

# Automatic Transfer Switch Option Multifunction Metering

## Introduction

This option provides a multifunction meter (MFM) on the load output that may be setup to monitor single or three phase systems and may be ordered on Automatic or Manual Transfer Switches. For three phase transfer switches, the unit can be setup to monitor delta or wye, 3-wire or 4-wire, systems.

The unit measures the following:

1. Phase Voltage (V)
2. Phase to Neutral Voltage (V)
3. Phase Current (I)
4. Frequency (Hz)
5. Active Power (W)
6. Active Energy (kWh)
7. Reactive Power (VAR)
8. Apparent Power (VA)
9. Reactive Energy (VARh)
10. Power Factor (PF)
11. Instantaneous Amp Demand
12. Instantaneous Watt Demand
13. Instantaneous VA Demand
14. Maximum Amp Demand
15. Maximum Watt Demand
16. Maximum VA Demand

Standard RS-485 MODBUS communications are included with the MFM option. Ethernet 10/100 base connectivity available upon request. If other communication types are required, a conversion module may be used convert the RS-485 to the appropriate protocol. Please consult the factory for the appropriate converter.

## Product Features

- UL 1008 Listed
- Complete 1 $\phi$  or 3 $\phi$  Digital Metering System
- Continuous display of kWh or kVA.h
- THD option for Current and Voltage
- Front Access Keypad for MFM Controls
- RS-485 MODBUS Communication, Standard
- RS-485 Daisy Chain Capable with up to 32 Other Devices
- Programmable, Non-volatile Memory which retains:
  - CT Current Ratios
  - Demand Time Periods
  - Calibration Data in Power Down (Power Loss) Conditions
- Auxiliary Power Input will be One of the Following
  - 120Vac
  - 12Vdc
  - 24Vdc

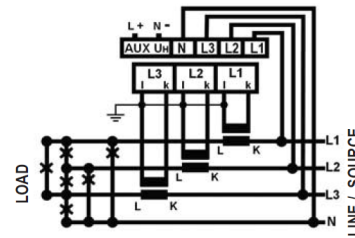
## Operation Instructions

Currently, Lake Shore Electric utilizes the PC&S Power Monitor, mfg. part# M850-LCD, on transfer switches which this option has been ordered. Reference the user guide for operating this meter. This is subject to change without notice so be sure to consult the factory when ordering new equipment. If there are any technical questions for a multifunction meter provided with a Lake Shore Electric ATS, please give technical support a call.

Figure 1 shows the current wiring capabilities of the PC&S meter, mfg. part# M850-LCD.

## Wiring Connections

k / K = X1 or H1 (Depending on CTs) = faces Source  
l / L = X2 or H2 (Depending on CTs) = Grounded



	Voltage			Current		
	L1	L2	L3	L1	L2	L3
1ph	✓	✓	✓	✓	✓	✓
1ph 3W	✓	✓	✓	✓	✓	✓
3ph 3W	✓	✓	✓	✓	✓	✓
3ph 4W	✓	✓	✓	✓	✓	✓
3ph 3W BAL	✓	✓	✓	✓	✓	✓
3ph 4W BAL	✓	✓	✓	✓	✓	✓

Unused Voltage terminals are internally connected  
Secondary of CTs must be connected to earth

Figure 1

## Order Guide

### Part Number Examples:

1. ICFA32000BPSB/MFM - Insulated Case ATS, 3 pole, 2000 Amp, 120/208Vac, **24Vdc Microprocessor Controls**, 65kAIC @ 480Vac, NEMA 1 Free Standing Enclosure with Option LDI.
2. MCDA30400CESA/25 - Molded Case ATS, 3 pole, 400 Amp, 277/480Vac, **Electromechanical Controls**, 35kAIC @ 480Vac, NEMA 1 Wall Mount Enclosure with Option 25.
3. MCDM30400CESA/25 - Molded Case MTS, 3 pole, 400 Amp, 277/480Vac, **Manual Transfer Switch**, 35kAIC @ 480Vac, NEMA 1 Wall Mount Enclosure with Option 25.

## Product Specifications

PC&S MULTIFUNCTION METER, M850-LCD	
<b>DISPLAY</b>	
Type	LCD
Screen Size	Blue, Green, White (User-Selectable)
Energy	1 line 99999999
Digit Size	6mm, 7 segment
Brightness	8 user-selectable levels
<b>COMMUNICATIONS</b>	
RS485	MODBUS Protocol
Pulsed Output	W.h, VAr.h
<b>ENVIRONMENTAL</b>	
Working Temperature	-20°C to +70°C [-4°F to 158°F]
Storage Temperature	-30°C to +80°C [-22°F to 176°F]
Relative Humidity	0 to 95% RH, no condensation
Shock	30G in 2 planes
<b>APPROVAL</b>	
UL	File No. E337752-1