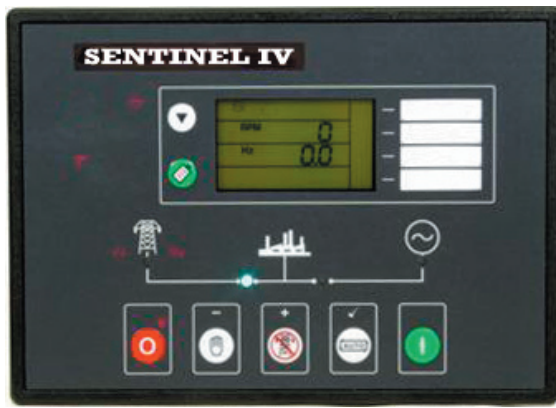


SENTRY-PRO SENTINEL IV by GILLETTE GENERATORS



SENTINEL IV is an optional Automatic Mains Failure Control Module. The module is used to monitor a mains supply and automatically start and stop the engine. It indicates the operational status and fault conditions, automatically shutting down the engine and indicating engine failure by means of an LCD display, and appropriate flashing LED on the front panel. Selected timers and alarms can be altered by the customer from the front panel. Alterations to the system are made using the 810 interface and a PC. This interface also provides real time diagnostic facilities.

It is also possible to monitor the operation of the system either locally or remotely. (Optional :Remote Communications output versions only).

SENTINEL IV FEATURES AND SPECIFICATIONS

► **Easy push button control:** Operation of the module is via push button controls (with security locking facility) mounted on the front panel with STOP/RESET, AUTO, MANUAL and START push button. The first three push buttons feature LED 'selected' indications. Further push buttons provide LCD DISPLAY SCROLL and EVENT LOG VIEW functions.

► **Microprocessor control:** The controller features 16-Bit microprocessor control and a comprehensive list of timers and pre-configured sequences. This allows demanding specifications to be achieved. Configurable expansion facilities are also provided.

► **Metering:** The controller provides metering via the LCD display with the following instrumentation displays, accessed via the LCD DISPLAY SCROLL push-buttons: Generator Volts L1-N, L2-N, L3-N • Generator Volts L1-L2, L2-L3, L3-L1 • Generator Amps L1,L2,L3 • Generator Frequency Hz • Engine Speed RPM • Engine Oil Pressure • Fuel Level % • Engine Temperature • Plant battery Volts • Engine Hours Run • Generator kVA • Generator kW • Generator Cosθ • Utility Mains Volts L1-N, L2-N, L3-N • Utility Mains Volts L1-L2, L2-L3, L3-L1 • Utility Mains Frequency Hz

► **Event Log:** The instrumentation displays are supplemented further by EVENT LOG VIEW, which shows the last 15 shutdown events along with date and time of shutdown.

► **LED indication :** 'Hid-'til-lit' icons are used to show the presence of alarm conditions detected by the module. In addition 4 uncommitted LCD segments allow the user to configure the module to provide other status indications from either internal states or from external digital inputs.

► **Digital Inputs:** The controller accepts the following digital inputs: Emergency Stop Input - A N/C DC positive input • Fully configurable warning or shutdown inputs • With the exception of the Emergency Stop Input, these are configurable to be either N/C or N/O contacts connected to the -Ve DC. The 6 fully configurable auxiliary inputs can be selected to be indication, warning or shutdown inputs either immediate or held off during start up to allow for use as protection expansion inputs. Alternatively they may be configured to control extra functions such as Lamp Test or Remote Start input, and many others - refer to appropriate manuals for details.

► **Analog inputs:** Provided for Oil Pressure, Engine Temperature and Fuel Level. These connect to conventional engine mounted resistive sender units (such as VDO or Datcon Type) to provide accurate monitoring and protection facilities. Alternatively they can be configured to interface with digital switch type inputs for Low Oil Pressure and High Engine Temperature shutdowns. Fuel level gauge provides a low fuel level alarm, and transfer pump control logic.

► **Relay outputs :** Provided for Fuel Solenoid Output, Start Output and three configurable outputs. The configurable relay functions can be selected from a range of different functions, conditions or alarms. The relays supply positive plant supply out. Additional output relays can be added by means of a 157 Relay Expansion Module. A total of 11 outputs are available with full expansion of the 5220 Module. This allows the module system to be incorporated into existing telemetry or Building Management Schemes via Volt-free contacts. Refer to appropriate manuals for details.

