

# altronic®

## DIGITAL TEMPERATURE SCANNER ETS SERIES

### PROTECTS VITAL EQUIPMENT:

- UP TO 40 MONITORED POINTS  
USER CONFIGURABLE IN UP TO  
14 GROUPS AND 7 OUTPUTS
- 3-WAY PROTECTION –  
HIGH, LOW, DIFFERENTIAL
- ONE DEVICE CAN BE APPLIED TO  
MULTIPLE MACHINES
- COMMUNICATION CAPABILITY TO  
PROCESS CONTROL COMPUTERS

### USER-ORIENTED FEATURES:

- USER-ENTERED SETPOINTS  
FROM PROTECTED KEYBOARD
- AUTOMATIC DISPLAY SCAN FEATURE
- DISPLAY OF FIRST-OUT FAULT AND  
OUTPUT FAULT STATUS
- OPTION FOR TWO ANALOG OUTPUTS OF  
AVERAGE GROUP TEMPERATURE



CERTIFIED  
CLASS I, DIVISION 2, GROUP D



The Altronic ETS Electronic Temperature Scanner is a state-of-the-art, microprocessor-based product designed to display and process monitored temperatures to protect a variety of equipment or processes. Up to 40 points can be monitored which the user can divide into as many as 14 different groups and 7 outputs. For each group, there is a choice of protection from any combination of: Absolute High Limit, Absolute Low Limit, and Differential. All setpoint temperatures, output logic and lockout times are user-entered from the sealed-membrane keyboard. The device can be used to monitor temperatures from more than one machine. RS422 capability allows data and alarm status to be communicated to other computers.

Display capability includes the monitored temperature of each point, automatic scan of all points or of a selected output, and average temperature for each group. There is also fault display capability with a first-out fault display channel and a channel showing simultaneously the fault status of all seven outputs. Regardless of the display mode, scanning of all points continues.

There are two basic models available: a 24-point version with 4 solid state outputs, and a 40-point model with 7 outputs. An optional feature in the ETS-24/40 scanners is two 4–20 mA analog output signals proportional to the average temperature of two groups. This gives the user the capability of control based on selected monitored temperatures.

# TYPICAL APPLICATION:

EXAMPLE: 16-Cylinder, Turbocharged Engine/Compressor.  
Total of 37 Monitored Points.

POINTS	MONITORED ITEM	OUTPUT FUNCTION	OUTPUT NO.	SETPOINTS °F		
				HIGH	LOW	DIFF
2	Turbocharger Inlet Temperature	Alarm Shutdown	1 2	800	—	45
				850	—	60
16	Cylinder Exhaust Temperature	Alarm Shutdown	1 2	760	—	60
				800	400	100
6	Compressor Discharge Temperature	Alarm Shutdown	3 4	215	—	15
				240	—	25
9	Main Bearing Temperature	Alarm Shutdown	5 6	210	—	15
				220	—	20
2	Engine Oil Temperature	Alarm Shutdown	5 6	180	—	—
				190	—	—
1	Jacket Water Inlet Temperature	Shutdown	7	170	—	—
1	Jacket Water Outlet Temperature	Shutdown	7	190	—	—

## DISPLAY CAPABILITY:

- Display temperature of any monitored point
- Scan all channels at rate of 3 secs./point
- Scan channels of any output at 3 secs./point
- Display average temperature of any group
- Display fault status of all outputs
- Display information of faulted point(s)

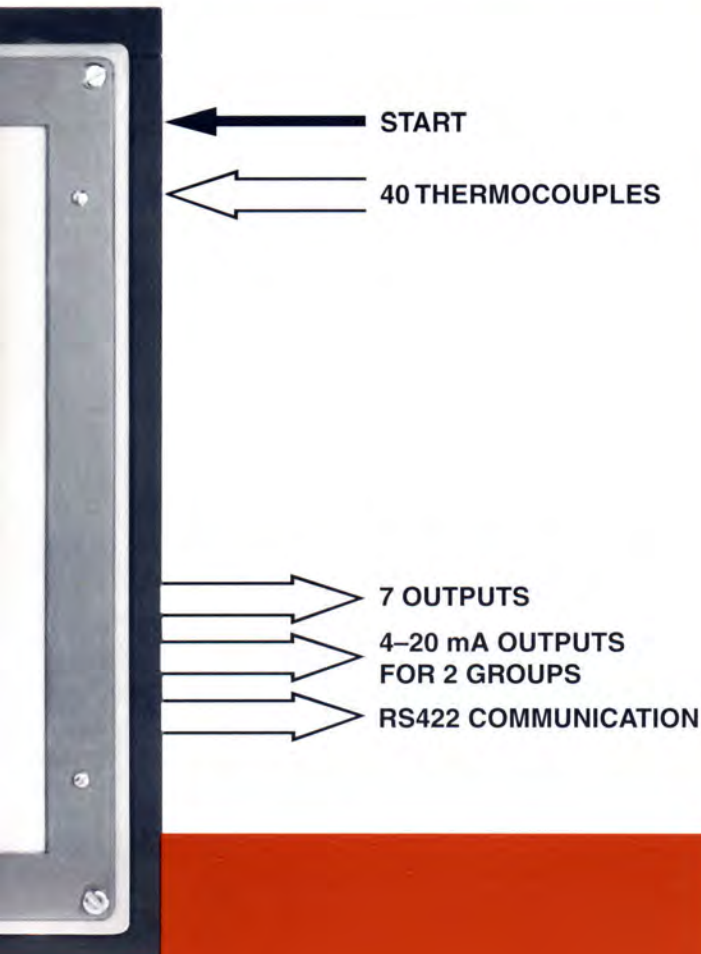
NOTE: Protection scanning of all points occurs continuously, regardless of display mode or prior faults.

