Application Note AN-ODP-10

Using the second relay output option module

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- ***General:***

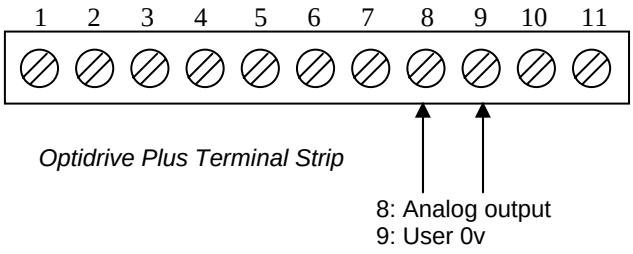
The Optidrive Plus is designed to have one dedicated replay output channel. For those applications where a second independent relay output is needed, the Second Relay Output option module can be used. The operation of this option module is described below.
For more information about this option card, please contact your local distributor or Invertek Drives Ltd.

- ***Parameters:***

Note that the second reply output needs the control signal from analog output channel. In this case, the analog output function will not be available at same time when this function is enabled.

The second relay output function is shared with analog output function and uses the same output terminal. It is effectively a 24V digital output signal. Please therefore ensure that no high voltage signals are connected directly to this output terminal to avoid damage to the drive.
A relay output option module must be used in order to convert this output into true replay output if high voltage signals are to be switched

The condition under which the second relay contacts open / close are determined by the parameter P2-11, which control the analog / digital output on terminal 8.



P2-11 Analog output function select

The second relay output contacts are available on terminals 8 and 9 of the option module terminal strip. This option relay utilises the Optidrive Plus analog output for operation, so the analog output is not available when this module is fitted.

To determine when this second relay opens / closes, P2-11 needs to be set accordingly. The functionality of the analog output is set by this parameter. The following options are available, all of which configure the analog output as a digital output:

Digital Output Mode -> 0~24V

0: Drive enabled
1: Drive healthy
2: Motor at target speed
3: Motor speed > zero
4: Motor speed > limit (defined in P2-12)
5: Motor torque > limit (defined in P2-12)
6: 2nd Analog input > limit (defined in P2-12)

Note that options 7, 8, 9 in P2-11 cannot be used to control the relay, as these are analog outputs. When using the second relay option module, P2-11 should therefore be set at a value from 0 to 6.
Note also that if P2-11 has been changed to a new value, the limit value in parameter P2-12 will be automatically reset to 100%. It is therefore necessary to set the limit parameter to the chosen value after changing the value of P2-11.

P2-12 Digital output control limit

P2-12h Analog output control high limit
P2-12L Analog output control low limit

This parameter specifies the operating limit value in percentage format for the analog output (second relay control when fitted with the 2nd relay option module).

Parameter P2-12 combines both the high and low limits, entered as separate values into P2-12. The first value in this parameter gives the high limit (with a character 'h' on the LH side of the display), and the second value in this parameter gives the low limit (with a character 'L' on the LH side of the drive display).

The upper limit is the level at which the output changes to a logic 1 output, the low limit is the level at which the output changes to a logic 0. The two limits therefore define a hysteresis band. If user sets P2-12h less than P2-12L, the value in P2-12L will be set equal to P2-12h automatically.

If the user changes the setting of P2-11, then the parameter values in P2-12 will be automatically reset to 100% (h) and100%(L). The value of parameter P2-12 must therefore be redefined each time that Parameter P2-11 is changed.

Consider the following example:

P1-01 = 50Hz, P2-11 = 4 (speed > limit value), P2-12 (H) = 70% and P2-12 (L) = 50%

In this case, the analog output will change to +24V (relay output close) when the speed exceeds 35Hz and will change back to 0V (relay output open) when the speed drops back below 25Hz.

See AN-ODP-09 for further information about the on-board relay control function.

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