► **Multiple alarm channels:** Provided to monitor the following: Under/Over Generator Volts • Over-current • Under/Over Generator Frequency • Under/Overspeed • Charge Fail • Emergency Stop • Low oil pressure • High engine temperature • Fail to Stop • Fail to Start • Low/High DC Battery Volts • Low Fuel Alarm • Loss of speed sensing signal • Utility Mains out of limits • Utility Mains Under Volts • Utility Mains Over Volts • Utility Mains Under Frequency • Utility Mains Over Frequency.

RATING SPECIFICATIONS:

DC Supply: 8 to 35 V Continuous.

Cranking Dropouts: Able to survive 0 V for 50 ms, providing supply was at least 10 V before dropout and supply recovers to 5V. *This is achieved without the need for internal batteries.*

Max. Operating Current: 425mA at 12 V & 215mA at 24 V.

Max. Standby Current: 250 mA at 12 V & 125 mA at 24 V.

Alternator Input Range: 75V(ph-N) to 277V(ph-N) AC (+20%)

Alternator Input Frequency: 50 - 60 Hz at rated engine speed (Minimum: 15V AC Ph-N)

Magnetic Pick-up Voltage Input Range: +/- 0.5 V to 70 V Peak

Magnetic Input Frequency: 10,000 Hz (max)

Start Relay Output: 16 Amp DC at supply voltage.

Fuel Relay Output: 16 Amp DC at supply voltage.

Auxiliary Relay Outputs: 5 Amp DC at supply voltage.

Charge Fail / Excitation Range: 0 V to 35 V

Operating Temperature Range: -30 to +70°C

Utility Mains Sensing Input Range: 15V(ph-N) to 277V(ph-N) AC (+20%)

Utility Mains Sensing Input Frequency: 50 - 60 Hz

Generator loading Relay Output: 8 Amp AC 250V.

Mains loading Relay Output: 8 Amp AC 250V

SENTINEL IV FEATURES AND SPECIFICATIONS CONTINUED

TIMERS AND INPUT FUNCTIONS: Start delay timer • Stop delay timer • Crank/Crank rest timers • Engage attempt and manual crank limit timers • Safety on delay timer • Warm-up timer • Cooling timer • Energize to stop hold timer • Pre-heat timer / Pre-heat bypass timer • Smoke limiting control timers • Fail to stop timer • Over-speed overshoot timer • Breaker pulse control timers • DC Battery alarm delay timers.

BUILT-IN FUNCTIONS: Generator Under/Over Volts Warning/Shutdown • Generator Under/Over Freq. Warning/Shutdown • Under/Over Speed Warning/Shutdown • Low Oil Pressure Warning/Shutdown • High Engine Temp Warning/Shutdown • High/Low Battery Volts Warning • Over-current Warning/Electrical Trip/Shutdown • Adjustable crank cycle/attempts • External remote start input (On load/Off load) • Built in Exercise Scheduler • Magnetic Pick-up or Generator speed monitoring • Event Logging of Shutdown Alarms • Full Remote Control and Telemetry (*Option*) • Graphic Icon based LCD Display for true Multi-lingual use • 6 Digital inputs - Fully user configurable • 3 Configurable relay outputs • LCD Back-lighting for low light level operation • System lock input • SMS messaging capability with suitable GSM Modem • Front panel configuration of timers and alarm trip points.

TELEMETRY: The 52xx Series PC software is MS-Windows™ based and allows the operator to control the module from a remote location. The remote operator can also view the Instrumentation, Alarm and Event Log details, and the Relay and Input status. **Optional features:** The controller can provide the user with full telemetry facilities via the optional communications software. The module can be either connected to the PC using the 810 interface or via a suitable modem. *Remote Communications output version only - RS232 or RS485 available.*