## DATA ENTERED BY USER:

1. Assign each point to desired Output and Group
2. High, Low and/or Differential Setpoints for each group used (up to 14)
3. Logic Code of output relays: N/O, N/C, latching, non-latching
4. Time Delay after Attained Average Temperature before output is active
5. Select readout in degrees C. or F.
6. Select thermocouple type J or K
7. Temperature limits and PI response for 4–20 mA outputs (if used)



The flexibility and versatility of the ETS-40 scanner is demonstrated in this example. Configuring to a specific application is done from the keyboard with the user assigning the channels to the various groups. Any given channel can be assigned to two groups; thus one group and setpoint level can be used for alarm and another group with a higher setpoint used for shutdown. Fourteen groups and three protection modes per group allow the flexibility to fit most requirements without the need for special factory set-up or involvement in application changes.



## ETS FEATURES

### NORMAL DISPLAY OPERATION:

Any point can be on constant display. All points or any individual output can be selected for automatic display scan at the rate of 3 seconds per point. The ADV SC (Advance Scan) button can be used to move through the channels at any desired rate. The average temperature of any group can be displayed.

### PROTECTION:

Protection scanning of all points occurs once every 5 seconds, regardless of the display mode or prior faults. Outputs are disarmed at start-up for a time delay after an attained average temperature (keyboard entered). During operation, the ACKNW (Acknowledge) button disables selected outputs to allow troubleshooting or testing.

### FAULT DISPLAY INFORMATION:

Fault display is designed to quickly inform the user of the source of trouble.

- Channel 88 displays the Point, Output, Fault Mode and Trip Temperature of faulted points starting with the first-out fault:

"10.2H.1075" indicates Point 10, Output 2 faulted on absolute High (H) at 1075°F.

- Channel 89 shows the Fault Status of all Outputs:

"1011011" indicates faults in outputs 2 and 5

### RS422 COMMUNICATIONS CAPABILITY:

Communications capability is provided for interfacing to process control computers. The data on any channel can be read, including monitored temperatures and average group temperatures. All setpoints can be read and/or altered remotely. RS422 signals have the capability for long distance transmission. In addition, software for direct, readable display and control from a remote IBM-compatible PC is available.

