



All specification subject to change
© 2002-2005 Aerospace Logic Inc.

OL-100 Operations and Installation Manual

This manual is certified for use with
instrument serial number

ASL000000

Use of this manual with any other
instrument voids all warranties and may
result in damage to the instrument

THIS IS A TRANSPORT CANADA APPROVED MANUAL

READ THIS FIRST

Congratulations on the purchase of your OL-100 Oil Pressure and Temperature Indicator. This instrument is a complex precision instrument manufactured to exceed Airborne Equipment Standards DO-160D, DO-178B and TSO C43c and C47 standards. In order for your instrument to function correctly you will need to review the instructions in this brief manual.

This document covers the following instrument models:

- OL-100-T Oil Pressure and Temperature Instrument
- OL-100-TK Oil Pressure and Temperature Instrument Kit
- OL-100-TV Oil Pressure and Temperature Instrument with Voltmeter
- OL-100-TKV Oil Pressure and Temperature Instrument Kit with Voltmeter

Aerospace Logic Inc.

180 James Street South, Suite 205, Hamilton, ON, L8P 4V1, CANADA

Tel 416-628-0725 | Fax 416-352-5854

www.aerospacelogic.com

OL-100-T Operations & Installation Manual – Ver. 1.4 – September 8, 2005

1. Introduction

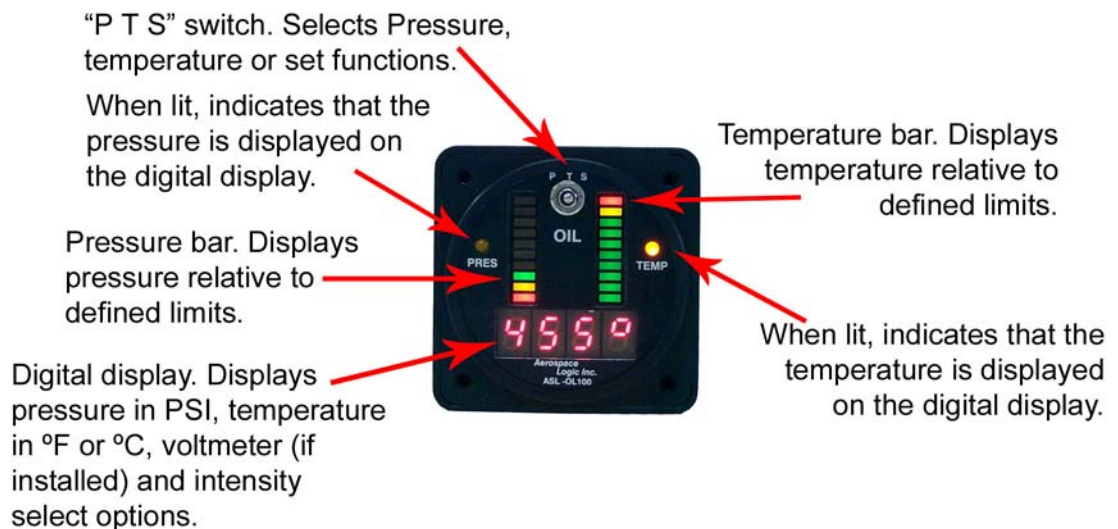
Your OL-100 Oil Pressure and Temperature Indicator will provide you with years of reliable service and generally outlast the life of your aircraft. The instrument is constructed from the highest quality components and has a design life in excess of 100,000 hours.

It is the most reliable instrument of its kind. Gone are the days of questioning the accuracy or operation of the instrument. No stuck needles, erroneous readings or instruments that keep you guessing as to their operational status.

Every reading you will see displayed on your instrument has been validated at least 256 times before you see it. This all happens in less than a second. When you see the result you know the instrument is functioning correctly as it is monitored by an independent microprocessor just to ensure that it is functioning correctly. In turn the main processor validates the independent monitoring processor. Any failure detected in either processor and your instrument display will be shut down or an error message displayed – depending on the failure status.

