

Mounting Lynx™ Quad Temperature on Small or Hot Molds

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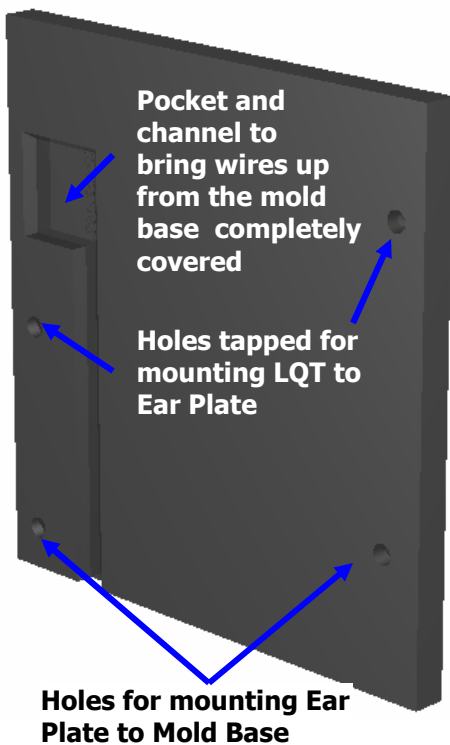
RJG's press fit temperature sensor (TS-PF03-K) is normally hard wired into screw terminals inside a Lynx Quad Temperature module ("LQT") that is bolted to the mold surface. This makes the sensor less expensive (no connectors or cables), reduces the possibility of wire damage, eliminates electrical noise and prevents errors in hook-ups.

However in some cases the LQT is hard to fit on the mold. These include molds of smaller sizes and heated molds in which the surface temperature on the outside exceeds about 140 °F (60 °C). This document describes a couple of techniques for each of these cases.

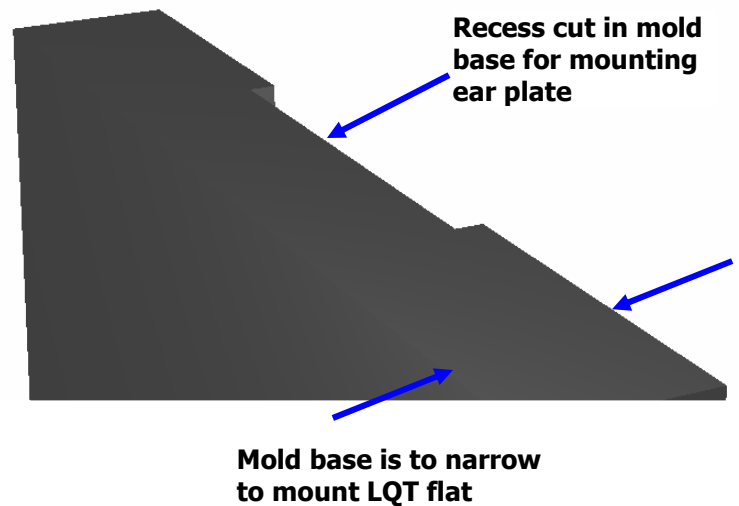
Small Molds

One method that has been used is to create an "ear plate" – a tab of steel that extends beyond the mold base. The ear plate is mounted into a recess in the mold base and extends up to provide a mounting space for the LQT. The following images depict this method.

