

The Application Note is specific to the Commander SK

SM-Ethernet Quick Start Guide

Scope

The SM-Ethernet field bus communication option has proved to be a popular option for all of the current Control Techniques products that support the SM-Option format. Our experience at Grand Island supporting the SM-Ethernet with the Commander SK has turned up a number of extra “challenges” that this application note will address.



This note describes setting up the first node at IP address **192.168.1.100**, a second node at **192.168.1.101**, at third node at **192.168.1.102** and so forth.

Background

Unlike the Unidrive SP, the Commander SK does not make all of the “advanced parameters” available for inspection and/or modification with the user interface provided with the drive. And many times, one is setting up the Commander SK for use with an option like the SM-Ethernet module, and the cover is off the drive. It is not “obvious” how to use this interface under those conditions.

The SK is simply not as “observable” as the Unidrive SP when using the SM-Options unless one is using the LCD Keypad which can greatly speed up your efforts. See [CTAN313](#)

To finish the challenges to overcome, the Commander SK North American defaults are not suitable for use with the SM-Ethernet option, if that use involves setting target speeds and/or starting and stopping over the Ethernet link.

Instructions:

Using the Commander SK keypad or CTSOft, start by defaulting the Commander SK to **European** defaults to insure advanced parameters #6.04 and #6.40 get properly set for control word control of the SK.

Pr 29 (#11.43) to a value Eur (1) Load European defaults.

Note: The drive should be disabled during this programming (should indicate )

Note also that Pr2, Pr 7 and Pr 8 will likely need attention after this change, but this is the easiest way to get the drive mode into the proper configuration.

Using the SK keypad or CTSOft, set the following parameters to the indicated values. Save the parameters via software, or by cycling power. Note that changes made to the menu zero (0) parameters are saved at power down.

Pr 5 (#11.27) to value	Pr - To select Preset Speeds as the Reference source
Pr 10 (#11.44) to value	L3 - To open up full access to menu 0
Pr 11 (#06.04) to value	0 - To select most compatible logic scheme
Pr 41 (#05.14) to value	Fd (2) allows you to run drive without motor connected

Set Menu zero advanced parameter access pointers as follows:

Pr 71	to value06.42	Control Word	} Ethernet Module setup
Pr 72	to value06.43	Control Word Enable	
Pr 73	to value01.15	Preset Reference Source Selector	
Pr 74	to value 15.37	Reduce SP serial interface priority	}
Pr 75	to value 15.32	Request To Re-initialize	
Pr 76	to value 15.13	Segment Z of IP Address	

Set parameter configuration values as follows:

Pr 61 (#06.42) to value	129 - Control Word for Drive Enable via Comm Link
Pr 62 (#06.43) to value	On- to enable Control Word Control
Pr 63 (#01.15) to value	1 - to select #1.21 as the Speed Reference
Pr 64 (#15.37) to value	Off ("0") **
Pr 65 (#15.32) to value	Off ("0") ***
Pr 66 (#15.13) to value	100 first SM-Ethernet module, 101 for the next one ...

** set to On ("1") if using CTSOft connected via the Ethernet link

*** set to On ("1") after changing Pr66 (#15.13) from the default value of 100 (self-resets)

For more information on how to access parameters outside menu 0, consult [CTAN272](#)

Short video illustrating this procedure→



Commander SK keypad operation with the cover removed:

The following diagram illustrates the button mappings



The keys micro-switches still work even without the cover in place over them!

So, one could still perform the previous configuration with the cover off, with these illustrations as a guide.

Modbus TCP/IP Users

1. Configure your controller to write to IP address “**192.168.1.100**” a speed target value to #01.21 (Register 40121) in a frequency x10 format (300 = 30.0 Hz., 600 = 60.0 Hz.).

The result is observable at Pr18 with the SK keypad.

2. Configure your controller to write to IP address “**192.168.1.100**” a control word value to parameter #06.42 (Register 40642).

If Pr 71 is set to a value 6.42 then this it is observable at Pr61 with the SK Keypad.

With a connection between terminal B2 and B4 (hardware enable):

- A value of “128” (*inhibit*) observed at Pr61 (#06.42) will show “**ih 0.0**” on the display.
- A value of “129” (*enable*) observed at Pr61 (#06.42) will show “**rd 0.0**” on the display.
- A value of “131” (*run forward*) observed at Pr61 (#06.42) will show “**Fr x.x**” on the display, where **x.x** is the target frequency in #0.18 (#01.21).
- A value of “137” (*run reverse*) observed at Pr61 (#06.42) will show “**Fr - x.x**” on the display, where **x.x** is the target frequency in Pr18 (#01.21).

To obtain an overview of internal details discussing such topics as the **Control and Status Words** click here → [CTAN320](#)

Ethernet IP Users

1. Configure your scanner for two, 32-bit cyclic words (eight bytes) out and (eight bytes) in to IP address "**192.168.1.100**", using input assembly object 100 and output assembly object 101. Note that for a Rockwell PLC, these are "double integer" (DINT) transfers.
 - The first OUTWORD is the control word
 - The second OUTWORD is the target frequency (proportional to target speed)
 - The first INWORD is the status word
 - The second INWORD is the actual (post-ramp) frequency (proportional to actual speed)
2. Configure your controller to write to IP address "**192.168.1.100**" a speed target value via the first OUTWORD to #01.21, in a frequency x10 format (300 = 30.0 Hertz, 600 = 60.0 Hertz). The result is observable at Pr8 with the SK keypad.
3. Configure your controller to write to IP address "**192.168.1.100**" a control word value via the second OUTWORD to parameter #06.42. This is (now) observable at Pr61 with the SK Keypad.
 - With a connection between terminal B2 and B4 (hardware enable):
 - A value of "128" (*inhibit*) observed at Pr61 (#06.42) will show "**ih 0.0**" on the display.
 - A value of "129" (*enable*) observed at Pr61 (#06.42) will show "**rd 0.0**" on the display.
 - A value of "131" (*run forward*) observed at Pr61 (#06.42) will show "**Fr x.x**" on the display, where **x.x** is the target frequency in Pr18 (#01.21).
 - A value of "137" (*run reverse*) observed at Pr61 (#06.42) will show "**Fr - x.x**" on the display, where **x.x** is the target frequency in Pr18 (#01.21).

To obtain an overview of internal details discussing such topics as the **Control and Status Words** click here → [CTAN320](#)

Note to all users:

When you begin to work with the next Commander SK / SM-Ethernet pair, be sure you are writing to the proper IP address, which should be **192.168.1.101** for the second one (Pr66 = **101**), **192.168.1.102** for the third one (Pr66 = **102**), and so forth (if you are following the recommendation given in this application note).

If you are experienced enough to be assigning your own IP addresses, this reminder should suffice.

Other Resources

To obtain a manual for the SM-EtherNet Module click here→ [EtherNet Module Manual](#)

To obtain the Commander SK User Guide click here→ [CommSK User Guide](#)

To obtain the Commander SK User Guide click here→ [CommSK Advanced User Guide](#)

To obtain the CTSOft click here→ [CTSOft](#)

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