2. Display

In the normal operating mode, the main display of the instrument displays a graphical representation of the temperature and pressure relative to the defined limits set by the user. The lower four-digit seven-segment display provides a mathematically computed display of the selected parameter.



Aerospace Logic Inc.

180 James Street South, Suite 205, Hamilton, ON, L8P 4V1, CANADA

Tel 416-628-0725 | Fax 416-352-5854

www.aerospacelogic.com

OL-100-T Operations & Installation Manual – Ver. 1.4 – September 8, 2005

3. Sender Installation

WARNING:

HOT OIL CAN CAUSE SERIOUS BURNS! Do not attempt installation of this instrument when the engine is hot.

NOTE:

In order to complete this installation you must have a working knowledge of the specific engine that this instrument will be installed on. You must be able to locate and identify existing pressure and temperature senders and have the necessary tools to remove them as well as install the new items.

For installation on certified aircraft, this installation may only be performed by properly licensed personnel or competent persons under supervision of such licensed personnel, where applicable law permits.

Pressure Transducer Installation

DO NOT INSTALL THE PRESSURE SENDER DIRECTLY ONTO ANY PORTION OF THE ENGINE.

We recommend that the pressure sender be mounted on the firewall, away from heat and electrical sources. For the replacement of existing oil pressure instruments where oil lines are in the inside of the cockpit the oil pressure transducer may be mounted in an appropriate location and connected to the existing oil pressure line.

The pressure transducer has a 1/8" NTP fitting. Once mounted, connect the pressure port to the engine oil pressure port or oil line with an appropriate, flexible line (installer to supply). Note: It may be necessary to install an appropriate T should the aircraft fuel system not have a pressure take-off. Do not over tighten the flexible line / pressure transducer connection!

Attach the signal connector to the transducer. It is polarized and can only fit one way into the transducer. Confirm that it snaps firmly into place.

Temperature Sender

Temperature senders have various fitting sizes. Confirm that the fitting size supplied matches that of your engine and that the probe depth does not exceed that specified by the manufacturer.

If your sender does not include a crush washer apply a small amount of thread seal to the threads of the sender and screw it into place. If it does include a crush washer, tighten sufficiently to ensure a seal. Do not over tighten!

Aerospace Logic Inc.

180 James Street South, Suite 205, Hamilton, ON, L8P 4V1, CANADA

Tel 416-628-0725 | Fax 416-352-5854

www.aerospacelogic.com

OL-100-T Operations & Installation Manual – Ver. 1.4 – September 8, 2005

4. Installation

Ensure that the pressure and temperature senders have been installed PRIOR to installing the instrument. **See *Sender Installation for full details (Section 3)***.

The OL-100 will fit any standard 2 ¼" aircraft mounting hole. Place the instrument in the hole from the rear of the panel and then attach it with the four screws provided. If you need to replace the screws, ensure that the threads do not penetrate the instrument more than ½". Screws that penetrate the instrument further will cause severe damage to the instrument.

WARNING

This instrument is a highly sensitive and accurate instrument, however without proper wiring and connections it is possible to induce errors.

Please read and follow all instructions carefully to ensure proper operation.

The instrument has been software calibrated and never needs recalibration.

Now connect the supply and dimmer wiring. These wires may be trimmed to any desired length.

BLACK	Aircraft supply ground
RED	Master switched 14/28V bus (Instrument is internally fused)
BLUE	28V Dimmer control (if required)
WHITE	14V Dimmer control (if required)

Next connect the sender signal wiring.

BLACK and BLACK Twisted Pair

For the temperature sender connect the black and black twisted cable pair to the black and black twisted cable pair from the temperature sender. These wires are polarity INDEPENDENT. Use the supplied crimp connectors for this connection.

Do NOT un-twist these cable pairs. They are designed to reduce signal noise.

Where possible do NOT strap the signal wiring to other aircraft wiring.

Aerospace Logic Inc.

180 James Street South, Suite 205, Hamilton, ON, L8P 4V1, CANADA

Tel 416-628-0725 | Fax 416-352-5854

www.aerospacelogic.com

OL-100-T Operations & Installation Manual – Ver. 1.4 – September 8, 2005

BLACK, RED and WHITE Twisted Cable

NOTE: These wires are polarity dependant. Connecting them incorrectly will cause permanent damage to either and/or both the instrument and solid-state transducer.

