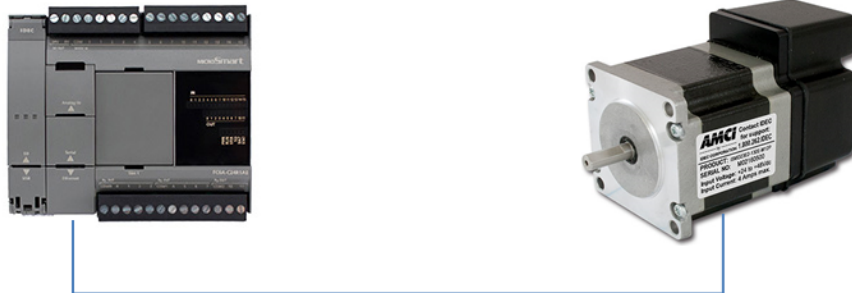# Application Notes
How to configure AMCI ISMD23E2 Motor+Drive+Controller

Follow the instructions below to configure and execute a relative move command with the MicroSmart FC6A PLC and AMCI Motor+Drive+Controller unit.


M12-RJ45 Ethernet cable
(part number ICNER-5M)

1. Click on this link to download and save the user-defined macro instructions
   http://us.idec.com/Common/Download.aspx?d=414271

2. In WindLDR software (make sure FC6A PLC is selected), click **Configuration** tab → **Memory Backup**, select "**Keep All**" under Internal Relay M10000 to M17497
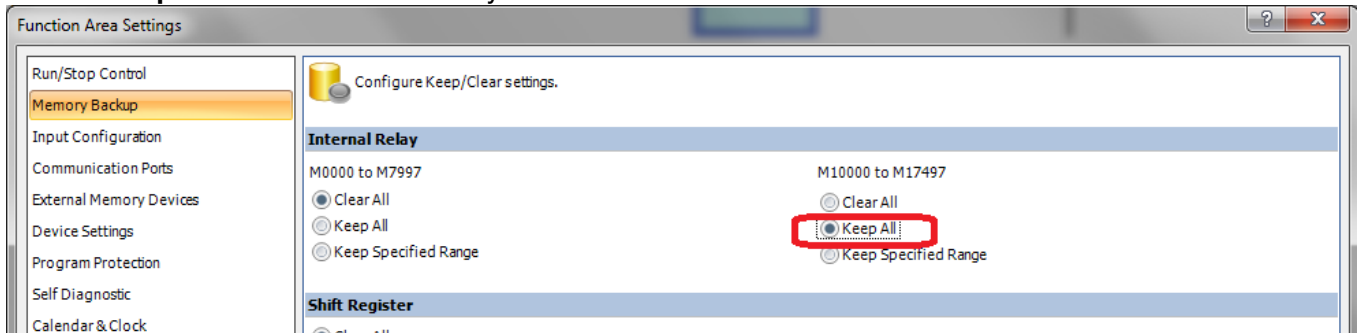
3. In WindLDR software (make sure PLC IP address is default to 192.168.1.5), click **Configuration** tab → **Connection Settings**
4. Under Connections 1, select **Modbus TCP Client**
5. The Modbus TCP Client dialog box open, fill out Req. No. 1 and 2 exactly as shown below
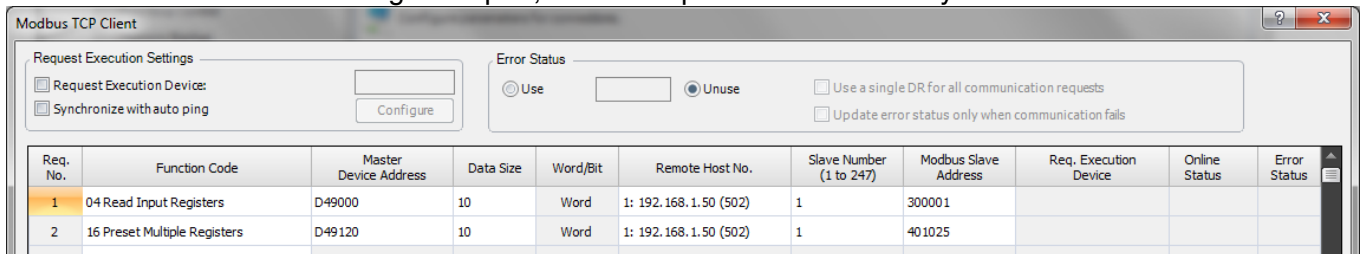
   Note: Assuming the AMCI unit IP address is default at 192.168.1.50

