



DE SERIES

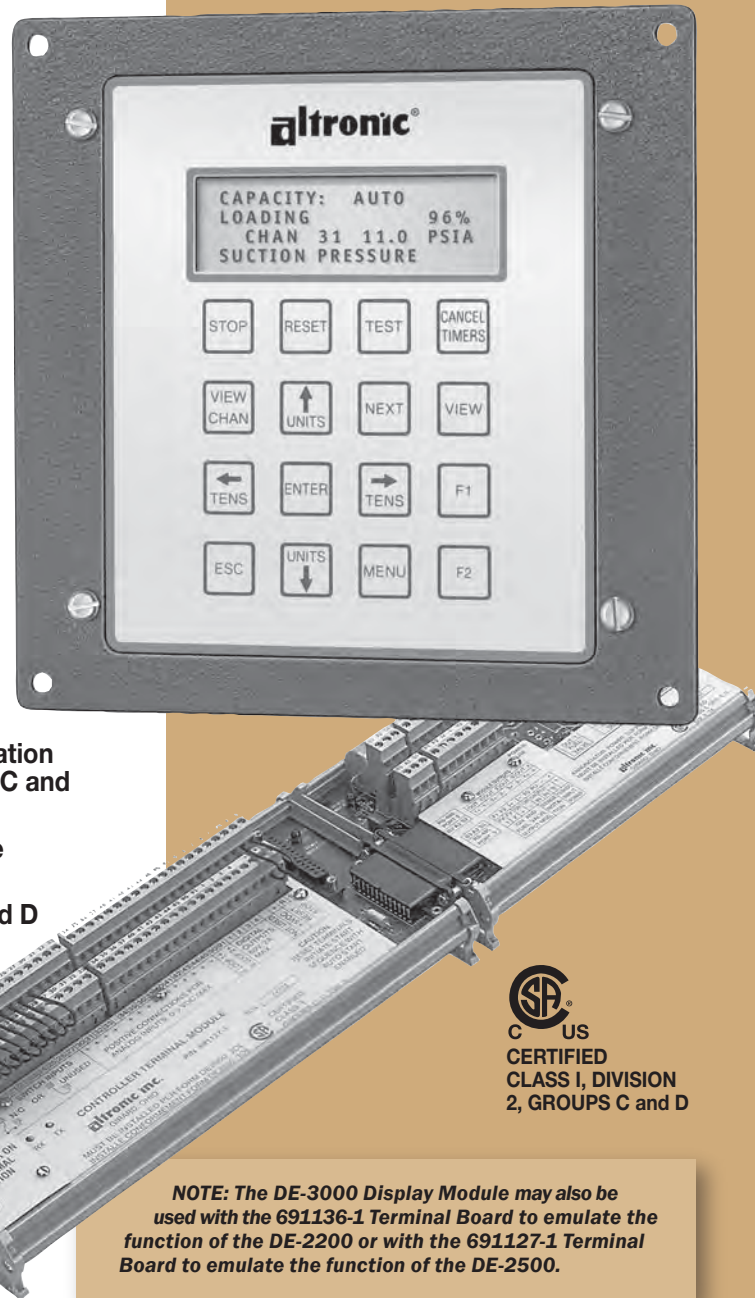
Programmable Safety Shutdown, Monitoring, Compressor Control and Communications System

- Accept both analog and discrete inputs.
- Continuously monitor safety switches and analog set-points for correct operation, initiate alarm or shutdown if required, and provide alphanumeric display of cause or fault.
- Alphanumeric displays and process screens show four values simultaneously in both digital and bar-graph format.
- Capable of remote communication of operating condition, speed, operating hours, and process parameters via satellite, radio, cellular or telephone.
- Internal data log of 100 time-spaced "snap shots" of monitored data.
- Easily configurable via included Windows™-based terminal programs.
- Plug-in memory allows transfer of configuration information to a spare unit if necessary, eliminating the need for a PC and skilled technician in the field.
- Designed for harsh environments and wide temperature ranges.
- CSA-certified for use in Class I, Division 2, Groups C and D hazardous areas.

Designed with state-of-the-art microcontroller technology, the DE Series protects, monitors, and controls critical rotating machinery such as engine or motor-driven compressors, pumps, and generators. DE-3000, the latest version of the series, can provide up to 62 inputs and 24 outputs. All DE devices directly accept both digital and analog inputs and continuously monitor those inputs for out-of-bounds operation or fault indication. Depending on configuration, when an upset condition is detected, the DE system can shut down the machine using a discrete output or by shorting the ignition system and/or tripping a fuel shut-off valve on a natural gas-fueled engine. DE-3000 and DE-2500 also incorporate a sophisticated closed-loop compressor capacity control capability as well as automatic start functionality.