Connect the **BLACK** wire from the instrument to the **BLACK** wire from the transducer.

Connect the **RED** wire from the instrument to the **RED** wire from the transducer.

Connect the **WHITE** wire from the instrument to the **WHITE** wire from the transducer.

Do NOT un-twist these cable pairs. They are designed to reduce signal noise.

Where possible do NOT strap the signal wiring to other aircraft wiring.

All wires may be trimmed to appropriate length.

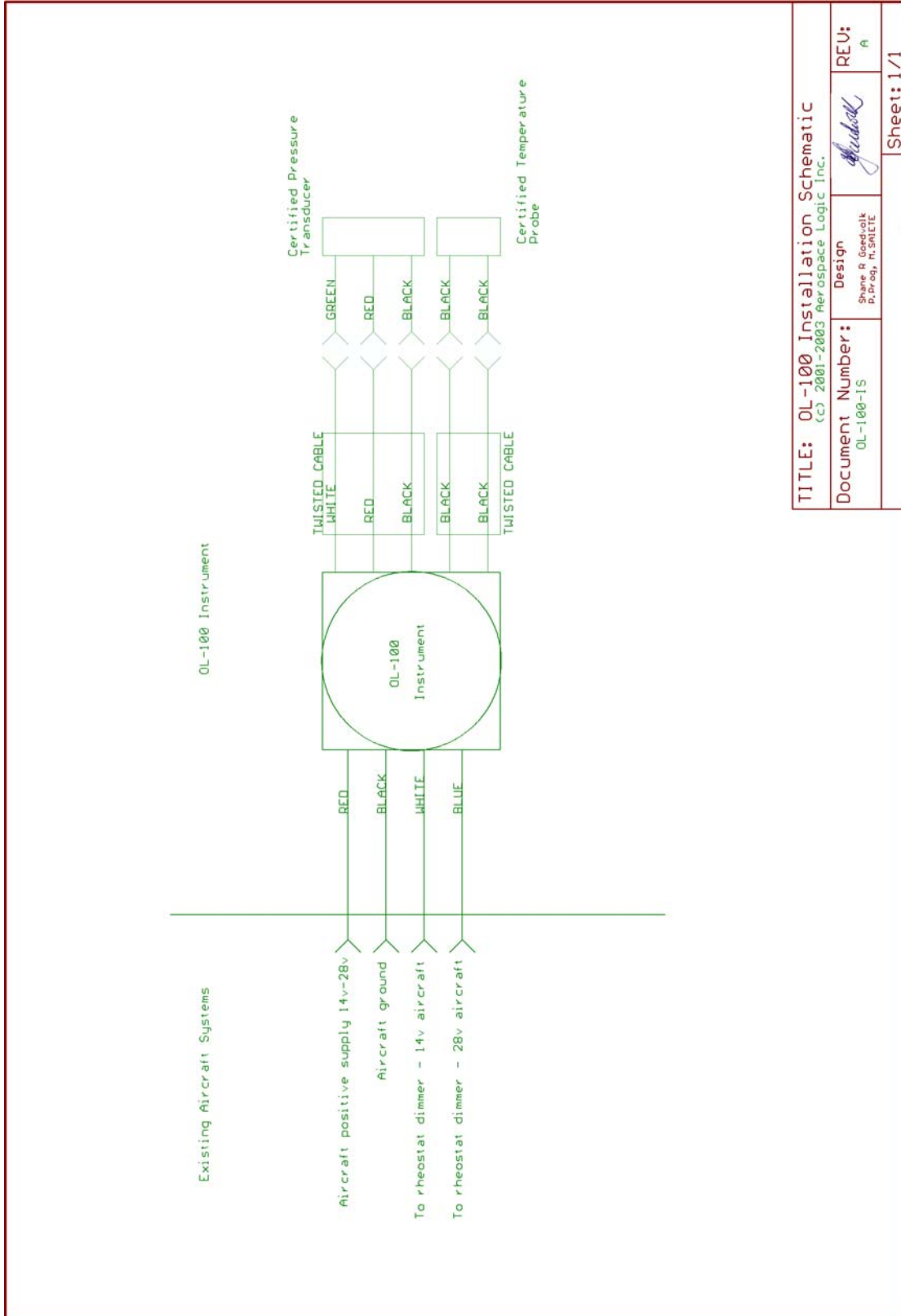
Aerospace Logic Inc.

