Siemens Simovert via USS

Application Note

This document contains specific information regarding the use of Red Lion's communications driver for Siemens Simovert via USS protocol. The communications protocol supports access to pertinent parameters. Please read this document carefully before attempting to configure communications with these devices.

Accessible Data

Prefix	Description	Element Size	Minimum	Maximum
P	Parameters	16 bits	0	999
STW*	Control Word	16 bits	N/A	N/A
HSW**	Frequency Word	16 bits	N/A	N/A

* The STW field is used to control the operation of the converter. Each bit is as defined below.

STW – Control Word Field			
Bit	Definition	Disabled	Enabled
0	OFF1	Activates the OFF1 condition	Allows the inverter to run
1	OFF2	Activates the OFF2 condition	Allows the inverter to run
2	OFF3	Activates the OFF3 condition	Allows the inverter to run
3	RUN	Switches the inverter output off immediately	Allows the inverter to run
4	Fast Stop	Decelerates the inverter as fast as possible along the DC Link Voltage	Allows the inverter to run
5	Ramp Hold	Holds the ramp rate generator at its present frequency	Allows the inverter to ramp normally
6	Ramp Inhibit	Ramp to 0.0 Hz	Ramp normally
7	Fault Acknowledge	Clear the inverter from a tripped or fault state	
8	Jog Right	No action	Jog Right
9	Jog Left	No action	Jog Left
10	Control Valid	Ignore control bits	Control bits are valid
11	ON Right	No action	Requested direction is right
12	ON Left	No action	Requested direction is left

** The HSW contains the desired frequency demand to the inverter. This demand is scaled such that a value of 4000H represents 100%. The scaling is set in a parameter on the inverter. For inverter specific information, please refer to the appropriate inverter manual.

Sending Commands

The Control Word (STW) and the Frequency Word (HSW) are used to send commands to the inverter. The following steps should be taken to send all commands:

1) Set STW to the appropriate value (as defined in the chart above) for the desired inverter behavior.
2) Set HSW to the appropriate value.
3) Write a non-zero value to SEND (Send Command) in order to initiate the command.

Please note if no value is needed for the HSW field for the command being sent, the HSW must always be set to 0 before SEND is written.

Sending Commands - Examples

Example 1: Run Inverter at 50% frequency.

1) Set STW to 0x0C7F.
2) Set HSW to 0x2000.
3) Write a non-zero value to SEND (Send Command).

Example 2: Immediately switch inverter off.

1) Set STW to 0x0C7D.
2) Set HSW to 0x0000.
3) Write a non-zero value to SEND (Send Command).

Broadcast

Designate a PLC drop number of 32 in order to broadcast a command to all inverters on the loop.

Default Communication Settings

The default configuration for the Siemens Simovert via USS driver is as follows:

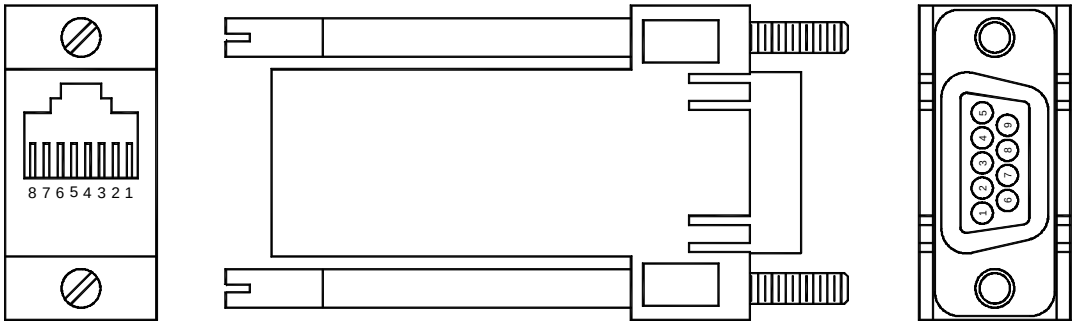
Port	RS485
Baud Rate	9600
Data Bits	8
Parity	Even
Stop Bits	1
Device Address	1

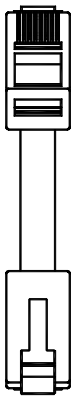
Knowledge of Unit Operation Is Assumed

In all cases, the simple principle of ‘pass-through’ is maintained: there is no attempt to validate a value in terms of the end use of the unit: both familiarity with the Drive functions and knowledge of system operation are assumed.

Communications

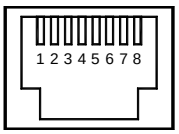
The connection details are described in the table below.





Connections			
FROM RLC UNIT	Name	CONNECTER PINOUT	
		RJ45	DB9 MALE
1	TxB	1	3
2	TxA	2	8
3	RxA	3, 8	-
4	RxB	4, 7	-
5	TxEN	5	-
6	COMM	6	5
7	TxB	4, 7	-
8	TxA	3, 8	-

The above table denotes the pin names of the RS485 port. When connecting, the pin name at the RS485 port is connected to the opposite of that pin name at the destination device.



RS485 PORT
(FROM RLC UNIT)