## DL4000 MMX MODBUS RTU to MODBUS ASCII Application Note

To configure the DL4000-MMX start the DL32 configuration software and select the DL4000 Models



Select DL4000-MMX



From the drop menu of the COMPORT that is connected to the PC used to configure the DL4000.



Click on Configure/open File



Click on SET/CHANGE MODBUS RTU PARAMETERS, and select the settings similar to those that match your MODBUS RTU device.

OL4000-MMX	FOLLOWING OF HOMS:
HA - Modbus RTUMaster Paramters	· NONE · VIS
SET/CHANGE MODBUS RTUPARAMETERS Modbus RTU Speed 9600  Baud	DATABITS
HB - Modbus ASCI Slave Paramters	STOP BITS • 1 C 2
SET/CHANGE MODBUS ASCI PARAMETERS	HANDSHAKING GIGNORE ACTIVE
CHAUNEL SERVAL 9600 V Daus	SERIAL CONNECTION RS-232C RS422/485
STATUS Click on " DOWNLOAD to DL" to download these parameters.	
ONFIGURATION Settings DOWNLOAD to DL RETURN to Main Men	
	ACCEPT

Click on SET/CHANGE MODBUS ASCII PARAMETERS, and select the settings similar to those that match your MODBUS ASCII device.



Click on Download to DL

Configuration of [DL4000-MM	/X] - MAIN MENU	
-Current DL4000 Model Selec	ted	
⊙ DL4000-MMX		
- CHA - Modbus RTU Master P	aramiers	
SET/	CHANGE MODBUS RTU PARAME	TERS
Modbu	s RTU Speed 9600 -	Baud
- CHB - Modbus ASCII Slave P	aramiers	TTER
SEI/C	HANGE MODBUS ASCII PARAM	LIEKS
CHAN	NEL SERIAL 9600	Baud
STATUS Click	on "DOWNLOAD to DL" to dow	nload these parameters.
CONFIGURATION Settings	DOWNLOAD to DL	<b><u>RETURN</u></b> to Main Menu

Press the configure push button on the right hand side of the DL4000 unit and click on OK



Press the RESET push button on the left hand side of the DL4000 unit and click on OK.



Click on Return to main Menu

Configuration of [DL4000-MM	X] - MAIN MENU	×
<ul> <li>Current DL4000 Model Select</li> <li>DL4000-MMK</li> </ul>	ed	
CHA - Modbus RTUMaster Pa SET/C	ramters HANGE MODBUS RIU PARAME	TERS
Modbus	RTU Speed 9610 -	Baud
- CHB - Modbus ASCII Slave Pa	ramlers	
SET/CI	ELSERIAL 9610	ETERS Baud
STATUS Click	on "DOWNLOAD to DL" to dow	nload these parameters.
CONFIGURATION Settings	DOWNLOAD to DL	RETURN to Man Menu

To close the DL32 configuration software click on Exit DL32



In our application we used the MODBUS simulator. MODSIM as our slave running on one PC connected to port one side of the DL4000, and MODSCAN as our Master on another PC connected on the other side of the DL4000. Start the MODSIM32 as our MODBUS ASCII Slave.