180 James Street South, Suite 205, Hamilton, ON, L8P 4V1, CANADA

Tel 416-628-0725 | Fax 416-352-5854

www.aerospacelogic.com

OL-100-T Operations & Installation Manual – Ver. 1.4 – September 8, 2005



TITLE: OL-100 Installation Schematic
(C) 2001-2003 Aerospace Logic Inc.

Document Number:
OL-100-IS

Design
Shane R. Goedolk
P.Prog, H.SALETE

REU:
A

Sheet: 1/1

Aerospace Logic Inc.

180 James Street South, Suite 205, Hamilton, ON, L8P 4V1, CANADA

Tel 416-628-0725 | Fax 416-352-5854

www.aerospacelogic.com

OL-100-T Operations & Installation Manual – Ver. 1.4 – September 8, 2005

5. Setup

Once installed your instrument will require setup to match the specific engine parameters as well as the user defined preferences.

Instrument setup is only required when a parameter or display configuration is to be changed. With proper planning you should only have to perform this function once in the life of the instrument. All information is stored in the instrument's lifetime memory, which will be retained without battery power for up to 100 years.

To enter the setup mode ensure the power to the instrument is turned off. Then press and hold the "P T S" switch in the "S" position. Apply power to the instrument and hold the switch in this position until the **S.Et-** message is displayed.

Hold the "P T S" switch in the "S" position when turning on the power ...

Until the "S.Et-" message is displayed



Brightness (Intensity) Source Selection

If the instrument has been connected to an external rheostat for intensity control then select the **External** option. Otherwise select the **Internal** option.

b. indicates selection of the intensity source.
"I" for internal
"E" for external rheostat



Move the "P T S" switch in the "P" position and back to the "T" position to toggle the options. Move to the "S" position to make your selection

Aerospace Logic Inc.

180 James Street South, Suite 205, Hamilton, ON, L8P 4V1, CANADA

Tel 416-628-0725 | Fax 416-352-5854

www.aerospacelogic.com

OL-100-T Operations & Installation Manual – Ver. 1.4 – September 8, 2005

Pressure Settings

There are three parameters required for the correct operation of the pressure section of the indicator. They are:

1. Minimum operating pressure (Step 1)
2. Maximum operating pressure (Step 2)
3. Redline pressure (Step 3)

In many cases engine manufacturers will specify an engines maximum operating pressure as the same value as the redline pressure.

NOTE: If this is the case in your application use a pressure of (redline – 2 PSI) for the setting in Step 2

Minimum Operating Pressure Setting

The minimum operating pressure setting is the minimum operating pressure as specified by the engine manufacturer. Refer to your engine specifications for this value.



Maximum Operating Pressure Setting

The maximum operating pressure setting is the maximum operating pressure as specified by the engine manufacturer. Refer to your engine specifications for this value.

In many cases engine manufacturers will specify an engines maximum operating pressure as the same value as the redline pressure.

NOTE: If this is the case in your application use a pressure of (redline – 2 PSI) for the setting in this step.

Temperature at which this LED turns on - **MAXIMUM OPERATING PRESSURE**

Indicates setting pressure parameters

Setting number



Move the "P T S" switch in the "P" position to increase and to the "T" position to stop. Move to the "S" position to make your selection.

Redline Pressure Setting

The redline pressure setting is the redline pressure as specified by the engine manufacturer. Refer to your engine specifications for this value.

Temperature at which this LED turns on - **REDLINE PRESSURE**

Indicates setting pressure parameters

Setting number



Move the "P T S" switch in the "P" position to increase and to the "T" position to stop. Move to the "S" position to make your selection.

