6	14.0	11.2			
#2	32	66360	62450	0.1563	210	178.5	444.4	222.2	148.1	88.9	44.4	29.6	22.2	17.8			
#1	40	83690	77790	0.1239	245	208	560.6	280.3	186.9	112.1	56.1	37.4	28.0	22.4			
#0	50	105600	98980	0.09827	285	242.3	707.2	353.6	235.7	141.4	70.7	47.1	35.4	28.3			
#00	62	133100	125100	0.07793	330	280.5	891.4	445.7	297.1	178.3	89.1	59.4	44.6	35.7			
#000	81	167800	158600	0.0618	385	327.3	1123.8	561.9	374.6	224.8	112.4	74.9	56.2	45.0			
#0000	103	211600	205500	0.04901	445	378	1417.6	708.8	472.5	283.5	141.8	94.5	70.9	56.7			

NOTES: Total wire length include positive and negative wiring length to the device, Length x 2 for 24 volts, Ft. / 3.3 for meters

This chart assumes wire with 105°C insulation rating and no more than 2 conductors are bundled. Do not use smaller than #16 AWG wiring in a boat.

Determine the Main positive feed (red) and negative return (black or yellow) wire size by calculating the total amperage of the circuits that will be routed through the panel. Our panels are rated at 100 amp per bus total capacity, it is then recommended that the Main feed wires be sized for the full panel capacity.

For a 3% voltage drop at the 100 amp panel rating, for example, will require at least #2 AWG wire, assuming a 22 feet total wire run between the panel and the batteries in 12 volt systems. The length of the wiring is the total of the Positive wire from the power source and the negative wire back to the DC Negative source. Be sure to install a fuse or circuit breaker of the correct size protecting the positive feed wire close to the battery. Refer to the Wire Sizing Chart for other situations. **You should install High-AMP devices like winlass or power inverter on separate circuits with breaker or fuse protection close to the batteries. DO NOT CONNECT ON THE MAIN SWITCH OR BATTERIES YET.**

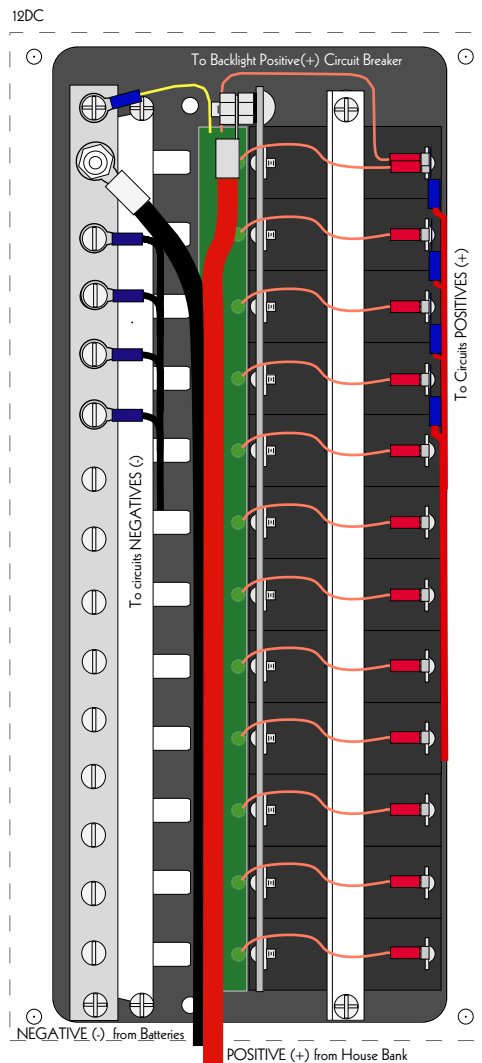
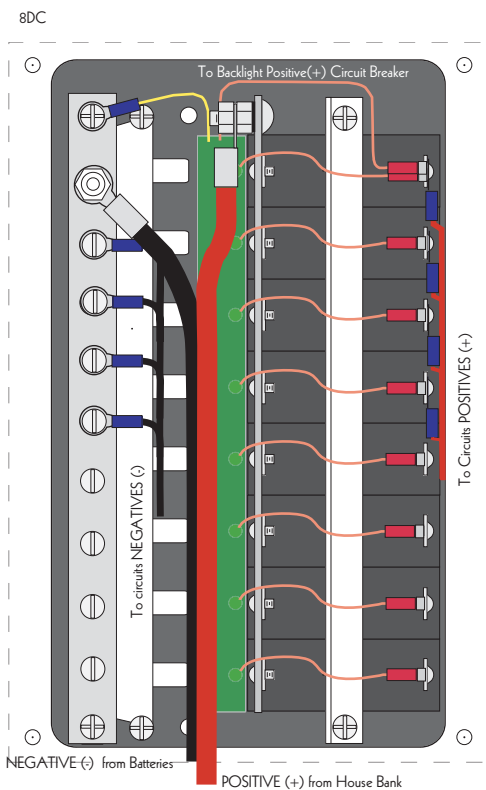
5- Install branch circuit wires

You can use the previous wire chart for each individual circuit wiring size and length. Connect the positive (red) branch circuit wires to the load terminals (right) of each circuit breaker. Connect each negative (black) branch circuit wire to the DC Negative Bus. Do not use wiring smaller than #18 AWG.

6- Install MAIN wiring; Connect Negative (-) to your DC panel, tighten NUTS for good contact. Connect the Main Positive(+) to the panel on the main Bus Bar sitting on the Breakers. Fasten the panel to the mounting surface using the panel mounting screws supplied with the panel. Do not tighten panel screws too much.

7- You can proceed installation in Battery compartment. The Negative connected to the main House Bank. The positive is connected to the main switch or main Breaker.

**BE CAREFULL TO PREVENT SHORT-CIRCUIT WITH MAIN WIRING, CONNECT THE MAIN POSITIVE LAST WHEN YOU ARE SURE YOU DID CONNECT EVERYTHING THE RIGHT WAY.**



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