

Using KissBox IO3 and IO8 Modbus/TCP with OpenPLC

This application note explains Modbus/TCP parameters for the KissBox IO3C and IO8C products in order to integrate them into a OpenPLC installation.

Groups of I/O types

The KissBox Modbus/TCP firmware allows to use any type of I/O card in any slot. However, because of the specific way OpenPLC reads and writes I/O data, a simple rule must be followed when configuring the card cage : cards of a given type (DI, DO, AI, AO) must be grouped in consecutive slots.

For example, if you have two DI8DC, two DO4PR and one AI8RA cards in your IO8CC card cage, the two DI8DC and the two DO4PR must be installed side by side :

DI8DC / DI8DC / DO4PR / DO4PR / AI8RA / empty / empty / empty : OK
 DI8DC / DI8DC / AI8RA / DO4PR / DO4PR / empty / empty / empty : OK
 empty / DI8DC / DI8DC / DO4PR / DO4PR / empty AI8RA / empty : OK
 DI8DC / DO4PR / DI8DC / DO4PR : not correct, DI and DO are nested
 DI8DC / DI8DC / DO4PR / AI8RA / DOR4PR ... : not correct, DO and AI are nested

OpenPLC I/O addresses

| Slot | DI | DO | AI | AO |
|------|----------------------|----------------------|------------------|------------------|
| 1 | %IX100.0 to %IX100.7 | %QX100.0 to %QX100.7 | %IW100 to %IW107 | %QW100 to %QW107 |
| 2 | %IX101.0 to %IX101.7 | %QX101.0 to %QX101.7 | %IW108 to %IW115 | %QW108 to %QW115 |
| 3 | %IX102.0 to %IX102.7 | %QX102.0 to %QX102.7 | %IW116 to %IW123 | %QW116 to %QW123 |

I/O addresses for IO3C

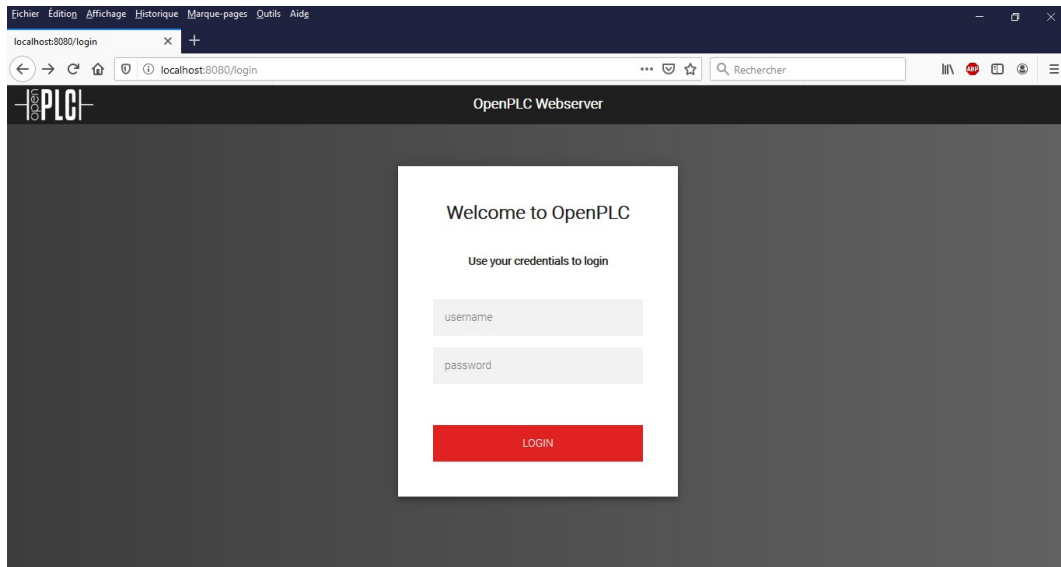
| Slot | DI | DO | AI | AO |
|------|----------------------|----------------------|------------------|------------------|
| 1 | %IX100.0 to %IX100.7 | %QX100.0 to %QX100.7 | %IW100 to %IW107 | %QW100 to %QW107 |
| 2 | %IX101.0 to %IX101.7 | %QX101.0 to %QX101.7 | %IW108 to %IW115 | %QW108 to %QW115 |
| 3 | %IX102.0 to %IX102.7 | %QX102.0 to %QX102.7 | %IW116 to %IW123 | %QW116 to %QW123 |
| 4 | %IX103.0 to %IX103.7 | %QX103.0 to %QX103.7 | %IW124 to %IW131 | %QW124 to %QW131 |
| 5 | %IX104.0 to %IX104.7 | %QX104.0 to %QX104.7 | %IW132 to %IW139 | %QW132 to %QW139 |
| 6 | %IX105.0 to %IX105.7 | %QX105.0 to %QX105.7 | %IW140 to %IW147 | %QW140 to %QW147 |
| 7 | %IX106.0 to %IX106.7 | %QX106.0 to %QX106.7 | %IW148 to %IW155 | %QW148 to %QW155 |

| | | | | |
|---|----------------------|----------------------|------------------|------------------|
| 8 | %IX107.0 to %IX107.7 | %QX107.0 to %QX107.7 | %IW156 to %IW163 | %QW156 to %QW163 |
|---|----------------------|----------------------|------------------|------------------|