6. Under **Home** tab, click **Import** and select **User-defined Macro**
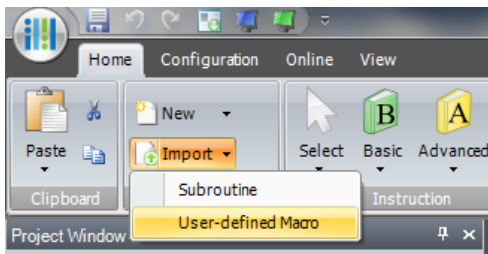
7. Locate the file save in step 1 and click **Open**
8. Select User-defined Macro **0** (Configure) and **2** (Relative Move) and click **OK**
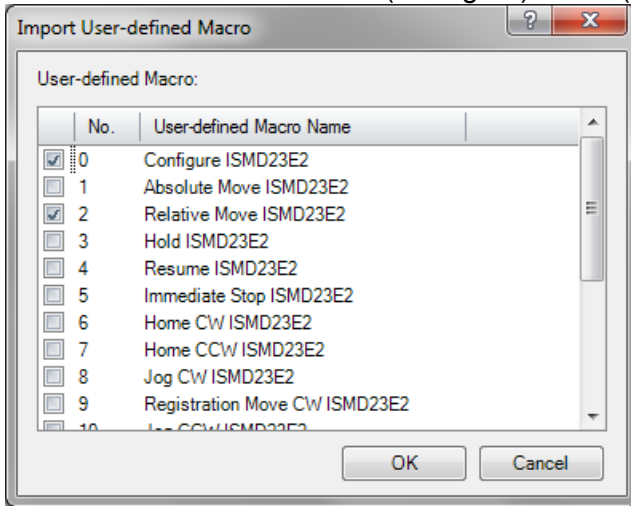
9. Under Project Window, you should see macro 0 and 2 under User-defined Macro
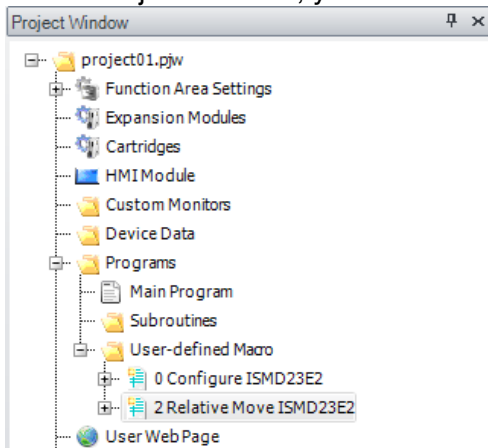
10. Insert a NO contact M14750 and SOTU instructions in the ladder program as shown below

11. Under **Home** tab, click **Macro** and select **UMACRO**

12. Under S1(User-defined Macro Number), make sure it's default to 0 (macro 0). Fill out the parameters exactly as shown below

UMACRO (User-defined Macro)