DE systems are suitable for new or retrofit applications. System Power and Terminal Input Modules are typically DIN-rail mounted within the enclosure. The Display Module provides access via the on-board sealed membrane keypad. A large, 4X20 character display offers a digital indication of monitored values and a unique process screen showing a group of related values in a bar-graph format. Integral speed indication (with overspeed protection) and 11 individually adjustable service meters are resident in each DE system to ensure the timely indication of associated unit maintenance requirements.

Integral ModBus RTU and ASCII communications provide direct remote access to operating conditions, unit speed, operating hours, and other parameters via satellite, radio, cellular, or landline communications. Local setup requires the included Altronic DE Terminal Software Package. DE systems can be replaced in the field by simply removing the system memory module and installing it into a second device – eliminating the inconvenience and cost of reprogramming. Up to 100 time- and date-stamped datalogs are retained in memory, allowing for effective monitoring and troubleshooting.



NOTE: The DE-3000 Display Module may also be used with the 691136-1 Terminal Board to emulate the function of the DE-2200 or with the 691127-1 Terminal Board to emulate the function of the DE-2500.

TYPICAL DISPLAY SCREENS

STATUS	RUNNING
SPEED	1002 RPM
SUCTION	101.5 PSIA
DISCHARGE	300 PSIG

HOME
SCREEN

P _s	SUCTION	600 PSI
P _{i1}	INTSTG1	850 PSI
P _{i2}	INTSTG2	1100 PSI