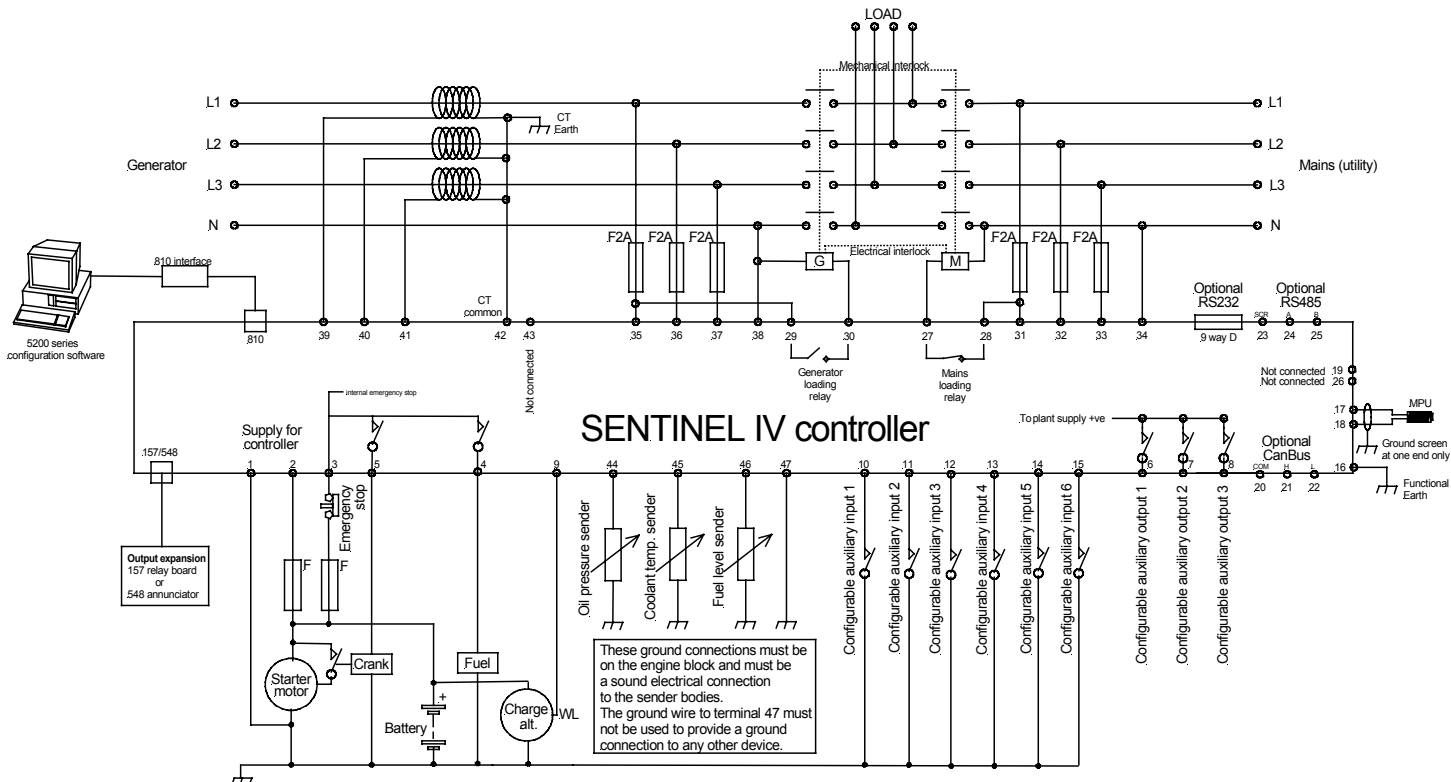
In the event of the module detecting an alarm condition, it will initiate a modem dial-out to the host PC informing the remote operator of the problem, giving identification of the module followed by alarm event and time and date of the occurrence.
Remote Communications output version only.

EVENT CAPTURE: To assist in fault-finding etc., the standard module features an Event Capture facility. This records the last 15 shutdown alarms, allowing the operator to view the recent operating history of the module.

CONFIGURATION: PC based configuration software allows for fast, simple and secure configuration of module parameters. Using the P810 interface to provide a safe isolated link to the PC, changes can easily be made to the system by authorized personnel. Complex configurations can be saved and loaded from disk or output to a printer for reference. Diagnostic facilities allow for fault finding and monitoring during test and installation. Alternatively, selected alarm trip points and timers can be adjusted from the front panel buttons.

ENVIRONMENTAL TESTING STANDARDS: **Electromagnetic Compatibility:** BS EN 50081-2 EMC Emission Standard for the Industrial Environment - BS EN 50082-2 EMC Immunity Standard for the Industrial Environment - **Vibration:** BS EN 60068-2-6 Ten sweeps (up and back down) at 1 octave/minute in each of the three major axes. 5Hz to 8 Hz @ +/-7.5mm constant displacement. 8Hz to 500 Hz @ 2gn constant acceleration **Temperature:** Cold:BS EN 60068-2-1 to -30°C Hot:BS EN 60068-2-2 to 70° C **Humidity:** BS EN 2011 part 2.1 93% RH @ 40° for 48 hours **Shock:** BS EN 60068-2-27 Three half sine shocks in each of the three major axes 15gn amplitude. 11mS duration. **Electrical Safety:** BS EN 60950 Low Voltage Directive/Safety of information technology equipment, including electrical business equipment.

TYPICAL WIRING DIAGRAM FOR SENTINEL IV CONTROLLER



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