



## DATAWATCH IX Modbus

### User Manual

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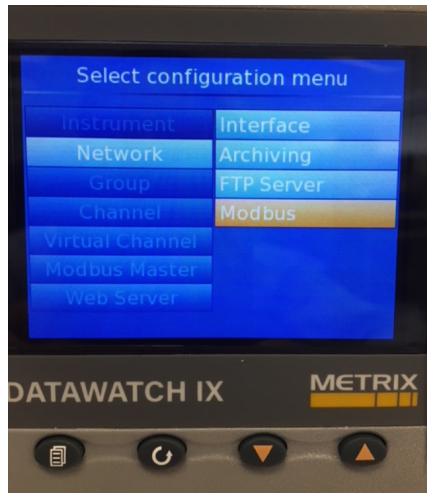
This manual provides the procedure and instruction to remotely access Metrix DATAWATCH through Modbus over TCP/IP.

## Setup DATAWATCH

1.1 Log on the DATAWATCH with Engineer access level, type password 100



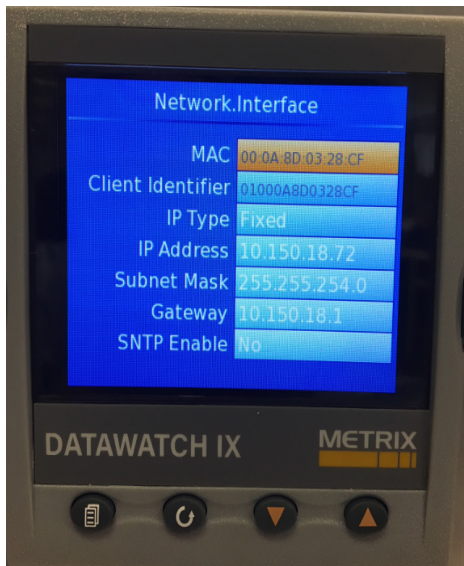
1.2 Go to Network\Modbus menu



1.3 Make sure Address is 1, Unit ID Enable is Loose, and Serial Mode is Modbus Slave. Change to these settings if they aren't.



1.4 Write down the IP Address of DATAWATCH from Network\Interface menu for later use by Modbus server



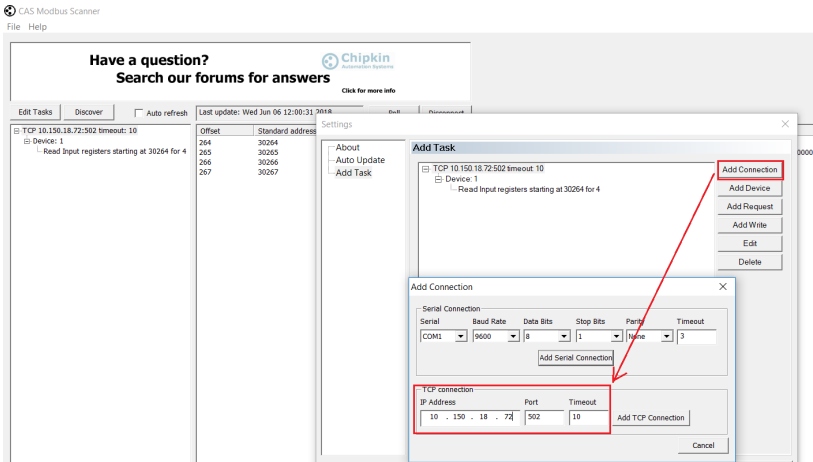
1.5 Change the resolution of the registers so that you can read them in the proper decimal numbers you want.



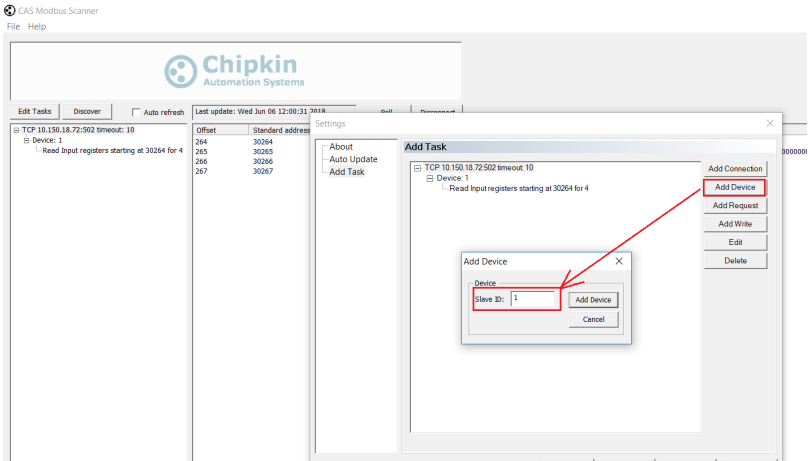
## 2 Test Modbus communication from Modbus scanner software

