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How to...

Use the PDI protocol to read or write the parameter in the PDI tree with Modbus



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an ETC Company

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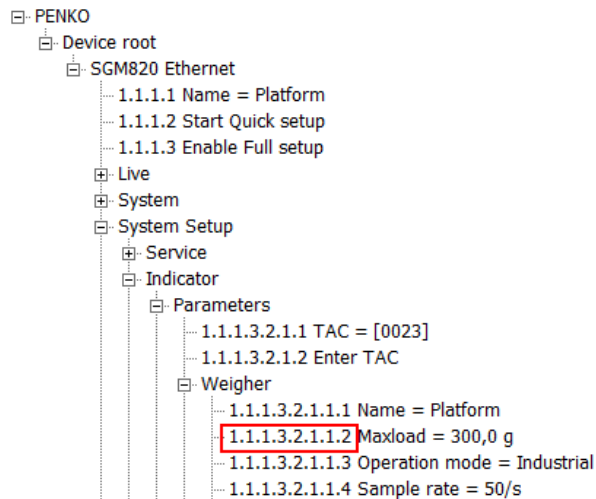
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PENKO How to...

Use the PDI protocol to read or write the parameter in the PDI tree with Modbus

It is possible to read all the parameters and write most of the parameters that are available in the SGM720 or SGM820 using the PDI protocol over Modbus TCP. Use Pi Mach II and the Manage button to view the PDI tree, in our example we will use the parameter Maxload to read and write the value.

Below you can see the PDI path for the Maxload (1.1.1.3.2.1.1.2).



Enable the function register

To use the PDI path you need to enable the function registers. Set bit 0x 1007 high to activate the Function registers. Read bit 1x 1104 to see if the Function register are activated. Low = disabled, High = enabled.

The input – parameters are used to set the PDI path and get or set a parameter.

The output-result are used to see if the PDI path is set correct and to read or write the parameter

Parameter	Data type	Address code	Address	Combined
Input - parameter 1	Double Word	4x	1149	401149
Input - parameter 2	Double Word	4x	1151	401151
Input - parameter 3	Double Word	4x	1153	401153
Input - parameter 4	Double Word	4x	1155	401155
Output - result 1	Double Word	3x	1141	301141
Output - result 2	Double Word	3x	1143	301143
Output - result 3	Double Word	3x	1145	301145
Output - result 4	Double Word	3x	1147	301147
Enable register command mode	Bit	0x	1007	001007
Status register command mode	Bit	1x	1104	101104

Set the PDI Path

First you need to set a PDI path in order to read or write the parameter.

The parameter Maxload has path number 1.1.1.3.2.1.1.2. This results in the following input parameters:

Fill the path with zeros to make 12 numbers: 1.1.1.3.2.1.1.2.0.0.0.0

The first 4 numbers of the PDI path are set in Input-Parameter 2 (1.1.1.3) in hex the value will be 0X01010103, you can convert the hex value into decimal 16843011.

The second 4 numbers of the PDI path are set in Input-Parameter 3 (2.1.1.2) in hex the value will be 0X02010102, you can convert the hex value into decimal 33620226.

The last 4 numbers of the PDI path are set in Input-Parameter 3 (0.0.0.0) in hex the value will be 0X00000000, you can convert the hex value into decimal 0.

Finally set the decimal value of 201 into Input-Parameter 1 (this value acts as a trigger and need to be set last of the 4 Input-Parameters)

Input-Parameter 1	0x00 0x00 0x00 0xC9	201
Input-Parameter 2	0x01 0x01 0x01 0x03	16843011
Input-Parameter 3	0x02 0x01 0x01 0x02	33620226
Input-Parameter 4	0x00 0x00 0x00 0x00	0

Request:

Parameter 1	Parameter 2	Parameter 3	Parameter 4
201	16843011	33620226	0

If the PDI path is correctly executed you will read the following results in the Output-results:

Reply:

Result 1	Result 2	Result 3	Result 4
201	16843011	33620226	0

The PDI path is now set.

If the path is not found, all zeros are returned.

Read PDI path value

Now that the PDI path is set, you can make a request to read the parameter Max load.

First set Input –parameter 2,3 and 4 to zero.

Finally set the decimal value of 203 into Input-Parameter 1 (this value acts as a trigger and need to be set last of the 4 Input-Parameters)

Input-Parameter 1	0x00 0x00 0x00 0xCB	203
Input-Parameter 2	0x00 0x00 0x00 0x00	0
Input-Parameter 3	0x00 0x00 0x00 0x00	0
Input-Parameter 4	0x00 0x00 0x00 0x00	0

Request:

Parameter 1	Parameter 2	Parameter 3	Parameter 4
203	0	0	0

If the PDI path get is correctly executed you will read the following results in the Output-results:

Reply:

Result 1	Result 2	Result 3	Result 4
203	500	0	0

The value in Output-result 2 is the value of the Max load.

If the path is not found, all zeros are returned.

Write PDI path value

First set the PDI path as described on page 4.

Now that the PDI path is set, you can make a request to write the parameter Max load. In our example we will set the Maxload to value 1000.

The new value will be set in Input-Parameter 2

Set Input –parameter 3 and 4 to zero.

Finally set the decimal value of 202 into Input-Parameter 1 (this value acts as a trigger and need to be set last of the 4 Input-Parameters)

Input-Parameter 1	0x00 0x00 0x00 0xCA	202
Input-Parameter 2	0x00 0x00 0x03 0xE8	1000
Input-Parameter 3	0x00 0x00 0x00 0x00	0
Input-Parameter 4	0x00 0x00 0x00 0x00	0

Request:

Parameter 1	Parameter 2	Parameter 3	Parameter 4
202	1000	0	0

If the PDI path set is correctly executed you will read the following results in the Output-results:

Reply:

Result 1	Result 2	Result 3	Result 4
202	1000	0	0

The value in Output-result 2 is the value of the Max load.

If the path is not found, all zeros are returned.

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Disable the function register

Set bit 0x 1007 low to disable the Function registers. Read bit 1x 1104 to see if the Function register are disabled. Low = disabled, High = enabled.



About PENKO

Our design expertise include systems for manufacturing plants, bulk weighing, check weighing, force measuring and process control. For over 35 years, PENKO Engineering B.V. has been at the forefront of development and production of high-accuracy, high-speed weighing systems and our solutions continue to help cut costs, increase ROI and drive profits for some of the largest global brands, such as Cargill, Sara Lee, Heinz, Kraft Foods and Unilever to name but a few.

Whether you are looking for a simple stand-alone weighing system or a high-speed weighing and dosing controller for a complex automated production line, PENKO has a comprehensive range of standard solutions you can rely on.

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http://penko.com/nl/publications_certificates.html



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