## Under file click on New

	Connectio	n View	Hale				1
e	Connectio	in flew	CtriaN	1	_	_	
Ľ,	Open		Ctrl+O				
	Restore Ter	et Confin					L
		in coming					L
	Print Setup	here:					
	Recent File						
1	Exit						н.
						_	
	10. 22						
M	odSim32 -	MocSim1	l lav Window	Help		<b>-</b> x	
M	odSim32 - <u>C</u> onnecti ModSim1	MocSim1 on <u>D</u> isp	l lay <u>W</u> indow	Help		) <u>×</u>	
M	odSim32 - <u>C</u> onnecti ModSim1	MocSim1 on <u>D</u> isp	l lay <u>W</u> indow D	Help Hevice Id			
M ile	odSim32 - Connecti ModSim1 Idress:	MocSim1 on <u>D</u> isp	l lay <u>W</u> indow D	Help Hevice Id: IODBUS	: 1 Foint Typ	) <b>x</b>	
M le Ad	odSim32 - Connecti ModSim1 Idress:	MocSim3 on Disp 0100	i Iay <u>W</u> indow D N 03: H	Help Device Id IODBUS OLDING	: 1 Foint Typ	) ×	
M le Ad	odSim32 - Connecti ModSim1 Idress: :ngth:	MocSim1 on <u>D</u> isp 0100 100	i Iay Window D N 03: H	Help Device Id KODBUS OLDING	: 1 Foint Typ REGISTER	c 1 2 2	
M ile Ad Le	odSim32 - Connecti ModSim1 Idress: :ngth:	MoeSimJ on Disp 0190 100 CONNEC	l lay Window D N 03: H TED! * * *	Help Pevice Id: 40DBUS 0LDING	: 1 Foint Typ REGISTER	c 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
Mile Ad	odSim32 - Connecti ModSim1 Idress: :ngth: * NOT ( 100: <00	MocSimJ on Disp 0190 100 CONNEC 0002	lay Window D 03: H 1ED! ***	Help Pevice Id: (ODBUS OLDING	Foint Typ REGISTEF	e 2 •	
Mile Ad Le	odSim32 - <u>Connecti</u> ModSim1 Idress: :ngth: ** NOT ( 100: <001 101: <001 102: <001	MocSimJ on <u>Disp</u> 0190 100 CONNEC 000> 000> 000>	t ty <u>W</u> indow 0 03: H 03: H 1EDI *** 40109: < 40110: < 401110: <	Help Pevice Id: (ODBUS OLDING 00000> 00000>		e 8: <00 9: <00 0: <00	
Mile Ad Le	odSim32 - <u>Connecti</u> ModSim1 Idress: :ngth: ** NOT C 100: <001 101: <001 102: <001 103: <002	MocSim3 on Disp 0100 100 200NEC 2002 2002 2002	Lay Window D 03: H TED! *** 40110: < 401112: < 40112: <	Help      Pevice Id:     (ODBUS     OLDING      00000>     000000	1 Foint Typ REGISTEF 4011 4012 4013	e 8: <00 9: <00 0: <00 11: <00	
Ad Le 401 401 401	odSim32 - <u>Connecti</u> ModSim1 Idress: :ngth: * NOT ( 100: <001 01: <001 02: <001 03: <001 03: <001 04: <001 04: <001	MocSimJ on Disp 0100 100 200NEC 2002 2002 2002 2002 2002 2002 2002	Lay Window D 03: H 03: H 1ED! *** 40109: < 40112: < 40113: <	<u>H</u> elp      Pevice Id:     (ODBUS     OLDING      00000>     00000     00000>     00000     00000>     00000>     00000>     00000     00000>     00000     00000>     00000>     00000>     00000     00000>     00000>     000000>     000000>     00000>     00000>     00000>     00000>     00	1 Foint Typ REGISTEF 4011 4012 4012 4013	e 8: <00 9: <00 0: <00 1: <00 2: <00	
Mile Ad Le 401 401 401 401 401 401	odSim32 - <u>Connecti</u> ModSim1 Idress: ength: * NOT (C 100: <001 101: <001 102: <001 103: <001 104: <001 105: <001 105: <001	MocSimJ on Disp 0100 100 200> 200> 200> 200> 200> 200>	L Lay Window D 03: H 03: H 0109: ( 40109: ( 401109: ( 401113: ( 40113: ( 401113: ( 401113: ( 401113: ( 401113: ( 401113: ( 40113	Eeip Eevice Id: (ODBUS OLDING 00000> 00000> 00000> 00000>	4011 4012 4012 4013 4012 4013	e 8: <00 9: <00 0: <00 1: <00 1: <00 2: <00 3: <00 4: <00	
Mile Ad Le 101 101 101 101	odSim32 - <u>Connecti</u> ModSim1 Idress: ength: * NOT (C 100: <001 101: <001 102: <001 103: <001 103: <001 105: <0	ModSim1 on Disp 100 20NNEC 300> 300> 300> 300> 300> 300> 300> 300	Lay Window 0 03: H 103: H 1009: c 40109: c 40110: c 401112: c 401114: c 40114: c 40115; c 40115; c 40115; c	Eeip Eevice Id: (ODBUS 00000> 00000> 00000> 00000> 00000> 00000> 00000> 00000>	4011 4012 4012 4013 4013 4013 4013 4013 4013	8: <00 9: <00 0: <00 1: <00 1: <00 2: <00 3: <00 4: <00 5: <00	

vice Id is the ASCII slave Device ID

dres: is the Registers address

enght is the number of registers

MODBUS Type 03 is for HOLDING RESGISTERS

In our application we will set for Slave ID 1, address 01 for register 40001 and 10 registers

