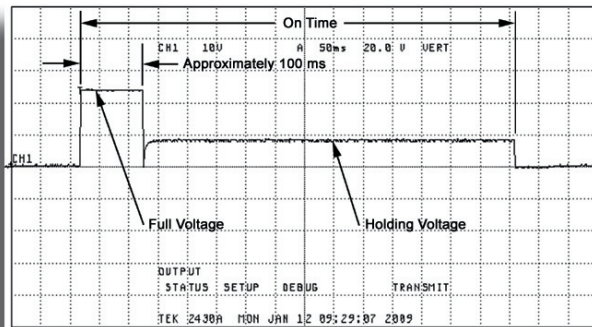
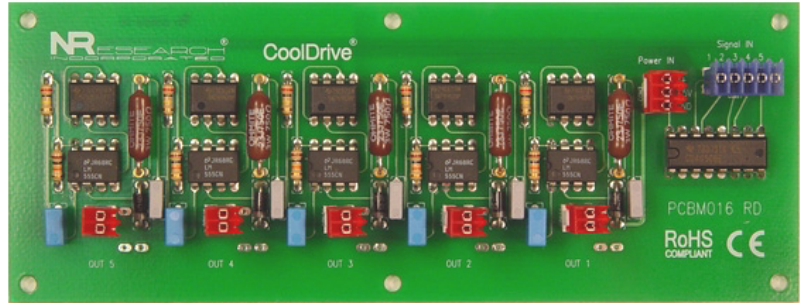


## CoolDrive™ Valve Drivers

The CE certified and RoHS compliant CoolDrive™ driver circuits by NResearch Inc.® complement all of NResearch Inc.® standard solenoid valves. Each CoolDrive™ incorporates five drivers on one compact board measuring 6 inches long by 2.3 inches wide and allows for independent operation of five solenoid valves using 5V logic level signals.



The CoolDrive™ driver circuit uses a holding voltage that is automatically achieved within approximately 100 ms of activating the solenoid. The holding voltage applied is 1/3 of the full rated voltage for the particular solenoid, achieved by interchangeable resistors. The oscilloscope trace shown left was taken of a 24V 225 series solenoid in action using the CoolDrive™ driver circuit.

The CoolDrive™ driving / holding circuit will prolong valve life and reduce overall power consumption required to operate your valve network. By utilizing a holding voltage, over-heating the solenoid valve is eliminated extending the valves probable life, while reducing the

risk of transferring heat to process media. In addition, the holding voltage lowers overall power consumption by not requiring the full rated voltage to hold the solenoid open or energized.

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.

P/N-s for std. pressure only!	161 series	225 series	360 series	648 series
<b>12 VDC</b>	161D5X12	225D5X12	360D5X12	648D5X12
<b>24 VDC</b>	161D5X24	225D5X24	360D5X24	648D5X24

For pricing information please visit our Website at [www.nresearch.com](http://www.nresearch.com) or call / email our office.

Use chart for most standard valves only! For HP (high pressure) models or special valves please consult factory.

## ORDERING INFORMATION:

Neptune Research & Development, Inc.  
267 Fairfield Avenue, West Caldwell, NJ, U.S.A.  
Phone: 973-808-8811 Fax: 973-808-0086  
Email: [sales@nresearch.com](mailto:sales@nresearch.com) Website: [www.nresearch.com](http://www.nresearch.com)

Specifications	12 VDC (xx = 12)	24 VDC (xx = 24)
<b>161D5Xxx</b>	Power requirement at "V+" input: 94 mA min. for each Valve at 12 VDC Required Valve Solenoid coil resistance: 127 Ohms.	Power requirement at "V+" input: 48 mA min. for each Valve at 24 VDC Required Valve Solenoid coil resistance: 500 Ohms.
<b>225D5Xxx</b>	Power requirement at "V+" input: 133 mA min. for each Valve at 12 VDC Required Valve Solenoid coil resistance: 90 Ohms.	Power requirement at "V+" input: 70 mA min. for each Valve at 24 VDC Required Valve Solenoid coil resistance: 345 Ohms.
<b>360D5Xxx</b>	Power requirement at "V+" input: 353 mA min. for each Valve at 12 VDC Required Valve Solenoid coil resistance: 34 Ohms.	Power requirement at "V+" input: 171 mA min. for each Valve at 24 VDC Required Valve Solenoid coil resistance: 140 Ohms.
<b>648D5Xxx</b>	Power requirement at "V+" input: 600 mA min. for each Valve at 12 VDC Required Valve Solenoid coil resistance: 20 Ohms.	Power requirement at "V+" input: 308 mA min. for each Valve at 24 VDC Required Valve Solenoid coil resistance: 78 Ohms.

**Signal IN (1 to 5):** Logic Level Signal Inputs to control valve function. 1x5 pin header accepts AMP 3-644043-5 connectors. Valve(s) are ON / Energized at High Input Level; OFF / not energized at Low Input Level. Signal inputs must be connected to either High or Low level signals at all times. No Floating / unconnected inputs allowed! Please connect inputs of unused channels to GND. High Logic Level : 4 to 5.5 VDC; Low Logic Level : 0 to 1 VDC. Ground connection for signal inputs is at the Power IN connector (GND pin).

**Power IN:** Power Input Connections. 1x3 pin header accepts AMP 3-644042-3 connectors. V+ : xx VDC (12 or 24 VDC), Power for connected Valves. See minimum current requirement in above chart. +5V : 5 to 5.5 VDC, 150 mA min., Power for CoolDrive™ board. GND : Common ground for ALL power and signal connections.

**Out (1 to 5):** Output Connections to Valves. 5x2 pin headers accept AMP 3-644042-2 connectors. The 2 pins on each 2 pin header are equal / reversible. Maximum available output current is 400 mA / channel, except for 648D5Xxx models, where it is 600 mA / channel.

**Connectors, Wires, Crimping Tools:** All required connectors are supplied with the CoolDrive™ boards (1x blue AMP 3-644043-5, 1x red AMP 3-644042-3, 5x red AMP 3-644042-2). The red connectors accept 22 AWG wires. The blue connector accepts 26 AWG wires. All wires with max. 0.06" (1.52 mm) insulation diameter. The AMP 58074-1 hand tool pistol grip is the recommended crimping tool in conjunction with the AMP 58246-1 head. For small volume applications more economical alternative may be the AMP 59803-1 maintenance tool.

**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 Holes: Use # 4-40 (3mm) Philister / Fillister Head Screws. Mounting Orientation: Any Position.

## Dimensions

