GUIDE FOR CONFIGURING THE ACS880 FOR MODBUS RTU USING CSA 2.8/3.0 PROFILE

Scope:
The ACS880 does not support the CSA profile that the ACS600/ACS800 supported on Modbus. This guide will show how to use Transparent mode in the ACS880 to create the CSA control and status words to mimic the CSA profile.

Explanation:
The ACS880 should be first be configured for standard Modbus RTU operation and the parameters below need to be set to enable the embedded Modbus and to tell the drive that the start/stop and speed references will come from communications if Modbus is being used for control and reference.

20.01 EXT1 command = Embedded Fieldbus (If using Modbus for control)
22.11 Speed ref source = EFB ref1 (If using Modbus for control)
58.01 Protocol enable = Modbus RTU
58.03 Node Address = Node address 1...247
58.04 Baud Rate = Network Baud rate
58.05 Parity = Parity type and stop bits
58.06 Communication Control = Refresh settings to save EFB parameters
58.25 Control Profile = Transparent

When the profile is set to Transparent, the drive does NOT do any data conversion on the CW or SW. Speed Reference and Actual values are treated separately and can be handled/scaled in their usual way. The raw control word sent from the PLC will come into the drive and be visible in par 06.05 EFB Transparent Control Word. The bit structure is below:
What we will do is point our drive control parameters (like enable and start) to the corresponding bits in this CW. For example:

20.12 Run Enable 1 Source = 6.05.1  
20.03 Ext1 In1 Source = 6.05.3  
19.11 Ext1/Ext2 Selection = 6.05.5  
31.11 Fault Reset Selection = 6.05.8

Now, on to the status word. The ACS880 allows us to build a status word bit by bit using par 6.50. We will use this parameter as the source of our CSA status word:

58.30 EFB Status Word Transparent Source = 6.50

The status word is in par 06.05 EFB Transparent Control Word. The bit structure is below:

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Product Categories: ACS880
Parameters 6.60 to 6.75 are used to assign each bit to match the functionality of the CSA status word:

6.60 User status word 1 bit 0 sel = 6.11.1 (RDY_RUN)
6.61 User status word 1 bit 1 sel = 6.11.4 (OFF_2_STA)
6.62 User status word 1 bit 2 sel = False
6.63 User status word 1 bit 3 sel = 6.11.2 (RDY_REF)
6.64 User status word 1 bit 4 sel = False
6.65 User status word 1 bit 5 sel = 6.11.9 (REMOTE)
6.66 User status word 1 bit 6 sel = False
6.67 User status word 1 bit 7 sel = 6.11.8 (AT_SETPOINT)
6.68 User status word 1 bit 8 sel = 6.11.3 (TRIPPED)
6.69 User status word 1 bit 9 sel = 6.11.7 (ALARM)
6.70 User status word 1 bit 10 sel = 6.11.10 (ABOVE_LIMIT)

The Modbus register addresses for control and status word remain the same as they were and are shown below:
## Contents

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<tr>
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</tr>
<tr>
<td>40011</td>
<td>ACT4</td>
</tr>
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<td>40012</td>
<td>ACT5</td>
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### Documents or other reference material:

- ACS880 primary control program Firmware manual 3AUA0000085967
- ACS800 Standard Control Program 7.X 3AFE64527592