ModSim1		
Address:	0001	Device Id: 1 MODBUS Point Type
Length:	10	03: HOLDING REGISTER •
***NOT	CONNECT	ED! * * *
10001: <00 10002: <00 10003: <00 10004: <00 10005: <00	000> 000> 000> 000> 000>	

In our application we selected data type as Floating point.

File Connection	Display Window Help	
ModSim1 Address: 00 Length: 10	<ul> <li>✓ Show Data Show Traffic</li> <li>Binary</li> <li>✓ Decimal Hex</li> </ul>	1 int Type GISTER •
40001: <00000	Floating Point Float (Swapped)	
40002: <00000 40003: <00000 40004: <00000 40005: <00000 40006: <00000 40007: <00000 40008: <00000 40009: <00000	>	_

Changed floating point values to those shown below



Then under connection we used comport 1 to connect.

File Connection Display	Window Help	
Connect P	Port 1	
Disconnect Address: 0001 Length: 10	Port 2 Port 3 Port 4 Port 5 Port 6	•
40001: 1.1000 40002: 40003: 2.2200 40004: 40005: 3.3300 40006: 40007: 4.4400 40008: 40008:	Port 7 Port 8 Port 9 Modbus/TCP Svr	

Under setup comport we choose the same settings we set the DL4000 ASCII CH for.

Protocol	C RTU @ ASCII
B	Baud Rate: 9600 -
	Data Bits: 8 💌
	Stop Bits: 1  Parity: NONE
Hardware Flow	Control
☐ Wait f	or DTR from Master
Delay [ [   Wait fo	o ms after RTS before transmitting first character or CTS from Master
Delay (	0 ms after last character before releasing RTS

That concludes the ASCII side

e Connection Di	play Window Help
ModSim1	
Address: 0001	Device Id: 1 MODBUS Point Type
Length: 10	03: HOLDING REGISTER 🔹
0001: 1.1000 0002: 10003: 2.2200 10004:	

Start the MODSCAN as our MODBUS RTU Master, and set the Device Id, Address, Length, MODBUS point Type and Data type.

ModScan37 - ModSca1		203
Digel Giller   State	Wages Reb	
ap ModSca1		
Address 0001	Device Id: 1	Number of Polls: 0
Length' 100	MODBUS Point Type	Valid Slave Responses: 0
ingan [100]	un con antroa	Reset Cirs
Device BOT CONNE 00001 (0) 00021 00002 (0) 00022	(0) 00041 (0) 00061	(0) 00081: (0) (0) 00882: (0)
00003: <0> 00023: 00004: <0> 00024:	(0> 00043 (0> 00063 (0> 00044 (0> 00064	i (0) 00083 (0) i (0) 00084 (0)
00005: <0> 00025: 00006: <0> 00026: 00007: <0> 00027:	(0) 00045 (0) 00065 (0) 00046 (0) 00065 (0) 00047 (0) 00067	( (0) 00085 (0) ( (0) 00086 (0) ( 0) 00086 (0)
00008: (0) 00028: 00009: (0) 00029:	0> 00048 (0> 00069 0> 00049 (0> 00069	1: <0> 00008: <0> 1: <0> 00009: <0>
00010: (0) 00030: or Help, press F1	(0> 00050; (0> 00070	Pols: 0 Resps: (
Hadfran 72 Hadfrad		
le Connection Setup Yew	Window Help	
an ModSca1		
Address: 0001	Device Id: 1	Number of Polls: 0
Length: 100	01: COIL STATUS	Valid Slave Responses: 0
	01: COIL STATUS	
Device BOT CONNE 00001 (0> 00021	03: HOLDING REGISTER	> 00081: <0>
00002: (0) 00022 00003: (0) 00023	(0) 00043: (0) 00063	) 00082 (0) ((0) 00083 (0)
00005: (0) 00025: 00006: (0) 00026:	(0) 00045 (0) 00065 (0) 00046 (0) 00065	(0) 00085 (0) (0) 00086 (0)
00007: <0> 00027: 00008: <0> 00028:	(0> 00047: (0> 00067 (0> 00048: (0> 00068	7: <0> 00087: <0> 1: <0> 00088: <0>
00009: <0> 00029: 00010: <0> 00030:	(0) 00049 (0) 00069 (0) 00050 (0) 00070	( (0) 00009 (0) ( (0) 00090 (0)
or Help, preis F1		Polis: 0 Resps: (
ModScan37 - ModSca1		203
le Connection Setup View	Window Help	
	son Show Data	
	Show Traffic	
an ModSca1 Ebase Ca	ture v Hex	
Address:	Unsigned Decimal Integer	Number of Polls: 0
Length: 10	03: H Swapped FP	Reset Cirs
	CEI Float Swapped CEI	
40001 (0000H)	Hex Addresses	
40003 (0000H) 40004 (0000H)		
40005: <0000H> 40006: <0000H>		
40007: <0000H> 40008: <0000H>		
40010 «0000H»		
splay Register Values in Ploatin	Pt.	Pols: 0 Resps: I