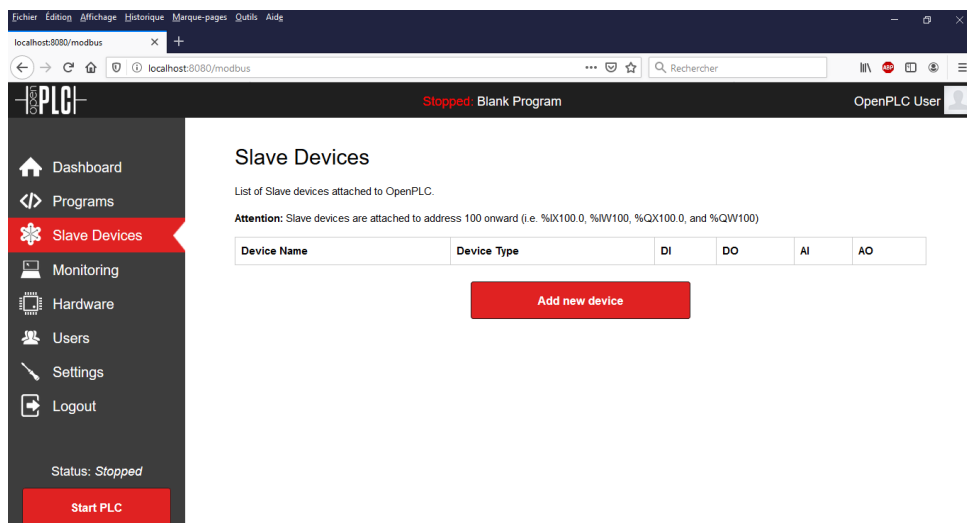
I/O addresses for IO8C

Adding KissBox IO3 and IO8 Modbus/TCP to OpenPLC

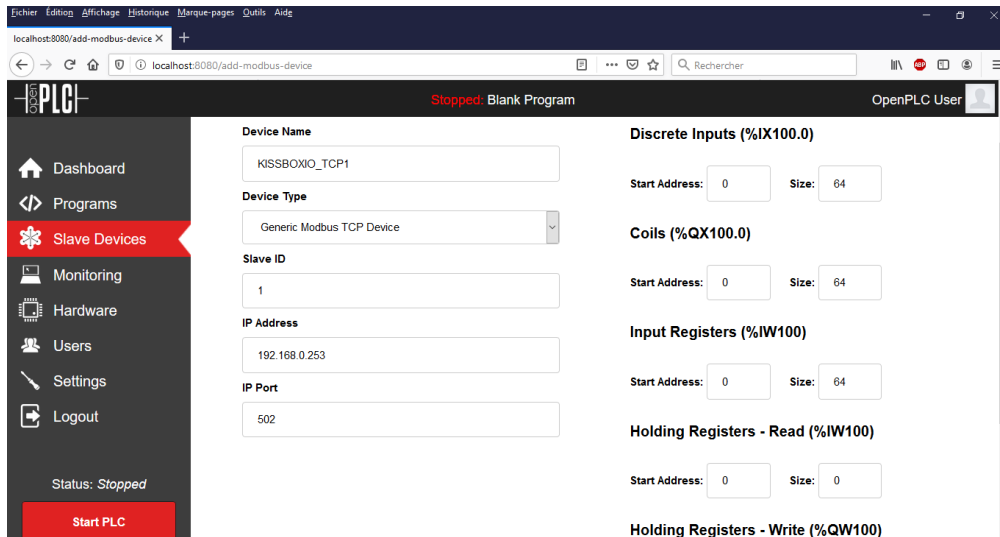
Start OpenPLC runtime and log into the control panel



Once logged into the runtime, click on Slave Devices



Click on « Add new device »



Enter the following informations. TAKE CARE : all fields must be filled with a value (value displayed in grey are just for informations, OpenPLC will report missing data if you don't enter a value even if the value you want is the same as the value presented)

Device Name : enter the name you want to give to your device. You can use any name, we only suggest to use a mnemonic name (like « Pump 25 Control I/O ») ;

Device Type : select « Generic Modbus TCP Device »

Slave ID : 1

IP Address : enter the IP address of the IO3C or IO8C as entered with the KissBox Editor (reminder : KissBox products use 192.168.0.253 by default)

IP Port : 502

Discrete Inputs : Start Address = 0, Size = 24 for IO3C, 64 for IO8C

Coils : Start Address = 0, Size = 24 for IO3C, 64 for IO8C

Input Registers : Start Address = 0, Size = 24 for IO3C, 64 for IO8C

Holding Registers - Read : Start Address = 0, Size = 0

Holding Registers - Write : Start Address = 0, Size = 24 for IO3C, 64 for IO8C

Click on **Save Device button** : the KissBox is now visible as a OpenPLC slave device

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localhost:8080/modbus

localhost:8080/modbus

Rechercher

OpenPLC - Stopped: Blank Program OpenPLC User

- Dashboard
- Programs
- Slave Devices**
- Monitoring
- Hardware
- Users**
- Settings
- Logout

Status: *Stopped*

Start PLC

Slave Devices

List of Slave devices attached to OpenPLC.

Attention: Slave devices are attached to address 100 onward (i.e. %IX100.0, %IW100, %QX100.0, and %QW100)

| Device Name | Device Type | DI | DO | AI | AO |
|----------------|-------------|----------------------|----------------------|------------------|------------------|
| KISSBOXIO_TCP1 | TCP | %IX100.0 to %IX107.7 | %QX100.0 to %QX107.7 | %IW100 to %IW163 | %QW100 to %QW163 |

Add new device