Ear Plate Example

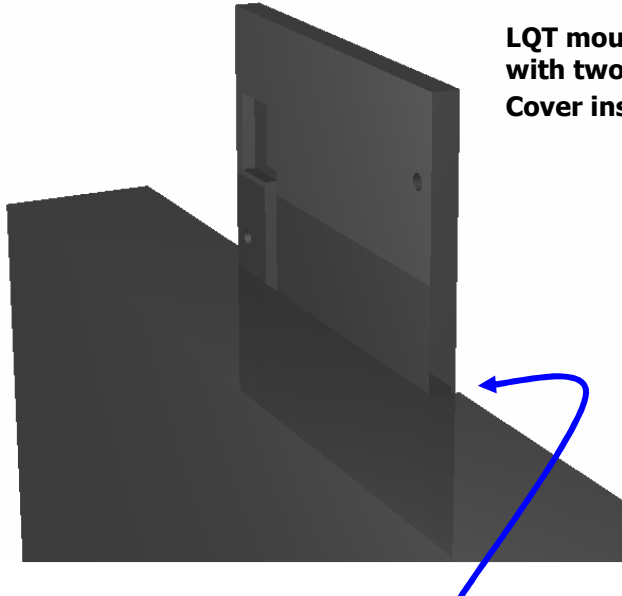


Mold Base with Recess for Ear Plate



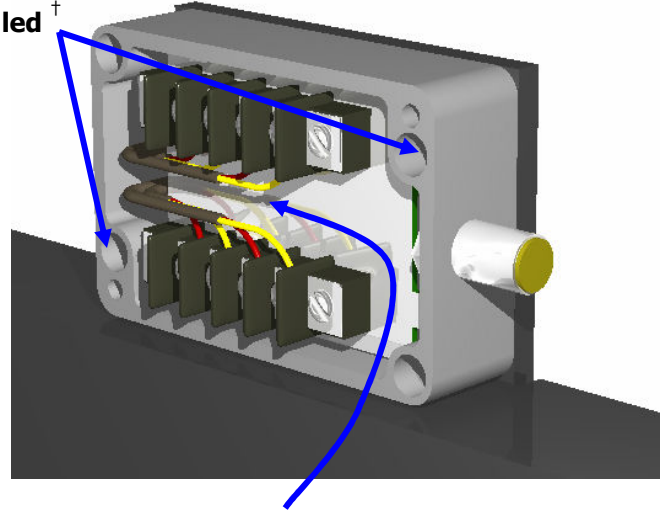
Ear Plate Mounted to Mold

Ear Plate with LQT Mounted



Ear plate mounted into mold recess with countersunk screws on back side

LQT mounted to ear plate with two screws before Cover installed †



Wires brought up into LQT before the LQT is mounted to the Ear Plate

† Note: The depiction of the LQT wiring shows the wires short. Normally there will be some excess wire coiled inside the LQT in case mistakes are made in cutting and stripping.

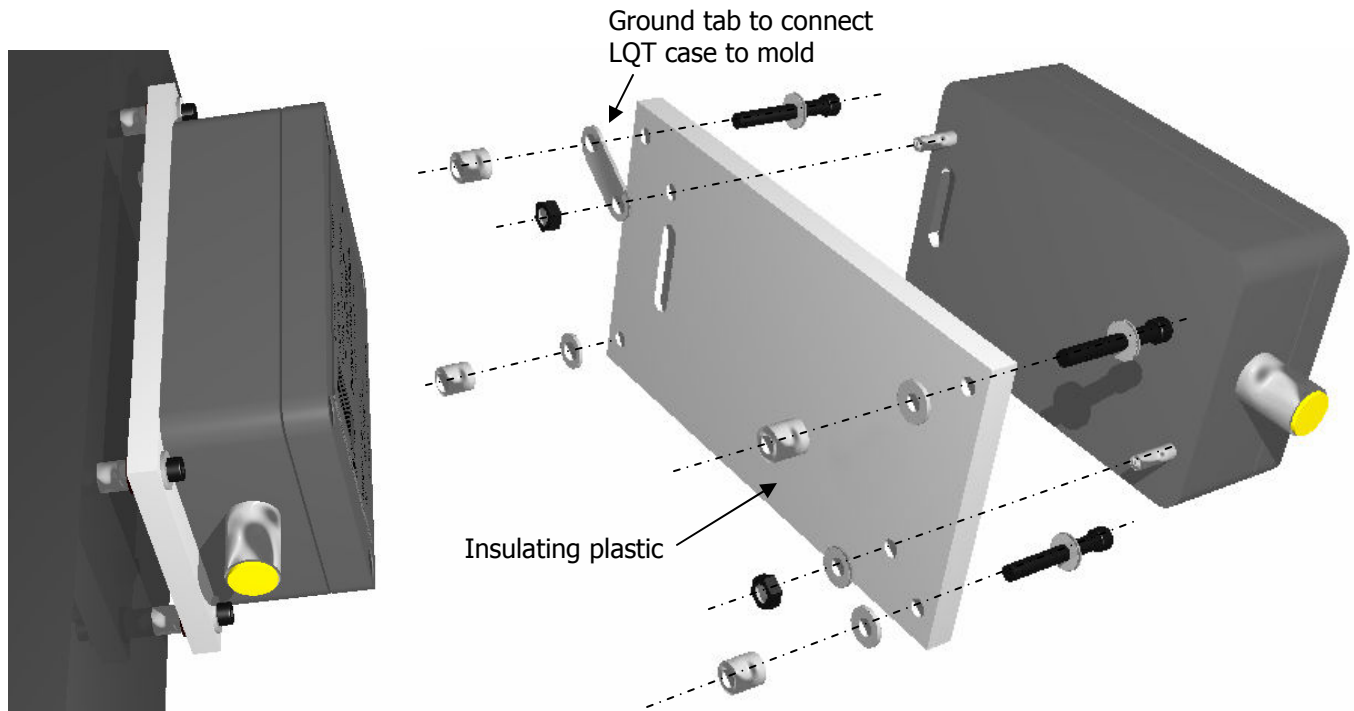
LQT Mounted to Ear Plate with Cover Installed



Hot Molds

On a hot mold the LQT case temperature must be kept below about 140 °F (60 °C). The method depicted below assumes a mold large enough to fit the LQT but being a hot mold the LQT cannot be bolted down. Instead the LQT is bolted to an insulating plate using the screws provided with it, nuts and lock washers. Then the plate is mounted to the mold using standoffs.