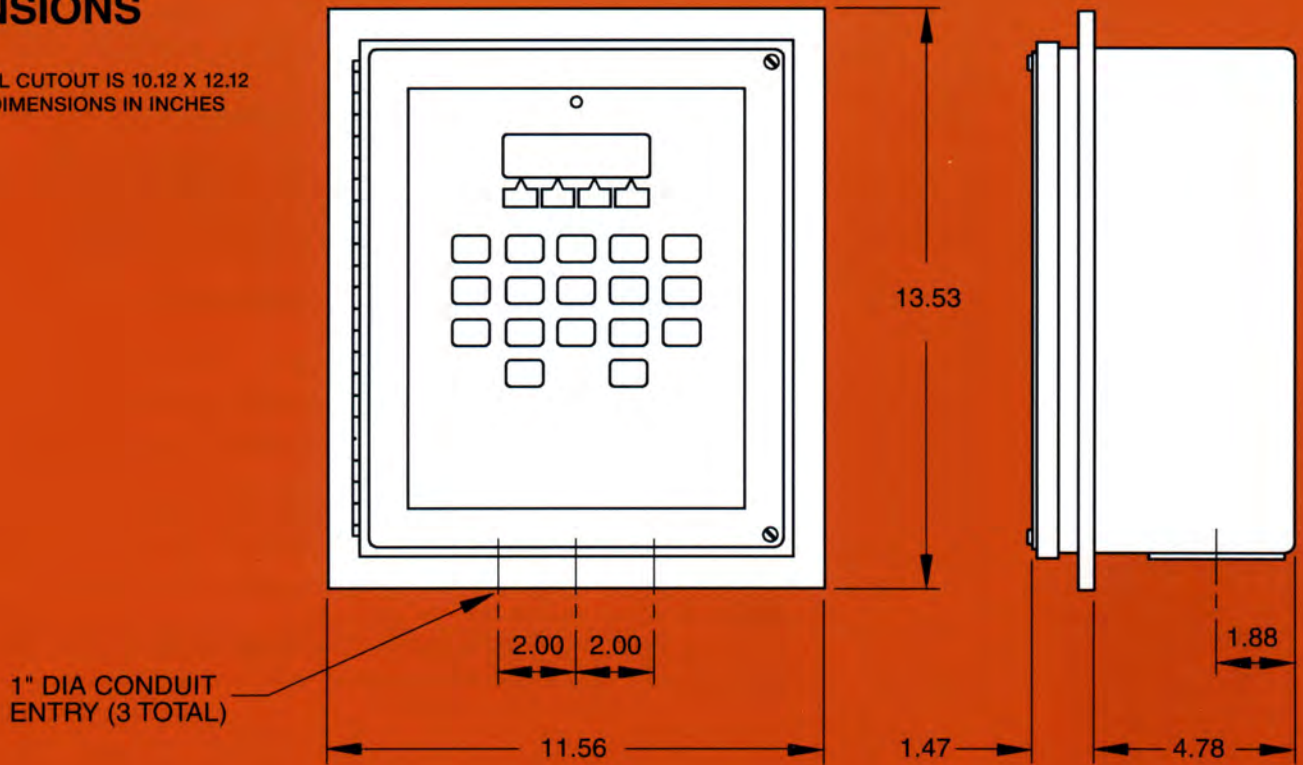
### 4-20 mA OUTPUTS:

The optional analog output feature permits the user to output a 4-20 mA signal proportional to Group 1/1 and Group 2/1 average temperatures over a range entered from the keyboard. EXAMPLES:

- 4-20 mA signal proportional to turbo-inlet temperatures could be interfaced to an engine load computer to maintain said temperatures within a desired range under various conditions. For example, enter from the keyboard: 4 mA = 800 F., 20 mA = 1200 F.
- 4-20 mA signal proportional to the average cylinder exhaust temperature is useful as a control point for total load on the engine.
- 4-20 mA signal proportional to engine coolant water temperature could be used to control the engine cooling system.

# DIMENSIONS

NOTE: PANEL CUTOUT IS 10.12 X 12.12  
ALL DIMENSIONS IN INCHES

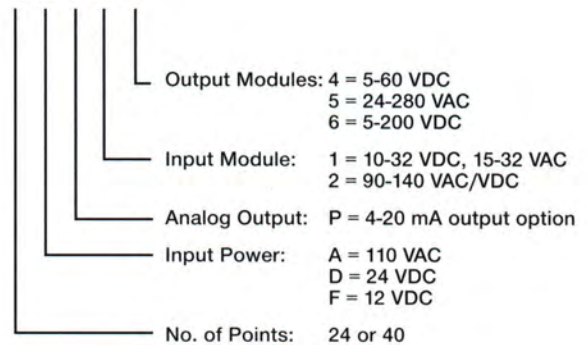


# SPECIFICATIONS

- MONITORED POINTS ..... 24 or 40
- OUTPUTS ..... 4 on ETS-24 models  
7 on ETS-40 models  
Solid state relays, AC or DC
- GROUPS ..... 8 on ETS-24 models  
14 on ETS-40 models
- MONITORED TEMPERATURE RANGE .... 32° F to 1832° F / 0° C to 1000° C
- GROUP PROTECTION MODES ..... High, Low and Differential
- OUTPUT GROUP LOGIC ..... N/O, N/C, Latching, Non-latching  
(from keyboard)
- COMMUNICATIONS CAPABILITY ..... RS422
- TEMPERATURE DISPLAY ..... ° F or ° C (from keyboard)
- INPUT SIGNAL ..... Type J or K Thermocouple (from keyboard)
- DISPLAY ..... 8 digit, 0.5" LCD
- POWER ..... 12 VDC, 24 VDC, 110 VAC-10 watts
- PACKAGE ..... NEMA 4, weatherproof enclosure  
12"H x 10"W x 6"D

# TO ORDER

ETS - 40 A P-1 4



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