

## **ASCO 4000 Series Microprocessor Controller**

The 4000 Series Microprocessor Based Controller is used with all sizes of Automatic Transfer Switches from 30 through 4000 amperes. It represents the most advanced digital based microprocessor control panel in the industry and includes, as standard, all of the voltage, frequency, control, timing and diagnostic functions required for most emergency and standby power applications.

Because of severe voltage transients frequently encountered with industrial distribution systems, the microprocessor logic board is separated and isolated from the power board. This improves electrical noise immunity performance and helps assure compliance with the following rigorous transient suppression standards:

- Emission Standard - Group 1, Class A (EN 55011:1991)
- Generic Immunity Standard, for which: (EN 50082-2:1995)
- Electrostatic Discharge (ESD) Immunity (EN 61000-4-2:1995)
- Radiated Electromagnetic Field Immunity (ENV 50140:1993)
- Electrical Fast Transient (EFT) Immunity (EN 61000-4-4:1995)
- Surge Transient Immunity (EN 61000-4-5:1995)
- Conducted Radio-Frequency Field Immunity (EN 61000-4-6:1996)
- Voltage Dips, Interruptions and Variations Immunity (EN 61000-4-11:1994)

### **Features**

- Digital microprocessor.
- Touch pad programming of features and settings without the need for meters or variable power supplies.
- Sixteen (16) selectable operating voltages available in a single Controller.
- Onboard diagnostics provide control panel and ATS status information to analyze system performance.
- Displays and counts down active timing functions.
- Selectable multi-language display (English, German, Spanish, French. For others contact ASCO).
- Password protection to prevent unauthorized tampering of settings.
- Remote monitoring and control with ASCO PowerQuest (r) VPi and SiteWeb<sup>TM</sup> communications products. Specify optional accessory 72A (RS-485 serial) or 72 (10BaseT Ethernet).
- Load shed option for SYNCHROPOWER(r) bus optimization applications. Specify optional accessory 30B.
- Lamp Test – Provides a convenient way to verify functionality of all the LED's on the user interface.

### **Voltage and Frequency Sensing**

- 3-Phase under and over voltage settings on normal and emergency sources.
- Under and over frequency settings on normal and emergency.
- True RMS Voltage Sensing with +/- 1% accuracy; Frequency Sensing Accuracy is +/- 0.2%.
- Selectable settings: single or three phase voltage sensing on normal and emergency; 50 or 60Hz.
- Phase sequence sensing for phase sensitive loads.
- Voltage unbalance detection between phases.

## Status and Control Features

- Output contacts for engine-start signals.
- Selection between commit/no-commit on transfer to emergency after engine start and normal restores before transfer.
- Terminals for remote test or customer contact for peak shaving applications
- Advanced inphase algorithm which automatically measures the frequency difference between the two sources and initiates transfer at appropriate phase angles to minimize disturbances from transferring motor loads.
- Event log displays 99 logged events with the time and date of the event, event type and event reason.
- Statistical ATS/System monitoring data screens which provide:
  - Total number of ATS transfers.
  - Number of ATS transfers caused by power source failure.
  - Total number of days ATS has been in operation.
  - Total number of hours that the normal and emergency sources have been available.
- Provisions for optional ASCO accessory 18Z which includes one Form C contact (Rated 2A @ 30VDC or .5A@ 125VAC) for each of the following:
  - Normal Source Acceptability.
  - Emergency Source Acceptability.
  - Selective Load Disconnect.
  - Fourth contact can be set to mimic the acceptability contacts described above or annunciate any combination of the acceptability contacts and/or any switch alarm conditions available depending on the type of switch:
    - Extended Parallel Time (Closed Transition Switches only)
    - Failure to Synchronize (Closed Transition Switches only)
    - Transfer Switch Locked Out (Closed Transition Switches only)
    - Load Disconnected (Delayed Transition Switches only)
  - Accessory 18Z includes an extension of the engine start time delay (feature) to 60 seconds if an external 24VDC supply is connected to a 4000 series controller. This external power source will also allow the LCD display to be active when both normal and emergency sources are unavailable.

## Time Delays

- Engine start time delay – delays engine starting signal to override momentary normal source outages - adjustable 0 to 6 seconds
- Transfer to emergency time delay - adjustable 0 to 60 minutes.
- Emergency source failure time delay to ignore momentary transients during initial generator set loading - adjustable 0 to 6 seconds.
- Retransfer to normal time delay with two settings:
  - Power failure mode - 0 to 60 minutes.
  - Test mode - 0 to 60 minutes.
- Unloaded running time delay for engine cooldown - adjustable 0 to 60 minutes.
- Fully programmable engine exerciser with (7) seven independent routines to exercise the engine generator, with or without loads, on a daily, weekly, biweekly or monthly basis.
- Pre and Post transfer signal time delay for selective load disconnect with a programmable bypass on source failure – adjustable 0 to 5 minutes. Specify optional accessory 18Z.
- Contains all alarm signals, logic and time delays for use with closed transition switches (Closed Transition Switches only).
  - Insynch time delay - 0 to 3 seconds.
  - Failure to synchronize - 1 to 5 minutes.
  - Extended parallel - 0.1 to 1.0 seconds.
  - Transfer switch locked out

- Delayed transition load disconnect time delay - adjustable 0 to 5 minutes (Delayed Transition Switches only).