Settings

S1(User-defined Macro Number): 0

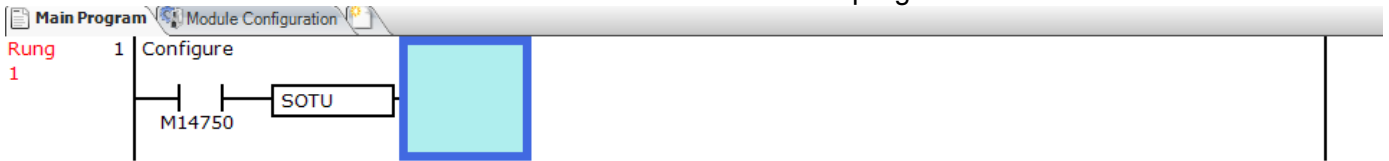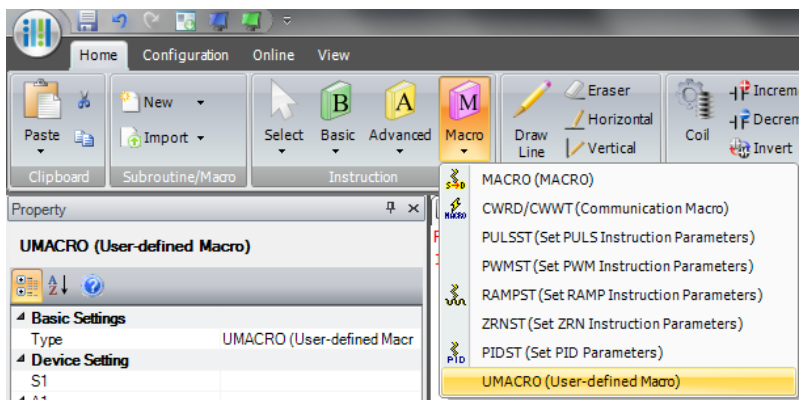|	Device Type	Tag Name		Device Address	Comment
A1	D (Data Register)	D49120	...	D49120	Send Data
A2	D (Data Register)	D49620	...	D49620	Input 1 function
A3	D (Data Register)	D49621	...	D49621	Input 2 function
A4	D (Data Register)	D49622	...	D49622	Input 3 function
A5	M (Internal Relay)	M14500	...	M14500	Input 1 Active state
A6	M (Internal Relay)	M14501	...	M14501	Input 2 Active state
A7	M (Internal Relay)	M14502	...	M14502	Input 3 Active state
A8	M (Internal Relay)	M14503	...	M14503	Encoder Enable
A9	M (Internal Relay)	M14504	...	M14504	Backplane enable
A10	M (Internal Relay)	M14505	...	M14505	Stall Detection Enable
A11	M (Internal Relay)	M14506	...	M14506	Disable Anti-Resonance
A12	D (Data Register)	D49623	...	D49623	Starting speed
A13	D (Data Register)	D49624	...	D49624	Motor steps/turn
A14	D (Data Register)	D49625	...	D49625	Encoder counts/turn
A15	D (Data Register)	D49626	...	D49626	Idle Current Reduction
A16	D (Data Register)	D49627	...	D49627	Motor current

OK   Cancel

13. Once completed, your ladder program should look like this

This rung configure the AMCI unit.

Rung 1 | 1 | Configure

M14750 —| |— —| |— [SOTU]   1 →

		Send Data	Input 1 function	Input 2 function	Input 3 function	Input 1 Active state	Input 2 Active state
UMACRO	S1 0	A1 D49120	A2 D49620	A3 D49621	A4 D49622	A5 M14500	A6 M14501

Input 3 Active state	Encoder Enable	Backplane enable	Stall Detection E	Disable Anti-Reson	Starting speed	Motor steps/turn	Encoder counts/turn
A7 M14502	A8 M14503	A9 M14504	A10 M14505	A11 M14506	A12 D49623	A13 D49624	A14 D49625

Idle Current Re	Motor current
A15 D49626	A16 D49627

14. Next, we need to clear the AMCI unit from configuration mode
15. Insert the following instructions into your ladder program

This rung clears the device from Configuration Mode

Rung 2 | 5 | Configure   Configure Mode   Send Data

M14750 —| |— D49000.15 —| |—————————————[MOV(W) S1 - 0   D1 - D49120   REP]

6 ——— Configure
                                                          (R)
                                                        M14750
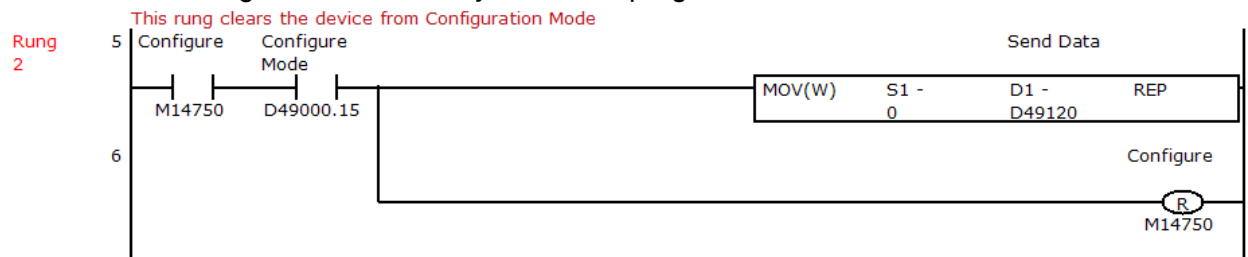
16. Next, we need to insert the instruction to execute the Relative Move command
17. Insert a NO contact M14751 (Relative Move Bit) and SOTU instructions as shown below

Execute a Relative Move command when bit M14751 is active.