P _d	DISCHRG	1200 PSI

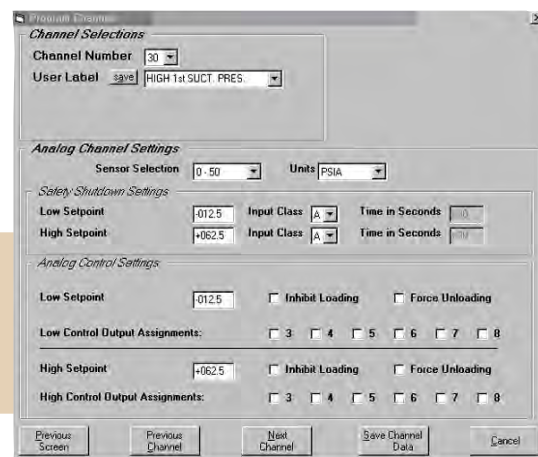
PROCESS
DIGITAL

SUCTION	L		H
DISCHRG	L		H
OIL TEMP	L		H
ENG MAN	L		H

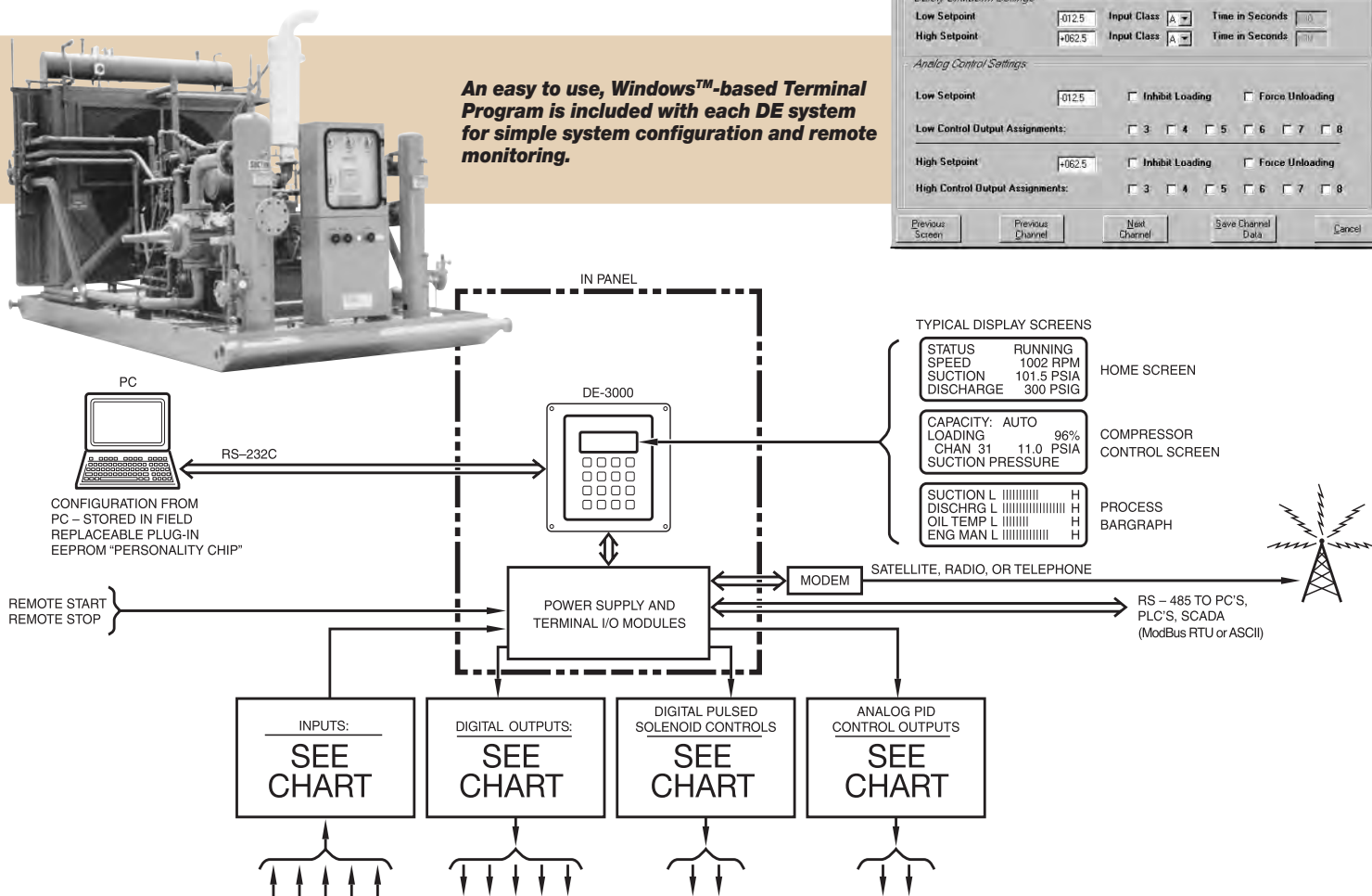
PROCESS
BAR GRAPH

DE-3000 Expanded Safety Shutdown, Monitoring, and Compressor Throughput Control System

- Expandable and scalable DE-3000 system is built-upon the field-proven DE-2500 for engine safety shutdown and control on both screw and high-spec reciprocating compressor applications.
- Each DE-3000 input is individually configurable for:
 - Sensor Type: Analog transducer input, thermocouple input (type J or K), digital (switch input)
 - Sensor Class: Class A, B, or C logic
 - Digital Input Sensor Run/Fault Status: N/O or N/C
- For applications requiring additional input or control functionality, two Terminal Input Boards can be used in the DE-3000 system. Refer to chart.



An easy to use, Windows™-based Terminal Program is included with each DE system for simple system configuration and remote monitoring.



	FIRST TERMINAL BOARD PART NO.	SECOND TERMINAL BOARD PART NO.	DISCRETE INPUTS	ANALOG INPUTS	FREQUENCY (SPEED) INPUTS	DIGITAL OUTPUTS	ANALOG P.I.D. OUTPUTS
Option 1 DE-2200	691136-1	—	16	14**	1	12	0
Option 2 DE-2500	691127-1	—	16	14**	1	12	2
Option 3 DE-3000	691171-1	—	30 configurable*		1	12	2
Option 4 DE-3000	691171-1	691175-2	45 configurable*		2	16	4
Option 5 DE-3000	691171-1	691171-2	60 configurable*		2	20	4

NOTE: All versions use DE-3000 Display Module.

* All inputs are configurable for discrete, analog or thermocouple input.

