

GUARDIAN SCC-50

Internet Protocol Screw Compressor Controller

Guardian SCC-50 Screw Compressor Controllers provide automatic startup and capacity slide control for a single screw compressor.

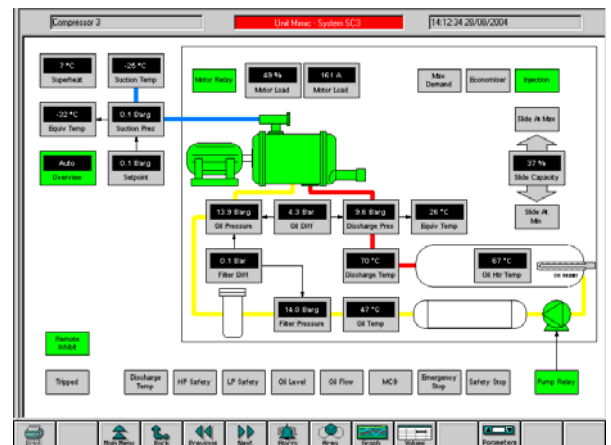
The control setpoint may be chosen from any of suction pressure, discharge pressure or process temperature. Menu settings are available for control of pumps, heaters, economizer, liquid injection, Auto Vi slide and two-stage screws.

Control strategy, setpoints, timers, alarm and trip settings may be changed locally at the panel or remotely from the RS485 Supervisory Alarm Monitor System PC or the TCP/IP network.

Optional Internet Protocol (IP) facilities include SNMP for event management and web page displays as well as standard RS485 MODBUS supervisory alarm monitor communications.



- Suction pressure, discharge pressure or process temperature control.
- Automatic control of motor, slide, pump, economizer and oil heater.
- Stepper motor control of Auto Variable Vi slide.
- Two stage screw slide control.
- Alarm and trip monitoring of all variables and trip states.
- Simultaneous SNMP & RS485 MODBUS protocols.
- Fault input displays for all compressor safety inputs.
- Variable speed Compressor Motor & condenser control.
- MotorAmps alarms, display and automatic slide unload.
- Multi-compressor operation on same suction line.
- Simple button operation of easily read LED display panel.
- Optional Chinese /Russian display panels available.



GUARDIAN controls utilize the latest microprocessor technology to protect your machines, your product quality, your environment and your money



Guardian Products incorporate the experience accumulated internationally during two decades of automatic control of compressors and industrial refrigeration.

Rugged, reliable, accurate, cost-effective products, provide flexible system configurations and facilities for Refrigeration Control and Monitoring.

