

Entering RLL Programs

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Handheld Programmer D3-HP & D3-HPP have been retired as of 03/2021 & 01/2018 respectively. User H2-PP to program D3-350 CPU. Please consider Productivity, BRX, or CLICK series PLC systems as upgrades.

Starting at
Address 0

If you're entering a complete program, you should always start at Address 0. The following example shows the keystrokes required to start at address 0000. (The remaining examples will not show this step, but it is required.)

Start at address 0

SHF NXT
☐ ☐

Address Display

0.0.0.0				0	4	0	4
				AND	OUT	MCS	ADR
ADDRESS/DATA				1	5	1	5
				OR	TMR	MCR	SHF
ON/OFF	RUN	BATT		2	6	2	6
				STR	CNT	SET	DATA
	PWR	CPU		3	7	3	7
				NOT	SR	RST	REG

Once you're at address 0, you can start entering a program. After you start entering the program, the Handheld automatically increments to the next address after you enter an instruction. You can toggle from the address display to the data display by pressing the NXT key. You can toggle from the data display to the address display by pressing the CLR key. For example, if you start at address 0000 and press NXT, the display changes and shows the instruction type located at address 0000. The following example shows what the display would look like.

Start at address 0, change to data display instead of address display

NXT
☐

End				0	4	0	4
				AND	OUT	MCS	ADR
ADDRESS/DATA				1	5	1	5
				OR	TMR	MCR	SHF
ON/OFF	RUN	BATT		2	6	2	6
				STR	CNT	SET	DATA
	PWR	CPU		3	7	3	7
				NOT	SR	RST	REG

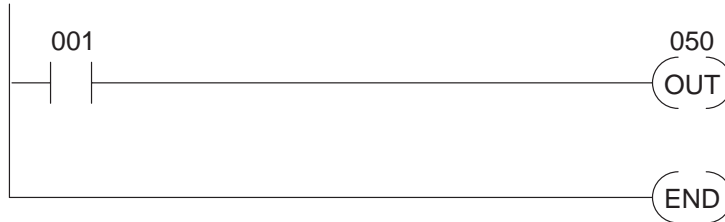
The example keystrokes shown throughout this chapter will indicate which display method is being used. This will make the examples easier to follow. If you prefer a different display you now have the means to change it.

Entering an END
Statement

All DL305 programs must have an END statement as the last statement in the program. Whenever you clear the CPU memory, the CPU assumes that *all* memory locations contain an END statement. This means that you do not have to enter an END statement. Just enter your program starting at address 0. You should be aware that if an END statement precedes your ladder logic, the program will not be executed.

Entering Simple Rungs

You use the STR instruction to start rungs that contain both contacts and coils. The following example shows how to enter a single contact and a single output coil. Remember, with the DL305 CPUs, you do not have to enter an END statement with the Handheld Programmer. In the following example, notice that when you enter the output and move to the next address, the END statement is already there.



Enter the contact

STR	SHF	1	ENT
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Data display *before* ENT is pressed

001		0	4	0	4
		AND	OUT	MCS	ADR
ADDRESS/DATA		1	5	1	5
		OR	TMR	MCR	SHF
ON/OFF	RUN BATT	2	6	2	6
		STR	CNT	SET	DATA
PWR	CPU	3	7	3	7
		NOT	SR	RST	REG

Enter the output

OUT	SHF	5	0	ENT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

050		0	4	0	4
		AND	OUT	MCS	ADR
ADDRESS/DATA		1	5	1	5
		OR	TMR	MCR	SHF
ON/OFF	RUN BATT	2	6	2	6
		STR	CNT	SET	DATA
PWR	CPU	3	7	3	7
		NOT	SR	RST	REG

Check the next address

NXT
<input type="checkbox"/>

END Statement

End		0	4	0	4
		AND	OUT	MCS	ADR
ADDRESS/DATA		1	5	1	5
		OR	TMR	MCR	SHF
ON/OFF	RUN BATT	2	6	2	6
		STR	CNT	SET	DATA
PWR	CPU	3	7	3	7
		NOT	SR	RST	REG

The example shows an input contact and an output coil. Control relays are entered exactly the same as the I/O points.

Entering Normally Closed Elements

Normally closed elements are entered by using the STR and NOT instructions. The following example shows a simple rung with a normally closed contact.



Enter the contact

STR	NOT	SHF	1	ENT
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Data Display *before* ENT is pressed

001			0	4	0	4
ADDRESS/DATA			AND	OUT	MCS	ADR
			1	5	1	5
			OR	TMR	MCR	SHF
ON/OFF	RUN	BATT	2	6	2	6
			STR	CNT	SET	DATA
PWR	CPU		3	7	3	7
			NOT	SR	RST	REG

Enter the output

OUT	SHF	5	0	ENT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

050			0	4	0	4
ADDRESS/DATA			AND	OUT	MCS	ADR
			1	5	1	5
			OR	TMR	MCR	SHF
ON/OFF	RUN	BATT	2	6	2	6
			STR	CNT	SET	DATA
PWR	CPU		3	7	3	7
			NOT	SR	RST	REG

Entering Timer/Counter Contacts



Enter the contact

STR	TMR	SHF	6	0
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	0	ENT		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Data Display *before* ENT is pressed

600			0	4	0	4
ADDRESS/DATA			AND	OUT	MCS	ADR
			1	5	1	5
			OR	TMR	MCR	SHF
ON/OFF	RUN	BATT	2	6	2	6
			STR	CNT	SET	DATA
PWR	CPU		3	7	3	7
			NOT	SR	RST	REG

Enter the output

OUT	SHF	5	0	ENT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

050			0	4	0	4
ADDRESS/DATA			AND	OUT	MCS	ADR
			1	5	1	5
			OR	TMR	MCR	SHF
ON/OFF	RUN	BATT	2	6	2	6
			STR	CNT	SET	DATA
PWR	CPU		3	7	3	7
			NOT	SR	RST	REG