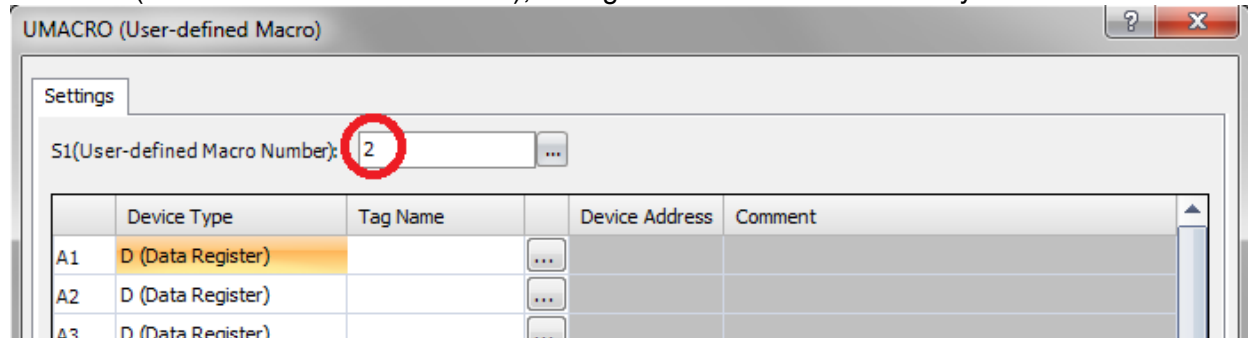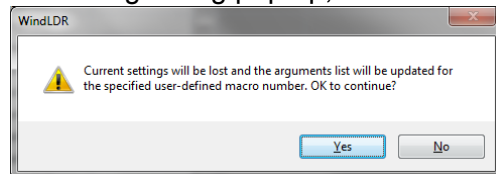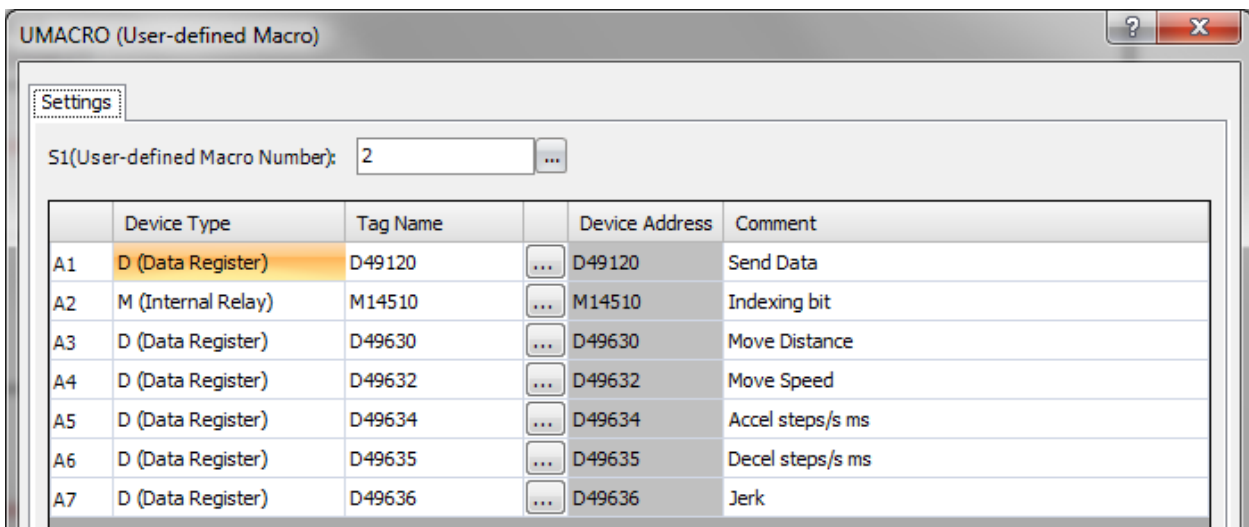Rung 3 | 7 | Relative Move Bit

M14751 —| |— —| |— [SOTU] ————————————————————————
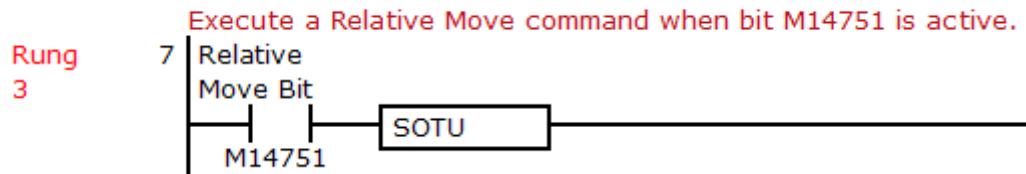
18. Under **Home** tab, click **Macro** and select **UMACRO**
19. Under S1(User-defined Macro Number), change it to 2 and hit the **Tab** key

UMACRO (User-defined Macro)

Settings

S1(User-defined Macro Number): [2]   [...]

