



DETI INSTRUCTIONS

General Features/Specifications

- **Power Requirements:** 12 – 24 VDC input
- **Display:** LCD, Sunlight Viewable and Backlit for Night Operations
- **Display Temperature Range:** 0°F to 2100°F
- **Temperature Probes:** Type K Thermocouples Channel 3/4
- **I/R Sensors:** 0 – 5 mV (mill volt) inputs Channel 1/2 (IR)
- **Scan Rate:** 100 / second sampling rate
- **Temperature display:** °F / °C display
- **Resolution:** 1 Degree (Fahrenheit)
- **Scroll buttons:** Up & Down arrows to adjust set points. Press once for individual numeric advance. Press and hold for rapid advance
- **LED Alarm:** LED cluster or large bright LED that illuminates @ \geq set point (latches)
- **Channel Input indication (LED's):** Illuminates on each operational channel and selected function
- **Key Pad:** Membrane Keypad with integral input indication LED's
- **High Limit (Max) Alarm:** Programmable in 1° increments from 1°F to 2100°F. Each channel is independently programmable. Upon reaching or exceeding programmed high limit during scan. LED alarm will flash, latching switch will be activated. LED indicator will illuminate on channel with the triggered high limit.
- **Latching Switch:** Relay output that latches @ \geq High limit set point 12 – 24 VDC. Switch will latch if any of the input channels exceed max high limit
- **Data Record:** Unit will record 20 seconds of data in .2 second intervals on all 4 channels
- **Max function:** Unit will store the maximum value that was reached for all inputs



Basic Programming and Keypad Use

Choosing Channel to Display: Press the input button and watch for the green L.E.D. to illuminate by the respective channel that you desire to display on the screen. Keep in mind that the alarm and Replay functions will operate regardless of the channel displayed on screen. Channel 3 and 4 is always the E.G.T. input Channel 1 and 2 are for the optional Tire Scope feature.

Setting Alarm Trigger Point: This feature allows you to set an alarm that will indicate when you have reached a programmed maximum temperature. To program, press the input button until the desired Channel to be programmed L.E.D. is illuminated. Once the Channel light is on you will need to press the Set Point key once to enter the program mode. When the green L.E.D. illuminates next to the Set Point button, use the arrow keys to adjust the value desired for the alarm to activate. This point will also be the same point for power adder system shut down when using the Alarm/Latched output outlined below. When you have the desired maximum value entered, press the Set Point

button again. This will complete the program mode for one channel. Continue on repeating the process until you have programmed all of the desired channels.

Alarm/ Latched Output: Your DETI unit is capable of being used as a safety device to lessen the potential of catastrophic engine damage when using a power adder. To properly utilize this DETI function the device will need to be wired to trigger a relay (not provided) to open and effectively cut the power to your solenoid system or controller. This function will occur with your programmed input. Wiring one of the brown wires to the positive side of a keyed 12v power supply and the other to a relay terminal that will disarm your system once positive voltage is applied is the suggested method of use. Never run your system's power supply directly through the DETI. A bright red L.E.D. will flash after the pre-programmed value is exceeded. If you are not using a power adder or this function, simply leave the unused wires un-connected.

Max Recall: This button can be used to recall the maximum temperature achieved during engine operation. To use this feature choose the desired channel that you wish to see the maximum achieved temperature by pressing the Input button until the green L.E.D. illuminates beside the channel desired. You can then press Max Recall to display the maximum temperature for that channel. This feature can be used regardless of the alarm being triggered or not. If the Alarm has been triggered, you will need to reset it following the procedure outlined below.

Reset Alarm: Should the alarm be triggered the unit will illuminate a bright red flashing L.E.D. It will also activate the Alarm/ Latched output function turning off desired power adders etc. These conditions will remain until the alarm is reset. You can reset the unit by going through the Max Recall feature outlined above and pressing the Reset button after the Maximum value is viewed. The function will only be reset after the channel with the exceeded value is viewed.

Replay Function: Your DETI is equipped to record up to 20 seconds of measured E.G.T. data on channels 3 and 4. Since the conditions can change very rapidly during the recording session, the replay function is broken out into 100 "freeze frame" segments that can be manually reviewed and recorded as desired. To use this feature, the DETI will need to have the purple wire connected to a source that will apply 12v at the point you desire the record process to start. Suggested trigger methods would be via a momentary switch triggered at W.O.T., Trans brake switch, or other manually activated switch. The power supply does not have to be continuous for the record function to work. A quick single flash of the red alarm L.E.D. will indicate that the record function has started. When you are ready to review the data, press the Replay button once. You will be in Replay mode when the Green L.E.D. is illuminated next to the Replay button. The unit illuminates the channel number being displayed along with the screen flashing between "0" and a measured value for that time. "0" is the start time where the record was first triggered. When you are done with the channel you are reviewing, you can press replay a second time and it will display the other channel. When you have reviewed this data you may press the up arrow key until you come to the next recorded segment or desired point you wish to review. A chart is provided below to help outline the seconds to recorded segment values. When you are done reviewing the data, press the input key once to return to normal monitor function. The record function will be cleared on the next trigger or when the power supply is turned off.

