

DL3000-RMM Application Note
Remote I/O Adapter to Modbus Master Scanner

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The DL3000-RMM has two distinct communication Ports. Channel A is the RI/O adapter channel and Channel B is the Modbus Master Scanner. DL32 Version 1.52 is the first version that can configure the DL3000-RMM. It is available from the Equus Technologies, Inc website at <http://www.equustek.com/Downloads.html>

The RI/O channel can occupy either a ¼ or ½ rack at baud rates of 57.6K, 115.2K and 230.4K. The following table shows how the DL3000 is set up for the RIO link. The number of Slaves column is the number of Modbus Slave devices that will or can be scanned if those options are chosen.

Rack Size	Starting Group	Number of Slaves	Rack Size	Starting Group	Number of Slaves
¼	0	1	½	0	1 or 2
¼	2	1			
¼	4	1	½	4	1 or 2
¼	6	1			

Once the RIO side is determined, the Modbus side it set up for Baud, Parity, RS232, RS422-4 Wire, or RS485-2 Wire.

Then depending on the Racksize, and the number of Slaves you wish to scan the one or two slave addresses are selected.

Once the reset button is pressed, or power cycled. The DL3000 will start up and begin polling the **registers 40529 to 40661** will be polled for either one or two slaves and the data will be stored in the DL3000.

The DL3000 scan's the 133 registers using three different Modbus commands. The Data for each command is accessed via block transfers to different Group Modules. In the table below the DL3000 is set to **Scan 2 Modbus Slaves and a ½ rack starting at Group 0**. See the table below.

Modbus Command	Mod Slave Number	Modbus Registers Read	Accessed via BTR	Length (# of Regs or Words)
1	1	40529 to 40572	Group 0 Module 0	44
2	1	40573 to 40616	Group 0 Module 1	44
3	1	40617 to 40661	Group 1 Module 0	45
1	2	40529 to 40572	Group 2 Module 0	44
2	2	40573 to 40616	Group 2 Module 1	44
3	2	40617 to 40661	Group 3 Module 0	45

The Input image table in the PLC/SLC/RIO Scanner device will have six status bits which report the status of the Modbus link. **Using Rack 3, ½ Rack, and 2 slaves as an example.**

Modbus Command	Mod Slave Number	Timeout Bit Number	Other Error Bit Number
1	1	I:030/0	I:030/10
2	1	I:030/1	I:030/11
3	1	I:030/2	I:030/12
1	2	I:031/0	I:031/10
2	2	I:031/1	I:031/11
3	2	I:031/2	I:031/12

Both error bits will be 0 once good communication is established. These control bits should be used to condition your Block Transfer Reads.

Note: Use a Generic Block Transfer as the Module type.

For Equus Technologies, Inc

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