** 7 of 14 inputs can be configured for either analog or thermocouple input.

Summary of DE Series Features and Specifications

ITEM	DE-2200 SYSTEM	DE-2500 SYSTEM	DE-3000 SYSTEM
SHARED FEATURES	Safety shutdown Local/remote communication 100 record data log Alphanumeric and bar-graph displays		
SPECIAL FEATURES	Pre/post lube control 11-item service meter	Auto-start/Compressor Control Logic 11-item service meter	
DIGITAL INPUTS	16 switch contacts 1 remote stop (all are N.O. or N.C.)	16 switch contacts 1 remote start 1 remote stop	
DIGITAL OUTPUTS	4 solid state relays	4 solid state relays 6 digital switch (60V., 2A.) 2 pulsed switch (60V., 2A.)	
ANALOG INPUTS	7 0-5 Vdc 7 0-5 Vdc or J-K TC 1 frequency	7 0-5 Vdc 7 0-5 Vdc or J-K TC 1 frequency	
ANALOG OUTPUTS	None	2 4-20 mA PID loops	
SERIAL PORTS	1 RS-232 and 2 RS-485		
DISPLAY	4 line x 20 character alphanumeric, backlit		
SCAN RATE	15 per second (analog channels on DE-2000 - 6 per sec.)		
AMBIENT TEMP.	-31°F to +176°F / -35°C to +80°C		
POWER REQUIRED	12 to 24 Vdc, 15 watts maximum		
HAZARDOUS AREA	CSA Certified		
CERTIFICATION	Class 1, Division 2, Groups C and D		

DE Series Data Logging and Communications

The DE Series products are designed to operate in a communication environment. The serial communications interfaces provide the user access to critical data, both locally and from remote locations, allowing predictive scheduled maintenance and/or dispatch of repair personnel with the correct parts. DE units can also initiate a call-out in the event of a fault. ModBus and ASCII protocols are supported in both models.

At the core of the DE Series communications functions are the data logs (see table at right). These snapshots of data are taken at user-defined intervals, and are a compilation of the analog values being monitored by the DE, plus unit speed, status, and complete information on the first fault that caused a system shutdown (identity, value, date, time). Using the Terminal Program, data log information can be downloaded locally to a portable PC or communicated remotely via telephone, satellite or radio. Altronic's CompressorWatch.com system couples satellite or cellular technology with Web-based reporting, e-mail and paging to give users access to critical data no matter where they or the reporting equipment are located.

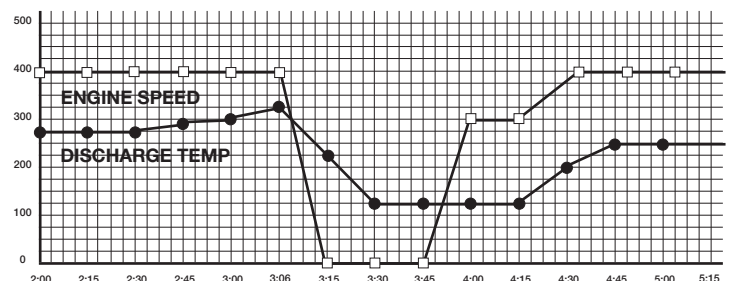
An integral data analysis/trending package that is included with the DE Terminal Software can display and graph this data for inspection and analysis. The sample graph shown at right depicts a shutdown that was caused by compressor discharge temperature exceeding its 325° setpoint, followed by a restart.