Mounting Head Unit: Due to the various end uses that the DETI will be used in, generalized mounting options are left to your discretion. Methods that have been used successfully have been as elaborate as custom cut dash panels for factory type fit or simple double sided tape to a flat race dash. Use of a quality double sided tape or even industrial hook and loop fasteners are a possibility. Do not attempt to drill or screw into the main DETI housing.

Thermocouple Installation: The following steps should be followed to install your DETI thermocouples.

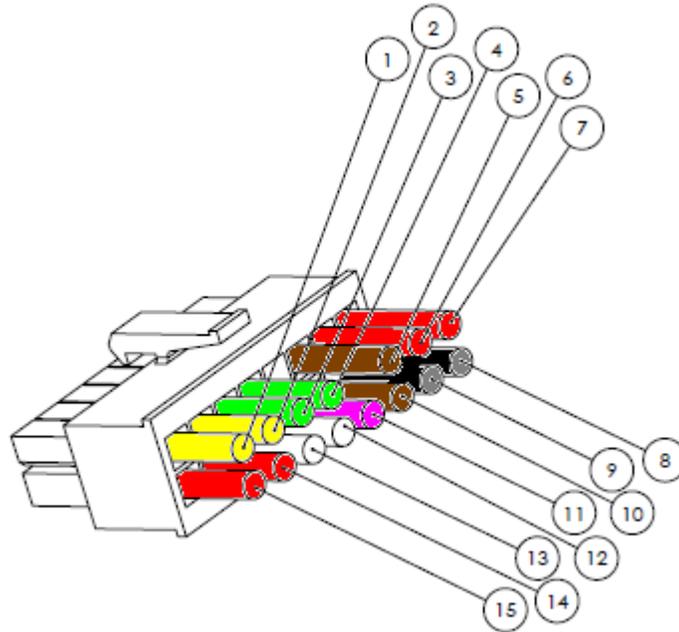
- 1) After finding your leanest and richest cylinders, remove the header or manifold from the engine. You may also choose to mount the thermocouples in a location monitor before and after turbo turbine temperatures.
- 2) * Prepare the surface of the header pipe/manifold to be welded, sand and clean any painted or dirty surfaces in order not to affect the performance of the weld.
- 3) Use a moderate size punch to place a small indentation in the primary tube 2 inches from the head flange. (NOT THE COLLECTOR FLANGE)
- 4) Use a 3/8" drill bit to create the hole where the bung will be placed. Be sure to remove all burs from the area of the hole.
- 5) * Weld the bung into place being sure to seal up the area between the header/manifold and the bung.
- 6) After the bung has cooled and you have placed the header/manifold back on the engine, screw the thermocouple into the bung (DO NOT OVER TIGHTEN). Follow the wire directions in the DETI Wire Diagram. You are now ready to monitor your exhaust temperature.

* (Steps 2 & 5 are not necessary for clamp-on probe kits)

DETI RECORDED TIME SEGMENT TO SECONDS CONVERSION

Segment	Seconds								
0	0.0	21	4.2	42	8.4	63	12.6	84	16.8
1	0.2	22	4.4	43	8.6	64	12.8	85	17.0
2	0.4	23	4.6	44	8.8	65	13.0	86	17.2
3	0.6	24	4.8	45	9.0	66	13.2	87	17.4
4	0.8	25	5.0	46	9.2	67	13.4	88	17.6
5	1.0	26	5.2	47	9.4	68	13.6	89	17.8
6	1.2	27	5.4	48	9.6	69	13.8	90	18.0
7	1.4	28	5.6	49	9.8	70	14.0	91	18.2
8	1.6	29	5.8	50	10.0	71	14.2	92	18.4
9	1.8	30	6.0	51	10.2	72	14.4	93	18.6
10	2.0	31	6.2	52	10.4	73	14.6	94	18.8
11	2.2	32	6.4	53	10.6	74	14.8	95	19.0
12	2.4	33	6.6	54	10.8	75	15.0	96	19.2
13	2.6	34	6.8	55	11.0	76	15.2	97	19.4
14	2.8	35	7.0	56	11.2	77	15.4	98	19.6
15	3.0	36	7.2	57	11.4	78	15.6	99	19.8
16	3.2	37	7.4	58	11.6	79	15.8	100	20.0
17	3.4	38	7.6	59	11.8	80	16.0		
18	3.6	39	7.8	60	12.0	81	16.2		
19	3.8	40	8.0	61	12.2	82	16.4		
20	4.0	41	8.2	62	12.4	83	16.6		

DETI WIRE DIAGRAM



Number	Color	Description
1	Yellow	EGT Probe 1
15	Red	EGT Probe 1
2	Yellow	EGT Probe 2
14	Red	EGT Probe 2
3	Green	Left Infrared Tire Sensor
12	White	Left Infrared Tire Sensor
4	Green	Right Infrared Tire Sensor
13	White	Right Infrared Tire Sensor
5	Brown	Alarm switch- Attach to 12v source or ground
10	Brown	Alarm switch- Attach to relay to activate or deactivate a circuit (nitrous, ignition, ect.)
6	Red	Keyed/Switched 12v source
7	Red	Keyed/Switched 12v source
8	Black	Ground
9	Black	Ground
11	Purple	Memory function - Apply 12v to start recording (transbrake, line lock, ect.)