

Using Custom device library

Applicable

- Com'X 510
- Com'X 210
- Com'X 200

Scope of this tutorial :

How to use the custom library in order to extend a “Micrologic A for Masterpact” model.

This will show:

- Micrologic A for Masterpact discovery
- Creation of a custom Masterpact A model
- Evolution of this custom Masterpact A model

Connect the Com'X 200 to a Masterpact

The Masterpact Micrologic A is connected through an BCM-ULP module.

Using the Micrologic display and front face, the Modbus communication parameters are set to 19200 bauds, even parity, slave number 2.

Use Com'X 200 "discovery feature"

Com'X 200

04/02/2014 09:59:30 AM Data logging: ON Available storage: 10.2 MB Periodic publication: OFF

General settings Communication Settings **Device Settings** Measurements Table Commissioning Custom Library Maintenance

ComX200_JEF

Digital and analog inputs
Modbus serial
Ethernet

General Properties

Type Com'X 200
Name ComX200_JEF

Modbus discovery

ComX200_JEF_RS485 SL Slave ID range: 1 10

Start

Create Close

Discover connected devices

Required field Save changes Cancel

Result of the discovery

Modbus discovery

Discovery finished

[If your model is not displayed in the list you can create it on the dedicated screen](#)

Discovered devices:

Gateway name	Device Type	Device name	Slave ID	Discovery status	
ComX200_JEF			1	No device discovered	<input checked="" type="checkbox"/>
ComX200_JEF	Masterpact A	Masterpact_A_Id2	2	This device is already connected	
ComX200_JEF			3	No device discovered	
ComX200_JEF			4	No device discovered	
ComX200_JEF			5	No device discovered	
ComX200_JEF			6	No device discovered	
ComX200_JEF			7	No device discovered	
ComX200_JEF			8	No device discovered	
ComX200_JEF			9	No device discovered	
ComX200_JEF			10	No device discovered	

Create Close

Using the standard Micrologic A for Masterpact model

The screenshot shows the Com'X 200 web interface. The main configuration area for the Masterpact A Id2 device includes the following sections:

- Name:** Masterpact A Id2
- Configuration:** Slave ID: 2
- Monitored Area:** Usage: Main meter
- Measurements Table:**

Measurement name	Value	Unit	Publish
Current A	777	A	<input type="checkbox"/>
Current B	775	A	<input type="checkbox"/>
Current C	776	A	<input type="checkbox"/>
Current N	0	A	<input type="checkbox"/>
Breaker contact abrasion neutral	0		<input type="checkbox"/>
Breaker contact abrasion phase A	0		<input type="checkbox"/>
Breaker contact abrasion phase B	0		<input type="checkbox"/>
Breaker contact abrasion phase C	0		<input type="checkbox"/>
Cumulative Open to Close counter (non resettable)	64		<input type="checkbox"/>
Trip on Electrical fault counter (Close to SDE)	52		<input type="checkbox"/>
Trip counter (Close to SD position)	-		<input type="checkbox"/>

Evolution of the requirement

Let us assume that it is necessary to add in the model:

- The rated current
- The Ir pick-up value (long time protection threshold)

Masterpact documentation gives the following information :

8750	1	R	x1	A	INT	0..8000	A/E	P/H	rated circuit-breaker current	HwBrNominalCurrent	
Default value: 100 A (circuit-breaker sensor plug not present)											
8756	2	R/W	x1	A	MOD	40..8000	A/E	P/H	Ir pickup for the long-time protection	LongTime_PuValue	
						10000					

Create a custom model

The new model is created using the “custom library”

Create a custom model

Select model type *

Create model *

General properties

Model name *

Default value of commodity *

Monitored area

Default value of usage *

It is first necessary to define a Modbus frame (as the registers used are 8750, and 8756), the starting address is 8749, a length of 10 register is enough.