	Device Type	Tag Name		Device Address	Comment
A1	D (Data Register)		...		
A2	D (Data Register)		...		
A3	D (Data Register)		...		

20. A warning dialog pop up, click **Yes** to continue

WindLDR

⚠ Current settings will be lost and the arguments list will be updated for the specified user-defined macro number. OK to continue?

[Yes]   [No]

21. Fill out the parameters exactly as shown below

IDEC

UMACRO (User-defined Macro)

Settings

S1(User-defined Macro Number): 2 ...

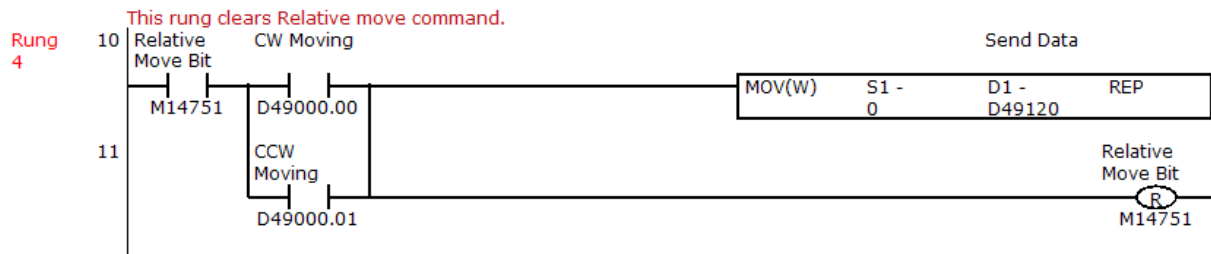|	Device Type	Tag Name	Device Address	Comment
A1	D (Data Register)	D49120	... D49120	Send Data
A2	M (Internal Relay)	M14510	... M14510	Indexing bit
A3	D (Data Register)	D49630	... D49630	Move Distance
A4	D (Data Register)	D49632	... D49632	Move Speed
A5	D (Data Register)	D49634	... D49634	Accel steps/s ms
A6	D (Data Register)	D49635	... D49635	Decel steps/s ms
A7	D (Data Register)	D49636	... D49636	Jerk

