



La MARCHE®

INVERTER DIGITAL DISPLAY

OPTION 22D

USED with Static Switch Options:

22P (Inverter Prime) and 22S (Inverter Standby)

ECN/DATE

CPN108859

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ISSUE DATE: 16282-12/03

INSTRUCTION DRAWING NUMBER:

P25-**LOPT22D-1**

DESCRIPTION:

This 1MS Electronic Static Switch has a selectable digital display for:

- Load Voltage
- Load Current
- Utility Voltage
- Inverter Voltage
- Volt-Amps (VA)
- Inverter Frequency

LED'S (STANDARD):

PHASE LOCK	LED1	This LED is ON when the inverter and utility signals are within the phase window
AUTO RE-TRANSFER MODE	LED2	This LED is ON when the unit is to automatically transfer back to the preferred source when it becomes available
MANUAL TRANSFER MODE	LED3	This LED in ON when the unit is be manually transferred (by the operator) back to the preferred source
ON PREFERRED SOURCE	LED5	This LED in ON when the unit is operating on the preferred source
ON ALTERNATE SOURCE	LED6	This LED is ON when the unit is operating from the alternate source
UTILITY AVAILABLE	LED7	This LED in ON when the utility source is deemed available. This LED will also flash ON and OFF when the Inverter frequency is not within preset limits (47 to 53Hz or 57 to 63Hz)
INVERTER AVAILABLE	LED8	This LED in ON when the inverter source is deemed available. This LED will also flash ON and OFF when the Inverter frequency is not within preset limits (47 to 53Hz or 57 to 63Hz)
LOAD VOLTAGE	LED11	This LED in On when the operator has selected to view the load voltage on the display. It is also ON when the VA reading is displayed.
LOAD CURRENT	LED9	This LED is ON when the operator has selected to view the load current on the display. It is also ON when the VA reading is displayed.
UTILITY VOLTAGE	LED10	This LED is ON when the operator has selected to view the utility voltage on the display. It is also ON when the utility frequency is displayed.
INVERTER VOLTAGE	LED12	This LED is ON when the operator has selected to view the inverter voltage on the display. It is also ON when the inverter frequency is displayed.

SWITCHES:

Auto/Manual Test Transfer – Allows for a automatic or manual load transfer
 Select/Calibrate – Same as above.

CUSTOMER CALIBRATION MODES:

Two calibration modes exist, one for the customer settings and another for factory settings. The customer cal model may be entered by holding the select switch in the up position for five (5) continuous seconds. Upon entry the display will show "CAL". The calibration modes work such that the software will execute each calibration task in a predefined sequence advancing to the next calibration setting only when the operator toggles the transfer mode switch.

It is important to note that transfers are disabled in the cal modes. Thus operators should be made aware of this. The settings contained in each of the cal modes are listed below in the sequence they appear in the cal mode.

CUSTOMER CAL MODE / Description	
<p>1 – PREFERRED SOURCE – The preferred source may be set to either Utility or Inverter. The display will alternate between "-PS-" and the preferred source selection which will be either "UtIL" for utility or "In" for inverter. The preferred source is selected by the select switch. Up will select Utility, down will select Inverter.</p>	<p>6 – INVERTER VOLTAGE UPPER LIMIT – The maximum allowable/acceptable limit on the Inverter Voltage defaults to the Output Voltage setting plus 10%. Thus a unit with an output voltage of 120 volts will have a default setting of approximately 132 volts. There are no limits on max and min settings for this. The display units are in volts-rms. Due to display resolution the ability to adjust this setting to an exact voltage may not be possible. Units with higher output voltages will have less accurate adjustments than those units with lower output voltages. The display will alternate between "-ILH" and the upper limit setting. The setting is adjustable via the select switch. Up to increase, down to decrease.</p>
<p>2 – LOAD VOLTAGE WINDOW UPPER LIMIT – The upper allowable limit for the Load Voltage signal may be set in terms of percent. The maximum allowable upper setting is +30% and the minimum allowable upper setting is +10%. The default is +20%. The setting is adjustable in 1% increments. The display will alternate between "LVH" and the actual upper limit setting. The setting is adjustable via the select switch. Up to increase, down to decrease.</p>	<p>7 – INVERTER VOLTAGE LOWER LIMIT - The minimum allowable/acceptable limit on the Inverter Voltage defaults to the Output Voltage setting minus 10%. Thus a unit with an output voltage of 120 volts will have a default setting of approximately 108 volts. There are no limits on max and min settings for this. The display units are in volts-rms. Due to display resolution the ability to adjust this setting to an exact voltage may not be possible. Units with higher output voltages will have less accurate adjustments than those units with lower output voltages. The display will alternate between "-ILL" and the upper limit setting. The setting is adjustable via the select switch. Up to increase, down to decrease.</p>
<p>3 – LOAD VOLTAGE WINDOW LOWER LIMIT - The lower allowable limit for the Load Voltage signal may be set in terms of percent. The maximum allowable lower setting is -30% and the minimum allowable lower setting is -10%. The default is -20%. The setting is adjustable in 1% increments. The display will alternate between "LVL"</p>	<p>8 – INVERTER SENSE DELAY – This setting is used to set the amount of time the Inverter Voltage must be within the upper and lower limits described above for the logic to consider the Invert Voltage to be within tolerance. The units of this setting are in seconds and may be adjustable from 0 to 10 in 1 second increments with 10 being the default. The</p>