2.1 Install the Modbus scanner software in your computer and run it

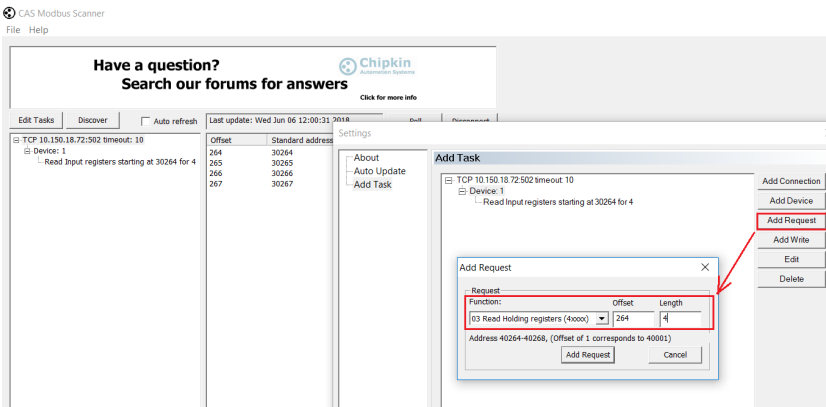
2.2 Add TCP connection using the DATAWATCH IP address and Port number



### 2.3 Create Slave Device with the ID that matches DATAWATCH setting

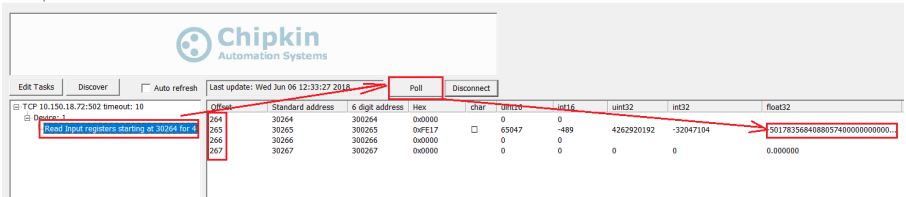


2.4 Add request to the DATAWATCH Modbus slave. The function can be either Holding registers or Input registers. The Offset is the register address that can be found from DATAWATCH Modbus map. The Length is how many bytes the register contains.



2.5 Highlight the request, and click Poll button. The register will be read and displayed out.

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2.6 In the Modbus register map, you can find the register type and address. If the register type is uint8, its length is 1. If the type is float32, its length is 4.

Channel.3.Main.Type	Specifies the type of channel	uint8	0X1900	6400	N/A	RW
Channel.3.Main.PV	The process variable (output) of the channel	float32	0X0108	264	Set by Chanel.3.Main. Resolution	RO
Channel.3.Main.Status	The PV (output) status	uint8	0X0109	265	N/A	RO

2.7 The register address from the map is canonical address for raw data in integer type. For instance, you read a float type of register from address 264, the unprocessed reading is 501785684....., but the actual value should be a float number 5.01785684. To get this processed float type of value, you need calculate the native address by using the formula (integer address x 2 + 0x8000). This is specified in the Modbus map manual.

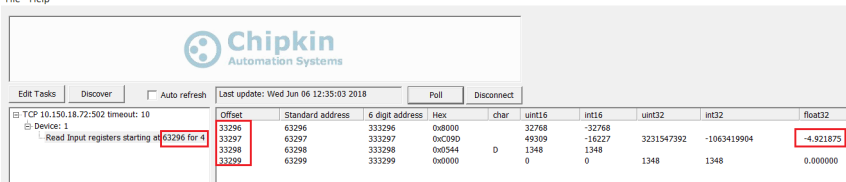
**Parameter Scaled Integer Modbus Address Table**

The Modbus addresses, in the range 0x0001 - 0x3FFF, listed in the table below give access to the parameter values in a scaled integer format. It is possible to gain access to the parameter values in native format by using the following formula:

$$\text{Native address} = (\text{scaled integer address} \times 2) + 0x8000$$

2.8 If you use the actual address in the Modbus scanner software, you will get the actual value of the true type.

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2.9 Create a chain of requests to scan all the registers you want to poll from DA-TAWATCH.

2.10 Create register chain in your PLC configuration software and start to monitor or control the parameters in your application.

The most common registers if 8 channels are used, please consult Metrix customer service for any question.

Parameter	Description	Type	Address (Hex)	Address (Decimal)
Channel.1.Main.Measured Value	Measured value	float32	0X1814	6164
Channel.1.Main.PV	The process variable (output) of the channel	float32	0X0100	256
Channel.1.Main.PV2	The secondary input process variable (ouput) of the channel	float32	0X0110	272
Channel.2.Main.Measured Value	Measured value	float32	0X1894	6292
Channel.2.Main.PV	The process variable (output) of the channel	float32	0X0104	260
Channel.2.Main.PV2	The secondary input process variable (ouput) of the channel	float32	0X0114	276
Channel.3.Main.Measured Value	Measured value	float32	0X1914	6420
Channel.3.Main.PV	The process variable (output) of the channel	float32	0X0108	264
Channel.3.Main.PV2	The secondary input process variable (ouput) of the channel	float32	0X0118	280
Channel.4.Main.Measured Value	Measured value	float32	0X1994	6548
Channel.4.Main.PV	The process variable (output) of the channel	float32	0X010c	268
Channel.4.Main.PV2	The secondary input process variable (ouput) of the channel	float32	0X011c	284
VirtualChannel.1.Main.ModbusInput	Modbus input value	float32	0X1c06	7174
VirtualChannel.2.Main.ModbusInput	Modbus input value	float32	0X1c86	7302
VirtualChannel.3.Main.ModbusInput	Modbus input value	float32	0X1d06	7430
VirtualChannel.4.Main.ModbusInput	Modbus input value	float32	0X1d86	7558

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