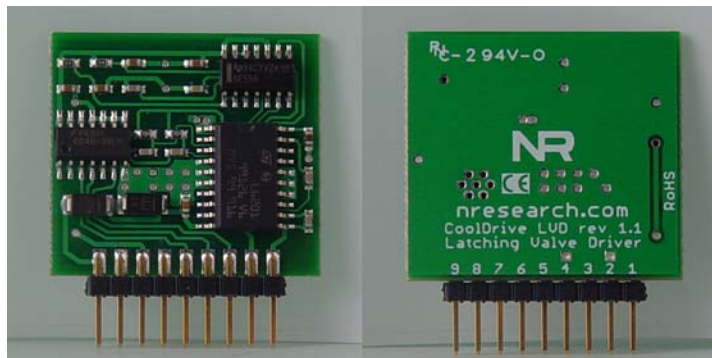# CoolDrive® LVD Latching Valve Drivers

The CoolDrive® LVD Latching Valve Driver circuits by NResearch Inc.® complement NResearch Inc.® Full Opening GreenValve® Latching Valve series. The CoolDrive® LVD Latching Valve Drivers offer Open, Close, and Toggle control functions. Main applications include valves with large amounts of steady time and infrequent state-changes.

Each CoolDrive® LVD Latching Valve Driver provides full power management for one Full Opening GreenValve® Latching Valve, including polarity-change and a single precision timer controlled 110 ms long power pulse per each state-change. While the valve remains in a continuous closed or open state, it becomes separated from the supply - immediately after the initial power pulse the power consumption on the valve falls to zero.

The CoolDrive® LVD Latching Valve Driver circuit in conjunction with NResearch Inc.® Full Opening GreenValve® Latching Valve series will result in extended valve life and reduced overall power consumption required to operate your valve network. Latching valves, driven by short power pulses, eliminate over-heating issues, extending the valves' probable life, while reducing the risk of transferring heat to process media. In addition, overall power consumption is largely reduced in comparison to valves operated at full rated voltage or even at a significantly reduced holding voltage.

The CoolDrive® LVD Latching Valve Driver circuit is approximately 1.25" wide x 1.125" tall without the connector, and approximately 1.455" tall including the connector, and 0.17" thick.

Using NResearch Inc.® CoolDrive® valve drivers in conjunction with NResearch Inc.® solenoid operated valves will give you the most dependable, compact, and cost effective valving solution available anywhere. Save time and resources designing your own driving electronics, rely on a proven bulletproof design, our CoolDrive® Valve Driver Modules.

Any Pressure	161 series	225 series	360 series	648 series
12 VDC	Part Number: LVDD1XVV			
24 VDC				

For pricing information please visit our Website at www.nresearch.com or call / email our office.

ORDERING INFORMATION:

Technical Information

Pinout (1 to 9):

The pin numbers are marked on the flat (non-component) side of the board.
Inputs: 1 to 7, outputs: 8 and 9.
1. Positive voltage supply for valve (Power requirement is determined by the connected valve)
2. GND
3. +5VDC supply for board (Approximately 7.5mA)
4. GND
5. TOGGLE logic level control input (Typically less, than ±0.1μA)
6. CLOSE logic level control input (Typically less, than ±0.1μA)
7. OPEN logic level control input (Typically less, than ±0.1μA)
8. COMMON output to valve
9. RED output (to the red wire of the valve, gets positive pulse when OPEN input is triggered)

Absolute Maximum Ratings:

The following values are in relation to GND, and are not for permanent use. Anything beyond these values may result in permanent damage to the board!

Pin#1: 0 to 30V, recommended 12V or 24V
Pin#3: 0 to 7V, recommended 5.0V
Pin#5,6,7: 0 to 7V, but never more, than the actual voltage on Pin#3, recommended 0V or 5.0V

Lowest resistance connected to output (between Pin#8 & Pin#9): 20 Ohms. Never short the output!
Recommended operating temperature range: between 0° and 70° Celsius.

Logic Levels and Operation:

LOW logic level: 0 to 1.5V, HIGH logic level: 3.5 to 5V (at 5.0V board supply voltage).
All logic level control inputs are to be kept LOW while inactive. No floating or unconnected input pins are allowed. Please make sure the ground of the logic level source is connected to one of the GND pins.
CLOSE and OPEN logic level control inputs are (HIGH) level sensitive. These inputs will trigger a status change only. If left HIGH for a longer period of time, the valve is powered for the first 110msec only.
TOGGLE logic level control input is rising edge sensitive. The maximum rise/fall time is 15μsec.
After an initial state-change a second one is possible after 40nsec but subsequent state change requests will be required to wait for the 110msec timers to expire.

Connector:

The 9 male pins of the board connector are 0.025" square, 0.100" pitch. The black housing of the pins is approximately 0.1" long and the pins' mating length is approximately 0.23".
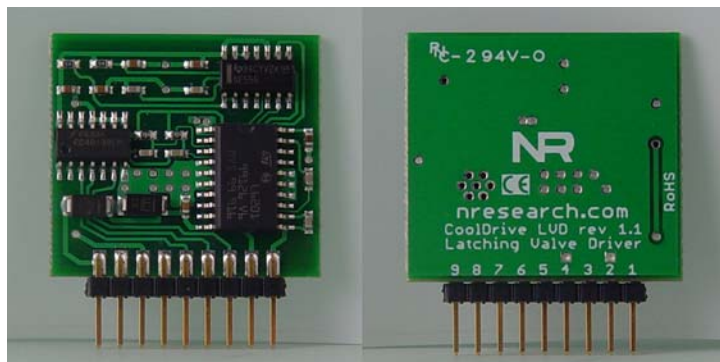
WARNING:

Please take extreme care while making connections as INPUTS and OUTPUTS are generally NOT protected against overvoltage / overcurrent / short circuit / reverse polarity, etc.

Mechanical:

Mounting: via board connector; through-hole or socket. There are no mounting holes on the board. Mounting orientation: any position.

Dimensions

The board is approximately 1.25" wide x 1.125" tall without the connector, approximately 1.455" tall including the connector, and 0.17" thick.