Temperature Settings

There are three parameters required for the correct operation of the temperature section of the indicator. They are:

1. Minimum operating temperature (Step 1)
2. Maximum operating temperature (Step 2)
3. Redline temperature (Step 3)

Aerospace Logic Inc.

180 James Street South, Suite 205, Hamilton, ON, L8P 4V1, CANADA

Tel 416-628-0725 | Fax 416-352-5854

www.aerospacelogic.com

OL-100-T Operations & Installation Manual – Ver. 1.4 – September 8, 2005

Minimum Operating Temperature Setting

This is the temperature specified by the engine manufacturer as the minimum operating temperature. Refer to the specific engine documentation for this value.

This is also the temperature, at which point, the LED bar for the temperature display will begin to light up. For temperatures **BELOW** this point only a digital value of the temperature will be displayed.



Maximum Operating Temperature Setting

This is the temperature specified by the engine manufacturer as the maximum operating temperature. Refer to the specific engine documentation for this value.



Redline Temperature Setting

This is the temperature specified by the engine manufacturer as the redline temperature. Refer to the specific engine documentation for this value.



done

Once the redline temperature has been saved the display will now show the characters **done** and the instrument will restart. At this point you have completed all the setup and configuration of the instrument and it is ready for service.

6. Operation

When power is applied to the instrument it will display the model number and a **tESt** message with the complete display lit. Immediately following this it will display the pressure and temperature information. This is the normal operating mode.

The pressure and temperature will be displayed on the bars irrespective of the position of the “P T S” switch, which determines the value displayed on the digital display.

Temperature Display

By moving the “P T S” switch to the “T” position the actual oil temperature, in °F, will be displayed on the digital display.



Pressure Display

By moving the “P T S” switch to the “P” position the actual oil pressure, in PSI, will be displayed on the digital display.



Aerospace Logic Inc.

180 James Street South, Suite 205, Hamilton, ON, L8P 4V1, CANADA

Tel 416-628-0725 | Fax 416-352-5854

www.aerospacelogic.com

OL-100-T Operations & Installation Manual – Ver. 1.4 – September 8, 2005

Voltmeter Display

This display will only be available on instruments which have the integrated voltmeter option installed. If your instrument does not have it installed, skip this section and go to the Increase Intensity option below.

To invoke the voltmeter function, move the “P T S” switch once to the “S” position and then back to the “T” position. The current line voltage will be displayed on the digital display.

NOTE: Both pressure and temperature bars will be OFF during this display.

With both the PRES and TEMP indicators off the instrument will be in the voltmeter mode

The line voltage is displayed on the digital display



From the normal display mode move the “P T S” switch once to the “S” position and then back to the “T” position to display the voltmeter function

Increase Intensity Function

This display function will only be accessible if the internal intensity control has been selected during the instrument setup. If you are using an external rheostat to control the intensity this function will not be available.

The increase intensity function is invoked from either the temperature or voltmeter display (depending on instrument options installed). To invoke this function move the “P T S” switch once to the “S” position and then back to the “T” position.

With both the PRES and TEMP indicators on, the instrument will be in the intensity mode

This character indicates an increase in intensity will take place when the “P T S” switch is moved to “P”



From the normal display or voltmeter mode move the “P T S” switch once to the “S” position and then back to the “T” position to display the increase intensity function

Aerospace Logic Inc.

180 James Street South, Suite 205, Hamilton, ON, L8P 4V1, CANADA

Tel 416-628-0725 | Fax 416-352-5854

www.aerospacelogic.com

OL-100-T Operations & Installation Manual – Ver. 1.4 – September 8, 2005

To increase the intensity, move the “P T S” switch to the “P” position. The intensity will increase slowly initially and then speed up. Once the desired intensity is reached move the “P T S” switch back to the “T”

If the instrument is left in this mode for more than 10 seconds it will return to the normal operating mode.

To move to the next function move the “P T S” switch once to the “S” position and then back to the “T” position.

Decrease Intensity Function

This display function will only be accessible if the internal intensity control has been selected during the instrument setup. If you are using an external rheostat to control the intensity this function will not be available.