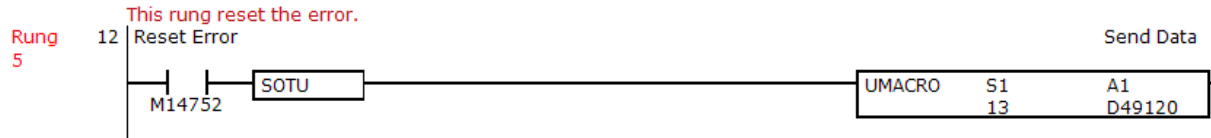22. Once completed, your program should look like this
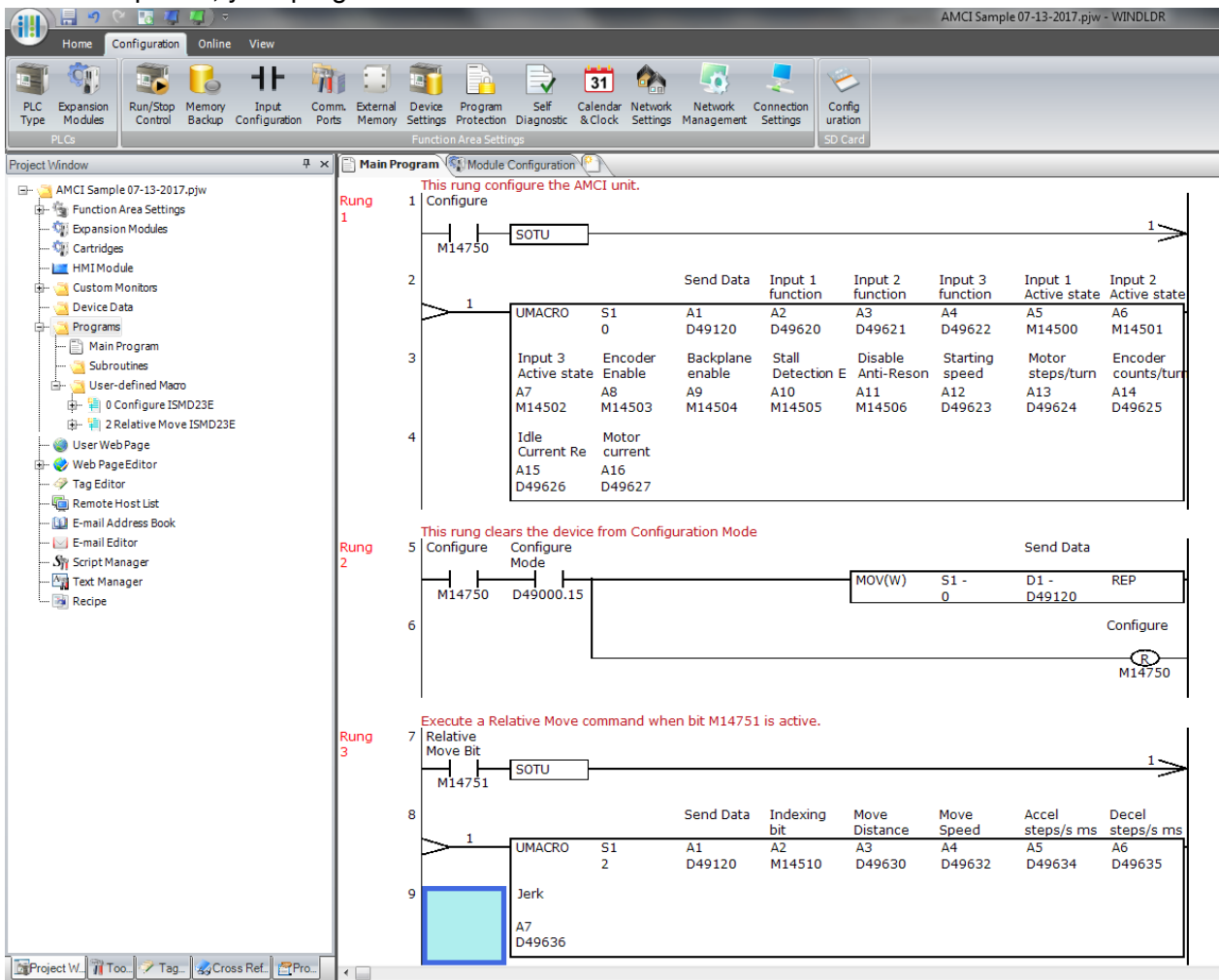
23. At this point, you're done with configuration and executing the Relative Move command. The next two steps are optional and can be useful if you need to clear the relative move command and reset error

24. To clear the Relative Move command, insert this ladder logic as shown below

Rung 4

This rung clears Relative move command.

10	Relative Move Bit	CW Moving			Send Data	
	┤ ├ M14751	┤ ├ D49000.00		MOV(W)	S1 - 0	D1 - D49120	REP

11		CCW Moving				Relative Move Bit
		┤ ├ D49000.01				(R) M14751

25. To reset an error, insert this ladder logic as shown below

Rung 5

This rung reset the error.

12	Reset Error				Send Data	
	┤ ├ M14752	[SOTU]		UMACRO	S1 13	A1 D49120

26. Download the ladder program into the FC6A PLC
27. In WindLDR Monitor mode, turn ON then OFF M14750 (Configure bit).
28. In WindLDR Monitor mode, double click on the UMACRO instruction to open the UMACRO dialog box and enter the values for distance D49630 and speed D49632.

UMACRO

Write | Close | DEC HEX

	Tag Name	Device Address	Current Value	Preset Value	Comment
S1	10002	10002			
A1	D49120	D49120	0		Send Data
A2	M14510	M14510	0		Indexing bit
A3	D49630	D49630	5000		Move Distance
A4	D49632	D49632	500		Move Speed
A5	D49634	D49634	0		Accel steps/s ms
A6	D49635	D49635	0		Decel steps/s ms
A7	D49636	D49636	0		Jerk

29. Then turn ON M14751 (Relative Move Bit) to execute the relative move command.