

# PyPLC Tango Python Class

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## **PyPLC Class Identification :**

Contact : at null - null  
Class Family :  
Platform :

## **PyPLC Class Inheritance :**

- [Tango::DeviceImpl](#)
  - PyPLC

Bus Manufacturer :  
Manufacturer ref. :

## **PyPLC Class Description :**

This device server will allow to interact with the Modbus PLC`s.  
The target is reading and writing variables and input/outputs of the PLC by using Tango Attributes. Tango Attributes will be generated dynamically using this syntax:

```
T3=int(Reg(7007)/10.)
```

The commands Coil, Flag, Reg and fReg will allow to declare Digital, Bit, Integer and Float variables respectively.

See full description at [www.tango-controls.org](http://www.tango-controls.org)

This device requires [Fandango module](#) to be available in the PYTHONPATH.

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## **PyPLC Properties :**

**There is no class properties**

Device Properties			
Name	Description	Type	Default Value
Modbus_name	The name of the Modbus Tango Device used to communicate with the PLC. All the information related to the communication must be specified using the Modbus device properties.	String	none
LogLevel	Default console output configuration.	String	INFO
MaxModbusQuerySize	Maximum amount of data that can be asked in a single Modbus request.	int	120
Mapping	Arrays to be permanently updated, declared like : ARRAY:0,+120 # (VarName:StartAddress,+ArrayLength)	String[]	none

ModbusCacheConfig	If ModbusCacheConfig>0 then it will update CacheConfig and CacheSleep properties of the Modbus device using Mapping values.	int	0
ModbusTimeWait	Number of milliseconds to wait between asynchronous Modbus calls	int	50
DefaultReadCommand	Default read command executed by Reg and Regs commands	String	ReadHoldingRegisters
AddressOffset	Integer offset added to Addresses in every Modbus command call.	int	0
ErrorTimeWait	Number of milliseconds between retries after a Modbus error	int	10000
DynamicAttributes	Attributes and formulas to create for this device. This Tango Attributes will be generated dynamically using this syntax: T3=int(Reg(7007)/10.) The commands Coil; Flag; Reg and fReg will allow to declare Digital; Bit; Integer and Float variables respectively.	String[]	none
DynamicStates	This property will allow to declare new States dynamically based on dynamic attributes changes. The function Attr will allow to use the value of attributes in formulas.  ALARM=Attr(T1)>70 OK=1	String[]	none
DynamicQualities	This property will allow to declare formulas for Attribute Qualities.	String[]	none
DynamicStatus	Each line generated by this property code will be added to status	String[]	none
KeepAttributes	This property can be used to store the values of only needed attributes; values are `yes`, `no` or a list of attribute names	String[]	`yes`
KeepTime	The kept value will be returned if a kept value is re-asked within this milliseconds time (Cache).	double	500
CheckDependencies	This property manages if dependencies between attributes are used to check readability.	boolean	True
UseEvents	Value of this property will be yes/true,no/false or a list of attributes that will trigger push_event (if configured from jive)	String[]	`false`
LogLevel	This property selects the log level (DEBUG/INFO/WARNING/ERROR)	String	`INFO`

