



# Optidrive Applications Support Library

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|--------------------------|---|
| <b>Application Note</b>  | <b>AN-ODE-2-014</b>   |
| <b>Title</b>             | <b>Hand Auto Operation</b>  |
| <b>Related Products</b>  | <b>Optidrive E2</b>   |
| <b>Level</b><br><b>1</b> | 1 – Fundamental - No previous experience necessary<br>2 – Basic – Some Basic drives knowledge recommended<br>3 – Advanced – Some Basic drives knowledge required<br>4 – Expert – Good experience in topic of subject matter recommended |

## Overview

Some applications require that the speed reference can be switched between keypad and terminal control during operation. For example, switching between local keypad control (or Optiport / Optipad remote keypad) and a remote control system connected to the analog input.

This document describes how to set up this mode of operation.

## Parameters

The following parameter configurations are possible:-

| P-12   | P-15      | Digital Input | Open       | Closed         |  |
|--------|-----------|---------------|------------|----------------|--|
| 1 or 2 | 2, 6 or 7 | 4 (T6)        | Keypad     | Preset Speed 1 |  |
| 1 or 2 | 4         | 3 (T4)        | Keypad     | Analog Input 1 |  |
| 3 or 4 | 7         | 2 (T3)        | Modbus RTU | Keypad         |  |

When Keypad Operation Mode is selected (P-12 = 1 or 2), P-31 selects whether the drive should enable immediately when Digital Input 1 is closed, or whether the keypad Start button should be pressed to enable the drive

- If P-31 = 0 or 1, the green Start key on the drive keypad (or a connected Optipad / Optiport) must be pressed to start the drive. The keypad stop key also functions to stop the drive
- If P-31 = 2 or 3, the drive is enabled whenever Digital Input 1 is closed, and the keypad start and stop keys have no function (except fault reset with the Stop key).
- In most cases, this means P-31 should be 2 or 3 for most Hand / Auto applications. Note that if P-31 = 0 or 1, even if an alternative speed reference is selected (e.g. P-15 = 4, Digital Input 3 is ON, speed setpoint = Analog Input 1), it is still necessary to press the keypad start key to start the drive.
  - Setting 2 means that when Hand (keypad) operation is selected, the drive output frequency starts from minimum frequency / speed (P-02) and can be adjusted using the up and down keys
  - Setting 3 means that when Hand (keypad) operation is selected, the drive output retains the last operating frequency / speed used in keypad mode, and will automatically restart from there

When Modbus RTU Operation Mode is selected and P-15 = 7, Digital Input 2 allows selection between Modbus control, and Terminal Control.

For Modbus Control

- Digital Input 1 must be ON to enable the drive hardware
- Digital Input 2 must be OFF to select Modbus RTU Control
- Starting of the drive is controlled using the standard drive control register
- Speed Reference is controlled using the standard Modbus register
- Refer to application note AN-ODE-2-038 for further information on using Modbus RTU

## For Keypad Control

- Digital Input 2 must be ON to select Keypad Operation
- Digital Input 1 now controls the drive starting and stopping (ON to start, OFF to stop)
- Speed reference can be adjusted with the drive keypad, or a connected Optiport / Optipad.

**Appendix**

| Revision History |                       |        |          |
|------------------|-----------------------|--------|----------|
| Issue            | Comments              | Author | Date     |
| 01               | Document Creation     | KB     | 18/3/13  |
| 02               | Revised to new format | KB     | 24/04/14 |