The decrease intensity function is invoked from increase intensity function. To invoke this function move the “P T S” switch once to the “S” position and then back to the “T” position.

With both the PRES and TEMP indicators on, the instrument will be in the intensity mode
This character indicates a decrease in intensity will take place when the “P T S” switch is moved to “P”



From the increase intensity mode move the “P T S” switch once to the “S” position and then back to the “T” position to display the decrease intensity function

To decrease the intensity, move the “P T S” switch to the “P” position. The intensity will decrease slowly initially and then speed up. Once the desired intensity is reached move the “P T S” switch back to the “T”

If the instrument is left in this mode for more than 10 seconds it will return to the normal operating mode.

To return to the normal operating mode, move the “P T S” switch once to the “S” position and then back to the “T” position.

Aerospace Logic Inc.


180 James Street South, Suite 205, Hamilton, ON, L8P 4V1, CANADA

Tel 416-628-0725 | Fax 416-352-5854

www.aerospacelogic.com

OL-100-T Operations & Installation Manual – Ver. 1.4 – September 8, 2005

7. OL-100 Specifications

<p>Dimensions:</p> <ul style="list-style-type: none"> • Fits standard 2.25" mounting hole • 2.45" X 2.45" X 1.6" • 2" viewing area • Weight: 8oz <p>Display</p> <ul style="list-style-type: none"> • Custom design color bar display • Multi-color sunlight visible • InGaAlPGaN LED technology • 100,000 hours operating life • Analog and digital readout of temperatures <p>Maximum Ranges</p> <ul style="list-style-type: none"> • Temperature: 0°F – 300°F. • Pressure: 0 PSI – 100 PSI. • Voltmeter: 6.0v to 32v (optional) <p>Accuracy</p> <ul style="list-style-type: none"> • Temperature: better than 1% over scale as per TSO (SAE AS8005 Class IIa instrument) • Pressure: better than 2% over scale as per TSO (SAE AS408) • Voltmeter: 1/10 Volt over full operating range <p>Safety</p> <ul style="list-style-type: none"> • Color coded display of values • Visual high and low alarms for each function • Dual processor monitoring with one second error shutoff • Internal over temperature shutoff • Floating point mathematical computations for high accuracy • Minimum 256 times measurement validation before display • 1 second scan rate <p>Operating Temperature</p> <ul style="list-style-type: none"> • -15C to +55C • 5F to 131F <p>Power Consumption</p> <ul style="list-style-type: none"> • 450mA Max (daytime operation) • 60mA Min (nighttime operation) 	<p>Display Units</p> <ul style="list-style-type: none"> • Temperature: °F • Pressure: PSI • Volts – voltmeter (optional) <p>Display Pages/Functions</p> <ul style="list-style-type: none"> • Pressure • Temperature • Voltmeter (Optional) • Two brightness selection pages (internal intensity selection) <p>Intensity Control</p> <ul style="list-style-type: none"> • Programmable user option • External using rheostat type dimmer • Internal selection programmable from the front panel • 256 level of brightness <p>Linearity</p> <ul style="list-style-type: none"> • Mathematical compensation over the full operating range <p>Operating Voltage</p> <ul style="list-style-type: none"> • 6V-32V DC <p>Transducers Supported</p> <ul style="list-style-type: none"> • Pressure: Solid state transducers with an analog output of 0.5V to 4.5V over a pressure range of 0 PSI to 100 PSI • Temperature: Resistive temperature sensors with a range of 0 °F = 25.5K Ohms to 300 °F = 57 Ohms.
	<div style="text-align: center;">  <p>Aerospace Logic Inc</p> <p>All specification subject to change © 2002-2005 Aerospace Logic Inc.</p> </div>

Aerospace Logic Inc.

180 James Street South, Suite 205, Hamilton, ON, L8P 4V1, CANADA

Tel 416-628-0725 | Fax 416-352-5854

www.aerospacelogic.com

OL-100-T Operations & Installation Manual – Ver. 1.4 – September 8, 2005