Name	Input type	Output type	Level	Description
<a href="#">State</a>	DEV_VOID	DEV_STATE	OPERATOR	This command gets the device state (stored in its <i>device_state</i> data member) and returns it to the caller.
<a href="#">Status</a>	DEV_VOID	CONST_DEV_STRING	OPERATOR	This command gets the device status (stored in its <i>device_status</i> data member) and returns it to the caller.
<a href="#">Reg</a>	DEV_SHORT	DEV_SHORT	OPERATOR	None.
<a href="#">HoldingReg</a>	DEV_SHORT	DEV_SHORT	OPERATOR	None.
<a href="#">InputReg</a>	DEV_SHORT	DEV_SHORT	OPERATOR	None.
<a href="#">IEEEFloat</a>	DEV_SHORT	DEVVAR_LONGARRAY	OPERATOR	None.
<a href="#">Coil</a>	DEV_SHORT	DEV_SHORT	OPERATOR	None.
<a href="#">Flag</a>	DEVVAR_SHORTARRAY	DEV_SHORT	OPERATOR	None.
<a href="#">Bit</a>	DEVVAR_SHORTARRAY	DEV_SHORT	OPERATOR	None.
<a href="#">Regs</a>	DEVVAR_SHORTARRAY	DEVVAR_SHORTARRAY	OPERATOR	None.
<a href="#">HoldingRegs</a>	DEVVAR_SHORTARRAY	DEVVAR_SHORTARRAY	OPERATOR	None.
<a href="#">InputRegs</a>	DEVVAR_SHORTARRAY	DEVVAR_SHORTARRAY	OPERATOR	None.
<a href="#">Regs32</a>	DEVVAR_SHORTARRAY	DEVVAR_LONGARRAY	OPERATOR	None.
<a href="#">Coils</a>	DEVVAR_SHORTARRAY	DEVVAR_SHORTARRAY	OPERATOR	None.
<a href="#">WriteInt</a>	DEVVAR_SHORTARRAY	DEV_VOID	OPERATOR	None.
<a href="#">WriteLong</a>	DEVVAR_LONGARRAY	DEV_VOID	OPERATOR	None.
<a href="#">WriteFloat</a>	DEVVAR_STRINGARRAY	DEV_STRING	OPERATOR	None.
<a href="#">WriteCoil</a>	DEVVAR_SHORTARRAY	DEV_VOID	OPERATOR	None.
<a href="#">WriteFlag</a>	DEVVAR_SHORTARRAY	DEV_VOID	OPERATOR	None.
<a href="#">updateDynamicAttributes</a>	DEV_VOID	DEV_VOID	EXPERT	None.
<a href="#">evaluateFormula</a>	DEV_STRING	DEV_STRING	EXPERT	None.
<a href="#">isLocked</a>	DEV_VOID	DEV_BOOLEAN	EXPERT	None.
<a href="#">Lock</a>	DEV_VOID	DEV_VOID	EXPERT	None.
<a href="#">Unlock</a>	DEV_VOID	DEV_VOID	EXPERT	None.
<a href="#">setLogLevel</a>	DEV_STRING	DEV_VOID	EXPERT	None.
<a href="#">SetModbusCacheConfig</a>	DEV_VOID	DEV_STRING	EXPERT	None.
<a href="#">Reconnect</a>	DEV_VOID	DEV_STRING	EXPERT	None.

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### **Command State :**

This command gets the device state (stored in its *device\_state* data member) and returns it to the caller.

<b>State Definition</b>		
Input Argument	Tango::DEV_VOID	none.
Output Argument	Tango::DEV_STATE	State Code
DisplayLevel	OPERATOR	..
Inherited	true	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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### **Command Status :**

This command gets the device status (stored in its *device\_status* data member) and returns it to the caller.

<b>Status Definition</b>		
Input Argument	Tango::DEV_VOID	none.
Output Argument	Tango::CONST_DEV_STRING	Status description
DisplayLevel	OPERATOR	..
Inherited	true	..
Abstract	true	..
Polling Period	Not polled	..
Command allowed for	All states	..

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### Command Reg :

Reg Definition		
Input Argument	Tango::DEV_SHORT	Modbus Address
Output Argument	Tango::DEV_SHORT	Value of the register
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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### Command HoldingReg :

HoldingReg Definition		
Input Argument	Tango::DEV_SHORT	Modbus Address
Output Argument	Tango::DEV_SHORT	Value of the register
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

---

### Command InputReg :

InputReg Definition		
Input Argument	Tango::DEV_SHORT	Modbus Address

Output Argument	Tango::DEV_SHORT	Value of the register
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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### **Command leeeFloat :**

<b>leeeFloat Definition</b>		
Input Argument	Tango::DEV_SHORT	Modbus Address
Output Argument	Tango::DEVVAR_LONGARRAY	Modbus Address OR two int32 to convert
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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### **Command Coil :**

<b>Coil Definition</b>		
Input Argument	Tango::DEV_SHORT	Coil Address
Output Argument	Tango::DEV_SHORT	Status of Coil
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

---

**Command Flag :**

Flag Definition		
Input Argument	Tango::DEVVAR_SHORTARRAY	Modbus Address, Nb of Flag
Output Argument	Tango::DEV_SHORT	Value of the flag in the given Address
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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**Command Bit :**

