
Application Note

C001 How to use the Comms Control Word

HA502487C001 Issue A

AC30 V1.1 onwards

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Requirements

Intended Users

This Application Note is to be made available to all persons who are required to install, configure or service equipment described herein, or any other associated operation.

The information given is intended to enable the user to obtain maximum benefit from the equipment.

Application Area

The equipment described is intended for industrial motor speed control utilising AC induction or AC synchronous machines.

Personnel

Installation, operation and maintenance of the equipment should be carried out by qualified personnel. A qualified person is someone who is technically competent and familiar with all safety information and established safety practices; with the installation process, operation and maintenance of this equipment; and with all the hazards involved.

Hazards

Refer to the Safety Information given at the front of the Product Manual supplied with every Parker SSD Drives product.

C001 HOW TO USE THE COMMS CONTROL WORD

Abstract

This application note explains how to use the Comms Control Word on an AC30 drive and provides some examples.

Pre-Requisite

The pre-requisites are an AC30 drive and, optionally, a Communications Option.

Introduction

A motor may be controlled remotely using the fieldbus communications. This may be either one of the Communications Options or the built-in base Modbus TCP. A more detailed description of the drive sequencing is found in Appendix B: Sequencing Logic in the Product Manual HA501718U002.

The parameter **0627 Comms Control Word** is used to control the motor (start, stop, direction, etc.). This may optionally be used with the parameter **0681 Comms Reference**, which is a floating point 32-bit value.

Using the Comms Control Word

It may be worth referring to the next section below "Control Word Summary" in conjunction to these instructions.

To use the Comms Control Word:

- The Comms Control Word parameter should only be written to by a fieldbus master and not modified by the drive application.
- It is not necessary to modify the factory default application to use the Comms Control Word.
- The sequencing parameter **0591 Local** must be set to FALSE - this is the same as choosing remote using the L/R button on the GKP.
- When the parameter **0591 Local** is set to FALSE, control is handed to either the **0627 Comms Control Word** or the **0610 App Control Word**
- For the **0627 Comms Control Word** to be active bit 10 (**Use Comms Control**) of this word must be set each time the word is written to.
- If the reference is to come from the parameter **0681 Comms Reference** then bit 11 (**Use Comms Reference**) must be set.
- Note that the Not Quickstop, Enable Voltage and Switch On bits of the **Comms Control Word** are ANDed with the **0610 App Control Word**.
- Also note that the External Fault bit of the **Comms Control Word** is ORed with the **0610 App Control Word**.
- Writing to the Comms Control Word should be done as a complete 16-bit write, rather than via individual bits or bytes.

Examples of writing to the Comms Control Word

The following values are in hexadecimal:

0xCC7F – Run Forward

0xEC7F – Run Reverse

0xCC77 – Stop

Note in these examples the Stop command must be written before the first Run command is written, as a rising edge of the Enable Operation bit is required.

Using the built-in Modbus TCP

For the built-in Modbus TCP:

0627 Comms Control Word uses Modbus register 01781

0681 Comms Reference uses Modbus registers 01889 and 01890

Using a Communications Option

For the Communications option, the parameters **0627** and **0681** need to be included in the read process data. Note the default setting of the read process data includes these parameters.

Control Word Summary

Bit	Name	Description
0	Switch On	OFF1 = 1 to switch on
1	Enable Voltage	OFF2 = 0 to coast stop
2	Not Quickstop	OFF3 = 0 to emergency stop
3	Enable Operation	1 = Run
4	Enable Ramp Output	=0 to set ramp output to zero <i>Not implemented, See note below</i>
5	Enable Ramp	=0 to hold ramp <i>Not implemented, See note below</i>
6	Enable Ramp Input	=0 to set ramp input to zero <i>Not implemented, See note below</i>
7	Reset Fault	Reset trips on 0 to 1 transition
8	External Fault	1 = External (Application) trip active
9		<i>Unused</i>
10	Use Comms Control	1 = Use 0627 Comms Control Word as the Control Word source for sequencing
11	Use Comms Reference	1 = Use 0681 Comms Reference as the Reference source
12	Use Jog Reference	1 = Run using 0501 Jog Setpoint when Enable Operation = 1
13	Reverse Direction	1 = Run in reverse direction when Enable Operation = 1
14	Auto Initialise	1 = Allow SWITCH ON DISABLED to READY TO SWITCH ON transition regardless of bit 0 (Switch On)
15	Event Triggered OP	1 = Rising-edge of Enable Operation required for SWITCHED ON to OPERATION ENABLED transition Setting "Event Triggered OP" to 0 could cause the motor to start unexpectedly.

Note – bits 4, 5, 6 must be set (= 1) to allow the ramp control feature to be added in the future.