Endianness *

Function code	Starting address	Item count		
FC03: Read holding registers	1661	4	Number	<input type="button" value="Edit frame"/> <input type="button" value="Remove frame"/>
FC03: Read holding registers	12015	4	Number	<input type="button" value="Edit frame"/> <input type="button" value="Remove frame"/>
FC03: Read holding registers	12214	4	Number	<input type="button" value="Edit frame"/> <input type="button" value="Remove frame"/>
FC03: Read holding registers	8749	10	Number	<input type="button" value="Edit frame"/> <input type="button" value="Remove frame"/>

1 2

Now it is necessary to map the new variables to this frame.

Digital frame item description

Function code

Name	Format	First register address	Factor	Offset	Invalid value	Unit	
Custom <input type="text" value="i Rated"/>	INT16	8749	1	0	0x8000	Custom <input type="text" value="A"/>	<input type="button" value="Remove item"/>
Custom <input type="text" value="I<sub>r</sub> pickup"/>	MOD10K	8755	1	0	0x80000000	Custom <input type="text" value="A"/>	<input type="button" value="Remove item"/>

Note the format MOD10K in order to comply with Masterpact documentation.

Validate the variables and save the new custom model

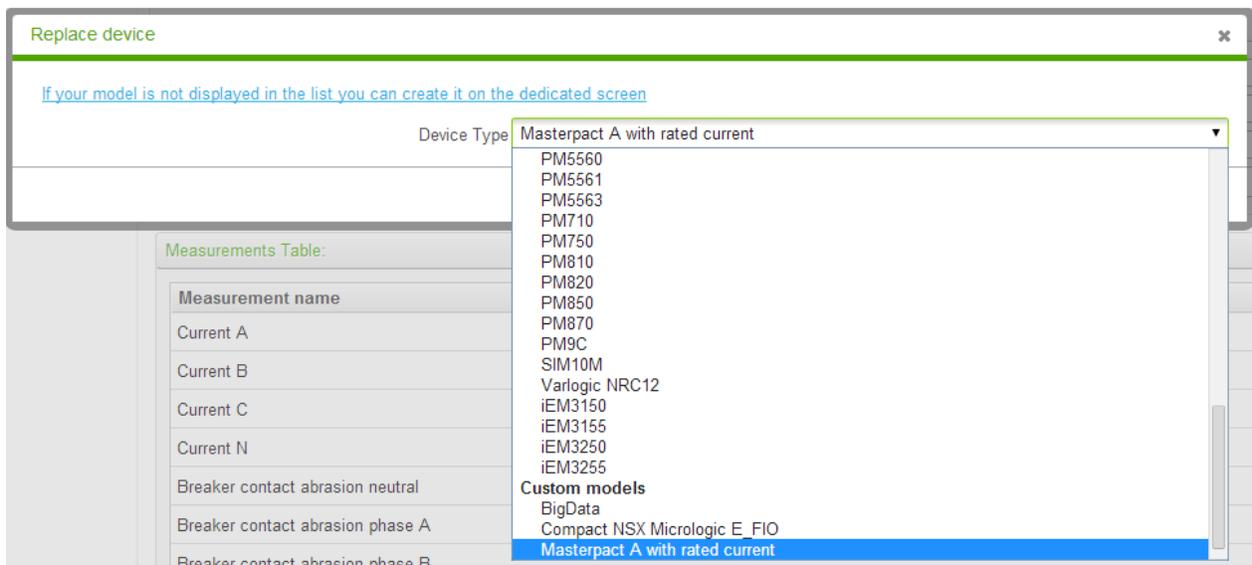
Using the new custom model

Return to the “Device settings” page,

Click on the Masterpact that was discovered (using the “standard” model)

Click on “Replace” button

In the list of devices that appear, select at the bottom the new customized Masterpact A model



Validate the change on the Masterpact device using the “Saved” button at right bottom corner.

