

AMCI Frequently Asked Question

How do I program an AMCI SSI Interface Module to work with an Allen-Bradley 842A Absolute SSI Encoder?

This FAQ give information on programming the AMCI 7561 and 7761H to work with Allen-Bradley 842A Absolute SSI Encoders. Programming data is given to properly extract the position data from the SSI data stream. Other parameters, such as the Scalar Multiplier and Divisor, are application specific, so actual values cannot be given in this FAQ.

This FAQ is not a tutorial for programming the 7561 or 7761H modules. Download the appropriate manual from our website (www.amci.com) for complete instructions on using these modules.

7561 Module for SLC 500 I/O

Table 1 lists the 842A part numbers, their total number of turns and pulses per turn, and the 7561 programming data needed to extract the data value from the SSI stream. The “x” in the 842A part number is a place holder for the shaft size value and is unimportant for this FAQ. The last column of the table gives the decimal value of output word one that must be used when programming the module. Note that bit 1 in output word zero must be set during a Programming Cycle before the 7561 will program the parameters to the values entered in output word one.

Part Number	Number of Turns	Pulses per Turn	SSI Bit # of Data's MSB	Number of SSI Data Bits	Word 1 Data Value (decimal)
842A-xNA	2048	8192	2	24	536
842A-xNB	4096	4096	1	24	280
842A-xNC	8192	2048	1	24	280
842A-xND	512	4096	4	21	1045
842A-xNE	256	4096	5	20	1300
842A-xGA	2048	8192	2	24	600
842A-xGB	4096	4096	1	24	344
842A-xGC	8192	2048	1	24	344
842A-xGD	512	4096	4	21	1109
842A-xGE	256	4096	5	20	1364

Table 1 7561 Data Values



Because the position value is always a power of two, you can use the Count Direction parameter to reverse the rotational direction for increasing counts as described in chapter 1 of the 7561 User Manual.

Working with an A-B 842A Encoder

7761H Module for 1771 I/O

Table 2 lists the 842A part numbers, their total number of turns and pulses per turn, and the 7761H programming data needed to extract the data value from the SSI stream. The “x” in the 842A part number is a place holder for the shaft size value and is unimportant for this FAQ. The last two columns of the table gives the decimal value of output words one and two that must be used when programming the module. Note that bit 1 in output word zero must be set during a Programming Cycle before the 7761H will program the parameters to the values entered in output words one and two.

Part Number	Number of Turns	Pulses per Turn	SSI Bit # of Data's MSB	Number of SSI Data Bits	Word 1 Value (Decimal)	Word 2 Value† (Decimal / Hex)
842A-xNA	2048	8192	2	24	25	-15,848 / C218h
842A-xNB	4096	4096	1	24	25	-16,104 / C118h
842A-xNC	8192	2048	1	24	25	-16,104 / C118h
842A-xND	512	4096	4	21	25	-15,339 / C415h
842A-xNE	256	4096	5	20	25	-15,084 / C514h
842A-xGA	2048	8192	2	24	25	-15,784 / C258h
842A-xGB	4096	4096	1	24	25	-16,040 / C158h
842A-xGC	8192	2048	1	24	25	-16,040 / C158h
842A-xGD	512	4096	4	21	25	-15,275 / C455h
842A-xGE	256	4096	5	20	25	-15,020 / C554h

† The listed values for word two are negative because the two most significant bits are set to program the SSI Clock Frequency parameter to 125KHz. This clock frequency was chosen for this FAQ because it will work in all applications.

Table 2 7761H Data Values

NOTE

- 1) You cannot use the 7761H's Count Direction parameter to reverse the direction of rotation needed to produce increasing counts in rotary encoders. See chapter 1 of the 7761H User Manual for a ladder logic sample that reverses count direction.
- 2) You cannot use the 7761H's Preset Value parameter to preset the position of the 842A encoder. See FAQ 940-1F030, *How Do I Offset the Resolver Position in the PLC?*, for ideas on offsetting the encoder position in the PLC.