Then under connect, connect to the port of the RTU side.



From the drop menu select the Comport and similar setting to those of the DL4000 RTU.

	UPT1T IPCONF LIN H323 Line	E		-
Conliguistion	Direct Conv Direct Conv	ection to COM2 ection to COM2		
Baud Rate:	9600		Tablas ron co	
Word Length:	0	*	Delay 1	ms after RTS becse
Party	NONE		F Wait to CT	5 hom sleve
Stop Bits	1	-	Delay [10	ns after last character before releasingRTS

Select RTU as the transmission mode and then click on OK.

STANDARD	DANIEL/ENRON/OMNI
Slave Response Tim	eout 0 (msecs)
Delay Beween Polls	(msecs)
Force modbus comman (To be used in cases wi single-point write function	d 15 and 16 for single-point writes. here the slave does no support th ins 05 and 06.)

Here you should see the same values in the ASCII side on the RTU side.

HodScan) De Correctio	17 - ModScr n Setup ¥ ●€1 §	5) en 201don Belp 5(고 주) 4월 9 197 5 교 교		
ModSca1	þ			
Address: Length:	0001	Device Id: 1 MODBUS Point Type 03: HOLDING REGISTER •	Number of Polls: 74 Valid Slave Responses: 74	
			Reset Ctrs	
40001: 1	1000			
40003: 2	.2200			
40005: 3	.3300			
40005: 4	4400			
40008 40009:5 40010:	5500			
or Help, press I	1		Polis: 74 Resps	

Now if you change any of the values in the ASCII side you should be able to see the values changes in the RTU side as well as shown below.

Writ	te Floating Pt.
	Address: 1
	Value: 6.9876
	Update Cancel
	Auto Simulation
Writ	te Floating Pt.
Writ	Address: 3
Writ	Address: 3 Value: 8.1234
Writ	Address: 3 Value: 8.1234

ModSim32 - ModSim1						
<u>File Connection Display</u>	<u>W</u> indow <u>H</u> elp					
ModSim1						
Address: 0001	Device Id: 1 MODBUS Point Type					
Length: 10	U3: HOLDING REGISTER					
40001: 6.9876 40002:						
40003: 8.1234 40004: 40005: 3.3300						
40006: 40007: 4.4400 40008:						
40009: 5.5500 40010:						

ModScan32 - ModSca1							
Eile Connection Setup View Window Help							
🖴 ModSca1							
Address: 0001 Device Id: 1 MODBUS Point Type Valid Slave Re	ls: 189 esponses: 189						
Length: 10 03: HOLDING REGISTER	Reset Ctrs						
40001: 6.9876							
40003: 8.1234							
40004: 40005: 3.3300							
40006: 40007: 4.4400							
40008: 40009: 5.5500 40010:							
For Help, press F1	Polls: 189 Resps: 1 //						