GUARDIAN SCC50 Hardware	GUARDIAN SCC50 Software
<p>Enclosure Rating IP65 Dimensions:- w 600 x h 380 x d 200 mm Power 230/110vac @ 50/60HZ 30VA Operation 0-55 °C Manufacturing to ISO 9002, CE</p>	<p>ALARM , TRIP, Shutdown Indication & Diagnostics Whenever a high or low alarm or trip level is exceeded or a safety shutdown trip occurs then flashing indications and messages are displayed on the control panel for easy fault diagnosis. ALL trips shutdown the compressor and flash the red TRIPPED lamp. Contacts are available for flashing a remote alarm beacon or activating a remote dialout unit All open circuit or short circuit pressure transducer or temperature probe inputs generate the appropriate diagnostic indications.</p>
<p>Microprocessor Well proven, rugged Intel 8051 microprocessor for all control functions with watchdog and power fail detection and recovery facilities.</p>	<p>Compressor Control User selectable compressor sequencing and controls are provided for oil pump, motor, economizer, capacity slide, liquid injection, Auto VI slide, oil heater, bypass valve and condenser fans. Two-stage screws control the loading on the additional high side slide.</p>
<p>Operator display panel Easily understood operator control & display panel with simple push button operation and large LED displays of values and states The panel emulates conventional compressor meter displays and panel pushbutton operation. Panels are available with text in Chinese or English. Compressor status and values can be readily viewed from a distance of 5m.</p>	<p>Compressor Mode The compressor control mode can be operator selected for OFF, Manual, Local Automatic or Remote Automatic (pack system) control. All safety trips and alarms always apply except when in OFF mode.</p>
<p>Two serial communication ports Both ports use RS485 Modbus protocol One port is for external PC alarm monitoring The second port provides inter-compressor communication for common suction or chiller temperature control.</p>	<p>Dual setpoint control selection. Switch input selection of high or low control setpoints for suction and discharge pressure or process temperature is available. This facility allows dual temperature usage of coldstores and energy saving on the condenser pressure when not in evaporator hotgas defrost mode.</p>
<p>Internet Protocol Option The optional IPM3 module provides TCP/IP, HTML, SNMP interfaces for LAN and internet communications with alarm emails and webpage.</p>	<p>Safety Backoff controls Excessive motor loads or discharge pressures initiate automatic unloading of the compressor slide. The maximum demand input is available for unloading the compressor slide to reduce site power whenever required..</p>
<p>Circuit breaker protection for mains power The enclosure contains separate circuit breakers for controller power and compressor power. These MCBs trip under adverse site power conditions or can be used to isolate the compressor control power during commissioning.</p>	<p>Multiple compressor control Automatic control of up to eight SCC50 compressors on the same refrigeration system is available in 'Remote' mode by using communication controls on the interconnecting RS485 highway. Each compressor can be selected for Even-Runhours, Lead, Lag, or Standby control. If the master compressor is tripped or reaches minimum load and stops or becomes fully loaded, then the most appropriate compressor becomes master and automatically starts and then regulates its capacity. This fail-safe system configuration ensures that failure of any one compressor always allows correct operation of the remainder. Compressors can be selected to load share when in remote mode.</p>
<p>Flexible analog inputs Analog inputs for temperatures ,pressures, slide and motor current are automatically configured dependent on model and control method selection Control Models available cater for Standard , Auto VI or 2-stage screws. Control Types selections are available for suction or discharge pressure, chiller temperature and condenser control. Automatic range selection is available for a variety of pressure transducers.</p>	<p>Compressor Monitoring Analog inputs are provided for measurement of suction, discharge, intermediate, oil and filter pressures. Suction, discharge, intermediate, oil manifold, oil sump and chiller process temperatures. Motor current, capacity slide,Auto VI slide position & ratio. Calculated values include differential pressures, equivalent temperatures and compressor Runhours</p>
<p>Speed control Analog outputs Analog outputs are available for compressor motor and condenser speed control via inverters</p>	<p>Analog Signal Calibration Facilities are available for calibration of all analog signals and minor adjustment of slide position, pressure transducer and temperatures.</p>
<p>Extension I/O modules Extension modules are available for motor winding or plant temperature monitoring and remote pushbutton operation when required.</p>	<p>Test Facilities When selected in 'test' mode, facilities are available to toggle all analog and digital control outputs, VI slide stepper motor position and display all input states.</p>
<p>Comms and Diagnostic LEDs All digital inputs and outputs have on board LED state indicators for easy diagnostics. All communication ports have activity LEDs All power supply rails have LED 'healthy' indicators.</p>	<p>Optional Input /Output facilities Modules to provide additional temperature monitoring or remote pushbutton operation are easily added and configured. Condenser control of two fans is standard. Facilities for control of up to six condenser fan stages is available as an option. Cooling towers, process pumps or vessel control facilities are available as options when required.</p>
<p>EEPROM setpoint memory All setpoints, limits and model selections are stored in EEPROM memory. EEPROM memory storage is inherently secure and not subject to loss of information after a power fail. All setpoint modifications are secured by entry of a passcode. Only values in the permissible range can be saved.</p>	
<p>Module replacement and fusing The operator display panel and control PCB module containing all inputs and outputs are easily replaceable. All input output signals are connected to the PCB via two-part terminals or plug and sockets. All signals that are potentially susceptible to external shorts are fused and provided with 'healthy' LED indicators.</p>	
<p>Stepper motor control Auto VI control model is menu selectable and uses on-board stepper motor drive for external VI stepper motor control.</p>	
<p>Two-stage Screw Two-stage screw control model is menu selectable with all necessary on-board analog and digital inputs and outputs.</p>	