SAMPLE DATA LOG AND GRAPH

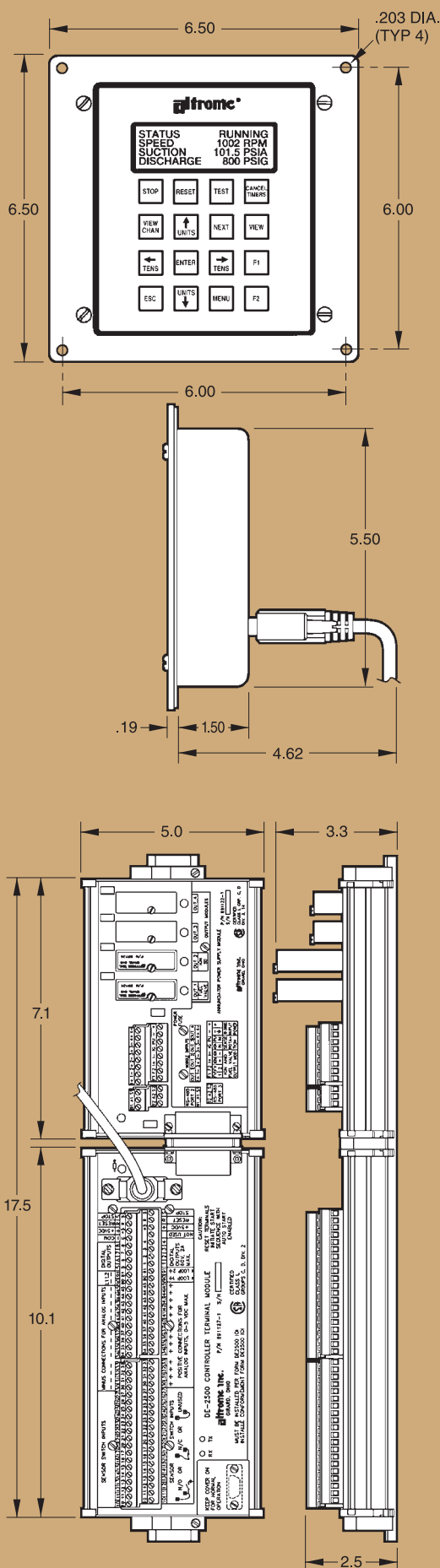
COMP. STATION #01 GIRARD, OHIO
 001 10333 HRS
 10-19-2006 9:46 AM
 STATUS RUNNING
 SPEED 925 RPM
 SUCTION 102.3 PSIA
 DISCHARGE 300 PSIG
 PRESS 1 102.3 PSIG
 PRESS 2 355 PSIG
 PRESS 3 250 PSIG
 PRESS 4 275 PSIG
 TEMP 1 55 EF
 TEMP 1 170 EF
 TEMP 1 180 EF
 TEMP 1 190 EF
 TEMP 1 220 EF
 PRESS 5 22 PSIA
 USER LABEL
 USER LABEL
 1ST FAULT HIGH
 CHAN A3 500 PSI
 HIGH INTERSTAGE PRESS
 10-19-2006 9:46 AM

User entered data log header describing location
 Record number and running hours
 Date/time the record information was collected
 Normal home screen status line
 Normal home screen, line two
 Normal home screen, line three
 Normal home screen, line four
 First view process screen, line one
 First view process screen, line two
 First view process screen, line three
 First view process screen, line four
 Second view process screen, line one
 Second view process screen, line two
 Second view process screen, line three
 Second view process screen, line four
 Third view process screen, line one (enhanced 2500)
 Third view process screen, line two (enhanced 2500)
 Third view process screen, line three (enhanced 2500)
 Third view process screen, line four (enhanced 2500)
 First fault indication when fault occurs
 Channel number and value of first fault
 20 character label associated with the first fault
 Date and time of the first fault

* If a view process screen line is not programmed in the controller, the line will be blank.
 ** These lines will be blank when there are no faults.



DIMENSIONS



TO ORDER

DISPLAY MODULE

DE-2200 system	DE-2200
DE-2500 system	DE-2500
DE-3000 system	DE-3000

POWER SUPPLY MODULE

All DE systems	691122-1
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TERMINAL MODULE

DE-2200 system	691136-1
DE-2500 system	691127-1
DE-3000 system	6911xx-x

CABLE ASSEMBLIES (common to all DE systems)

Display to Terminal Module (DB-25)	693115-1
Power Supply to Terminal Module (DB-25)	693115-1*
Display Module RS-232 Port (DB-9)	693116-1

*Use only if Power Supply and Terminal Modules are mounted separately.

OUTPUT RELAY MODULES (common to all DE systems)

C.D. Fuel Valve/Ignition	691124
5-48 Vdc, 5.0 A.	691125
5-60 Vdc, 2.0 A.	691056
5-200 Vdc, 0.67 A.	691066
24-280 Vac, 2.0 A.	691065

AVAILABLE ALTRONIC TRANSDUCERS

PRESSURE TRANSDUCERS

0-50 psia.....	691204-50
0-100 psia.....	691204-100
0-300 psia.....	691204-300
0-500 psia.....	691204-500
0-100 psig/0-680 Kpa	691201-100
0-300 psig/0-2040 Kpa	691201-300
0-500 psig/0-3400 Kpa	691201-500
0-1000 psig/0-6800 Kpa	691201-1000
0-2000 psig/0-136 bar	691201-2000
0-5000 psig/0-340 bar	691201-5000

TEMPERATURE TRANSDUCERS

Range: +5°F to 350°F / -15°C to 176°C (±3°F / ±2°C)	
1.75" length.....	691202-300
5.75" length.....	691203-300
Range: -40°F to 450°F / -40°C to 232°C (±6°F / ±4°C)	
1.75" length.....	691212-450
5.75" length.....	691213-450

TRANSDUCER CABLES

5 ft. length.....	693008-5
25 ft. length.....	693008-25
50 ft. length.....	693008-50



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