<p>and the actual lower limit setting. The setting is adjustable via the select switch. Up to increase, down to decrease.</p>	<p>display will alternate between “-Id-” and the time delay setting. The setting is adjustable via the select switch. Up to increase, down to decrease.</p>
<p>4 – UTILITY VOLTAGE UPPER LIMIT – The maximum allowable/acceptable limit on the Utility Voltage defaults to the Output Voltage setting plus 10%. Thus a unit with an output voltage of 120 volts will have a default setting of approximately 132 volts. There are no limits on max or min settings for this. The display units are in volts-rms. Due to display resolution the ability to adjust this setting to an exact voltage may not be possible. Units with higher output voltages will have less accurate adjustments than those units with lower output voltages. The display will alternate between – “-ULH” and the upper limit setting. The setting is adjustable via the select switch. Up to increase down to decrease.</p>	<p>9 – UTILITY SENCE DELAY - This setting is used to set the amount of time the Utility Voltage must be within the upper and lower limits described above. The units of this setting are in seconds and may be adjustable from 0 to 10 in 1 second increments with 10 being the default. The display will alternate between “-Ud-” and the time delay setting. The setting is adjustable via the select switch. Up to increase, down to decrease.</p>
<p>5 – UTILITY VOLTAGE LOWER LIMIT – The minimum allowable/acceptable limit on the Utility Voltage defaults to the Output Voltage setting minus 10%. Thus a unit with an output voltage of 120 volts will have a default setting of approximately 108 volts. There are no limits on max or min settings for this. The display units are in volts-rms. Due to display resolution the ability to adjust this setting to an exact voltage may not be possible. Units with higher output voltages will have less accurate adjustments than those units with lower output voltages. The display will alternate between – “-ULL” and the lower limit setting. The setting is adjustable via the select switch. Up to increase, down to decrease.</p>	<p>10 – RE- TRANSFER DELAY – This setting is used to set the time the unit will attempt to retransfer from the alternate source back to the primary source. The unit must be in “auto” transfer mode for this setting to have any effect. The units of this setting are in seconds and may be adjustable from 0 to 20 in 1 second increments with 20 being the default. The display will alternate between “-rd-” and the time delay setting. The setting is adjustable via the select switch. Up to increase, down to decrease.</p>
	<p>11 – HIT COUNTER – This setting is used to determine the maximum allowable load voltage deviations outside of the predefined envelope that will trigger a transfer. The hit counter may be adjusted from 1 to 16 with 3 being the default setting. The units of this setting are in degrees. The display will alternate between “-HC-” and the hit count setting. The setting is adjustable via the select switch. Up to increase, down to decrease.</p>

OPERATION:

Once the unit is powered up, the load voltage LED will light and the digital display will indicate the load voltage. Toggle the Select/Cal switch down and the load current LED will light and the display will indicate load current. The remaining LED’s will light and the digital display will indicate when you toggle the select switch.