On/Off Control Capabilities

The PD540 series Nova Digital Controller are capable of both PID and simple On/OFF control. When On/Off control is enabled, all PID based parameters and groups, such as `C.P id` and `C.At` are disabled. During On/Off control, the Output 1 relay is locked into a control function. Sub1 and Sub2 relays (options) can be set for On/Off control or as alarms. The analog outputs maintain their normal setup options, however the control output levels will only function at 0 or 100 percent of full scale.
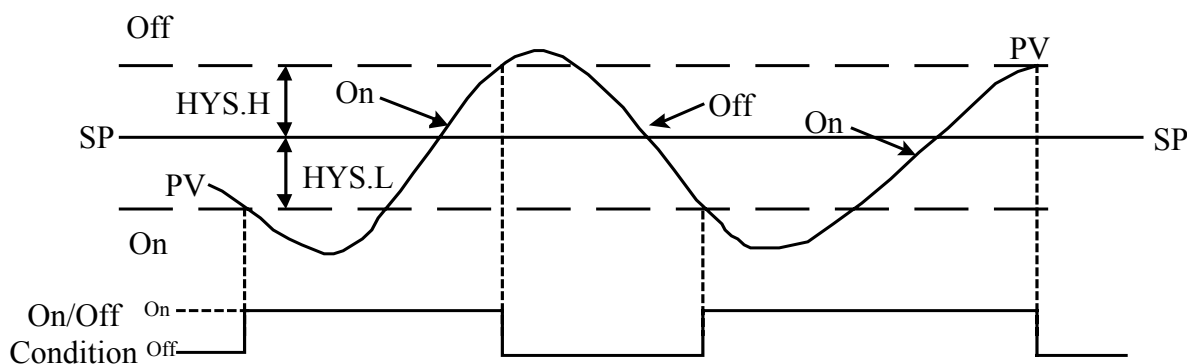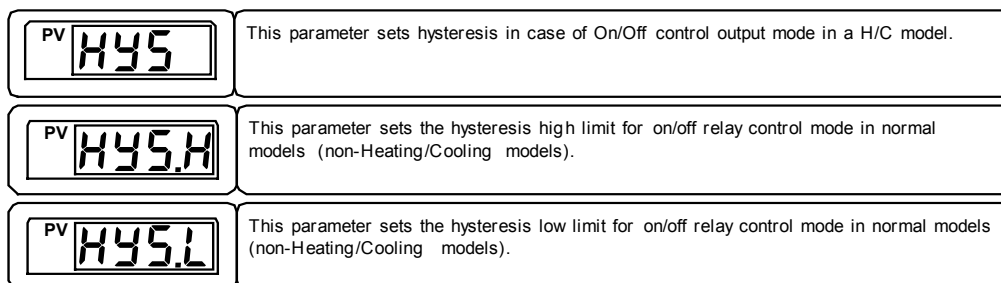
How to Activate On/Off Control

To engage On/Off control, the `OnOF` parameter must be turned on. Press and hold the SET/ENT button for three seconds to enter the setup groups. Use the up and down arrow keys to select the control group (`C.Ctl`), and press SET/ENT. Continue to cycle through the control group parameters to locate the parameter `OnOF`. This is the parameter to enable On/Off control. Set as desired, and press and hold the SET/ENT key for three seconds to return to the main operating display.

On/Off Control Functionality

When in On/Off control mode, the relays and analog outputs operate differently then when operating as PID controlled time proportional relay, 4-20 mA, or 15VDC voltage pulse modes. The relay control outputs will be energized when "on." The analog outputs will either be "on" (4-20 mA or 15VDC constant) or "off" (4mA or 0VDC constant).

On/Off behavior is based on the hysteresis settings established in the output parameter group (`C.OUt`). The parameters used and operation behavior is shown below.

PV `HYS`	This parameter sets hysteresis in case of On/Off control output mode in a H/C model.
PV `HYS.H`	This parameter sets the hysteresis high limit for on/off relay control mode in normal models (non-Heating/Cooling models).
PV `HYS.L`	This parameter sets the hysteresis low limit for on/off relay control mode in normal models (non-Heating/Cooling models).

On/Off condition is based on the Hysteresis settings, determining the On/Off conditions based a deviation from the SP.
Note: In H/C models, `HYS.H` and `HYS.L` are replaced by `HYS`, and range high and low is ½ the `HYS` setting.

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