Bit Definition		
Input Argument	Tango::DEVVAR_SHORTARRAY	Bit(int,bit): Get a bit from an int (It is not accessing Hardware at all!)
Output Argument	Tango::DEV_SHORT	Bit(int,bit): Get a bit from an int (It is not accessing Hardware at all!)
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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## Command Regs :

Regs Definition		
Input Argument	Tango::DEVVAR_SHORTARRAY	Modbus Address, Nb of Registers
Output Argument	Tango::DEVVAR_SHORTARRAY	Spectrum of read Values
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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## Command HoldingRegs :

HoldingRegs Definition		
Input Argument	Tango::DEVVAR_SHORTARRAY	Modbus Address, Nb of Registers
Output Argument	Tango::DEVVAR_SHORTARRAY	Spectrum of read Values
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

---

## Command InputRegs :

InputRegs Definition		
Input Argument	Tango::DEVVAR_SHORTARRAY	Modbus Address, Nb of Registers

Output Argument	Tango::DEVVAR_SHORTARRAY	Spectrum of read Values
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

### **Command Regs32 :**

<b>Regs32 Definition</b>		
Input Argument	Tango::DEVVAR_SHORTARRAY	Modbus Address, Nb of Registers
Output Argument	Tango::DEVVAR_LONGARRAY	Spectrum of read Values
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

### **Command Coils :**

<b>Coils Definition</b>		
Input Argument	Tango::DEVVAR_SHORTARRAY	Coil Address, Nb of coils
Output Argument	Tango::DEVVAR_SHORTARRAY	Status of Coils
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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**Command WriteInt :**

<b>WriteInt Definition</b>		
Input Argument	Tango::DEVVAR_SHORTARRAY	Modbus Address, Int Value
Output Argument	Tango::DEV_VOID	Nothing
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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**Command WriteLong :**

<b>WriteLong Definition</b>		
Input Argument	Tango::DEVVAR_LONGARRAY	Modbus Address, Long Value
Output Argument	Tango::DEV_VOID	Nothing
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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**Command WriteFloat :**

<b>WriteFloat Definition</b>		
Input Argument	Tango::DEVVAR_STRINGARRAY	Modbus Address, Float Value to be written
Output Argument	Tango::DEV_STRING	Values Written
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

**Command WriteCoil :**

<b>WriteCoil Definition</b>		
Input Argument	Tango::DEVVAR_SHORTARRAY	Coil Address, Value - 0/1
Output Argument	Tango::DEV_VOID	Nothing
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

**Command WriteFlag :**

<b>WriteFlag Definition</b>		
Input Argument	Tango::DEVVAR_SHORTARRAY	Modbus Address, Bit to Modify, New Bit Value 0/1
Output Argument	Tango::DEV_VOID	Nothing

DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

**Command updateDynamicAttributes :**

<b>updateDynamicAttributes Definition</b>		
Input Argument	Tango::DEV_VOID	It will DELETE all attributes that does not appear in DynamicAttributes property or StaticAttributes list!
Output Argument	Tango::DEV_VOID	
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

**Command evaluateFormula :**

<b>evaluateFormula Definition</b>		
Input Argument	Tango::DEV_STRING	formula to evaluate
Output Argument	Tango::DEV_STRING	result
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..

Command allowed for All states ..

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**Command isLocked :**

isLocked Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_BOOLEAN	lock status
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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**Command Lock :**

Lock Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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**Command Unlock :**

Unlock Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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**Command setLogLevel :**

setLogLevel Definition		
Input Argument	Tango::DEV_STRING	DEBUG,INFO,WARNING,ERROR
Output Argument	Tango::DEV_VOID	Modifies the console output of the device server.
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

---

**Command SetModbusCacheConfig :**

SetModbusCacheConfig Definition		
Input Argument	Tango::DEV_VOID	This command will update the CacheConfig and CacheSleep properties of the Modbus device.

Output Argument	Tango::DEV_STRING	This command will update the CacheConfig and CacheSleep properties of the Modbus device.
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

**Command Reconnect :**

<b>Reconnect Definition</b>		
Input Argument	Tango::DEV_VOID	This Command executes Init() and State() calls in the Modbus Device.
Output Argument	Tango::DEV_STRING	This Command executes Init() and State() calls in the Modbus Device.
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

**There is no attribute defined.**

**There is no dynamic attribute defined.**



PyPLC Class States	
Name	Description
INIT	
ON	
ALARM	
FAULT	