The Masterpact device now displays 2 new variables



Building

Floor

Zone

Usage *

Measurements Table:

Measurement name	Value	Unit	Publish
Current A	777	A	<input type="checkbox"/>
Current B	775	A	<input type="checkbox"/>
Current C	776	A	<input type="checkbox"/>
Current N	0	A	<input type="checkbox"/>
Breaker contact abrasion neutral	-327.68		<input type="checkbox"/>
Breaker contact abrasion phase A	-327.68		<input type="checkbox"/>
Breaker contact abrasion phase B	-327.68		<input type="checkbox"/>
Breaker contact abrasion phase C	-327.68		<input type="checkbox"/>
Cumulative Open to Close counter (non resetable)	64		<input type="checkbox"/>
Trip on Electrical fault counter (Close to SDE)	52		<input type="checkbox"/>
Trip counter (Close to SD position)	--		<input type="checkbox"/>
Ir pickup	12.000.000	A	<input type="checkbox"/>
i Rated	1.200	A	<input type="checkbox"/>

The value of the rated current is correct (1200 A).

But the pickup threshold is wrong (12 000 000 A).

This is because we did not take into account the order of the 2 registers used by the Masterpact to map this 2 words length variable : the documentation indicates that the least significant word is send first. This is called "Little Endian" order.

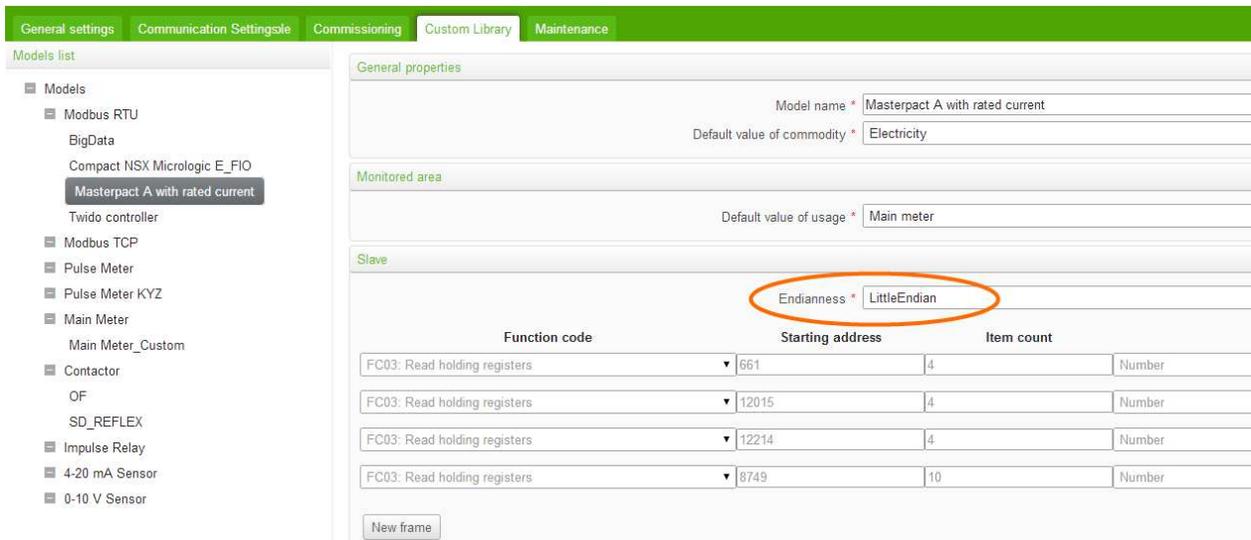
At the beginning, there was no standard in Modbus protocol about the endianness of the word in a double word structure. Now, Schneider-Electric has added a requirement for all new devices. This requirement specifies that the words variables must be mapped as "Big Endian".

By default Com`X 200 respect this new standard. But as the Micrologic for Masterpact was designed before this new standard, we must modify the model in order to fix it.

Modify the custom model

Return to the "Custom library" page, select the customized Micrologic for Masterpact A,

Change Endianness from "Big Endian" to "Little Endian"



Save the change,

Return to the “Device settings” page ,

The fix has been taken into account automatically for all devices created using this customized model