Here is an example (notes below)



1. The LQT cannot be just mounted with an insulating plate between the mold and case. This is because if the LQT is bolted directly to the mold the bolts will carry heat into the case.
2. The air space between the plate and the mold is an excellent insulator. Furthermore it is moving and cooler air can get carried in.
3. As shown the LQT is on the side of the mold. If it is on the B half then every time the platen moves the hot air between the insulating plate and the mold
4. This method is a sort of best practice design but has not been evaluated with heat transfer equations. The hotter the mold surface the more heat will be carried up into the LQT case.
5. In operation you can test the temperature of the case with a simple mold surface temperature probe. Also, if any channels are not wired to thermocouples (open) the "Raw Data Viewer" on the *eDART*[™] (from the main menu) shows the internal case temperature within about ± 5 °F.
6. The LQT must be electrically grounded to the mold. That is why we show a tab that serves the purpose of being an electrical connection between the mold bolt and LQT case bolt and also serves as two washers.

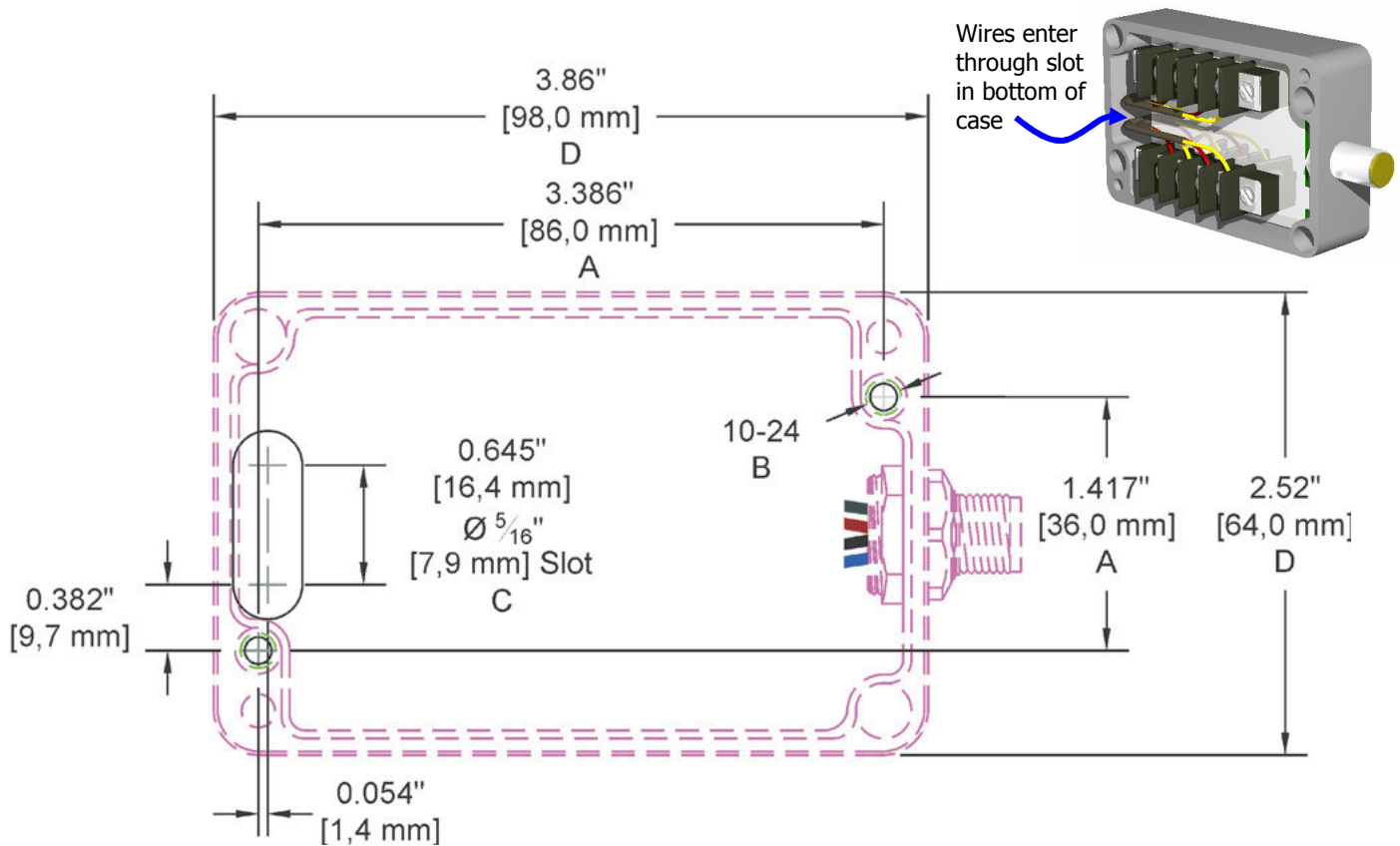
7. Add slip-on shielded over un-shielded thermocouple wires as they are brought up through the bottom of the case. Slip-on shield is available from Action Electronics at

<http://www.action-electronics.com/braid.htm> ... The 1390 (1/8") is sufficient.

8. Actual plate hole dimensions may be chosen by the toolmaker to best fit the tool. The LQT product manual (with the case dimensions) is available at the RJG web site at:

http://www.rjginc.com/document/insight_system/edart_system/lynx_devices/quad_temp_setup.pdf

The dimensions alone are reproduced below. The "slot" shown is the hole in the bottom of the LQT case where the thermocouple wires go to reach the terminal blocks inside.



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