

## BalzersTpg300 Tango Cpp Class

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### BalzersTpg300 Class Identification :

Contact : at esrf.fr - peru  
Class Family : Vacuum  
Platform : Unix Like  
Bus : Serial Line  
Manufacturer : Balzers  
Manufacturer ref. : Tpg300

### BalzersTpg300 Class Inheritance :

- [Tango::DeviceImpl](#)
  - BalzersTpg300

## BalzersTpg300 Class Description :

This device server is intended to control a Balzers TPG300 pressure gauge controller

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## BalzersTpg300 Properties :

Class Properties			
Name	Description	Type	Default Value
SleepTimeBetweenSendAndGet	Time to wait after a send to read the answer in milliseconds.	int	2

Device Properties			
Name	Description	Type	Default Value
SerialDevicename	The device name of the serial device.	String	none
UnderrangeControl	\`true\` if control is \`on\`, \`false\` instead.	boolean	false
Units	The unit in which the pressure value is expressed.	String	mbar
LocalMode	If set to \`true\` sets the TPG300 to local mode (code =\`1001\`).	boolean	true
Relays	TPG relays configuration. For each relay, a string as s1,s2,s3,s4 define the specified relay configuration: - s1: Relay name (1,2,3,4,A or B) - s2: The lower limit pressure (e.g. 1.0E-6) - s3: The upper limit pressure (e.g. 6.0E-6) - s4: The switch assignment: - Relay 1->4 : gauge channel - Relay A and B : 5 -> 8	String[]	none
SleepTimeBetweenSendAndGet	Time to wait after a send to read the answer in milliseconds.	int	0

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BalzersTpg300 Class Commands				
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="#">AddGauge</a>	DEVVAR_STRINGARRAY	DEV_VOID	OPERATOR	Add a gauge to the controller. It sends the gauge configuration to be done by the controller thread
<a href="#">ConfigureFilterTime</a>	DEVVAR_STRINGARRAY	DEV_VOID	OPERATOR	Configure the filter time for the relevant gauge: - param[0] = Gauge name (`A1`, `A2`, `B1`, or `B2`). - param[1] = Filter type (`fast`, `medium` or `slow`).
<a href="#">ConfigureUnderrange</a>	DEV_BOOLEAN	DEV_VOID	OPERATOR	Configure the underrange control: - "false": Control is OFF. - "true": Control is ON.
<a href="#">ConfigureUnits</a>	DEV_STRING	DEV_VOID	OPERATOR	Configure pressure value units ("mbar", "Torr", "Pa").
<a href="#">GetGaugePressure</a>	DEV_STRING	DEV_DOUBLE	OPERATOR	Returns the pressure read by the considered gauge.

<a href="#">GetGaugeState</a>	DEV_STRING	DEV_STATE	OPERATOR	Returns the state of the considered gauge.
<a href="#">GetGaugeStatus</a>	DEV_STRING	DEV_STRING	OPERATOR	Returns a string describing the status of the considered gauge.
<a href="#">IsInitialized</a>	DEV_STRING	DEV_BOOLEAN	OPERATOR	return true if specified gauge is nitialized.
<a href="#">Off</a>	DEV_STRING	DEV_VOID	OPERATOR	Sets OFF the gauge gives as parameter.
<a href="#">On</a>	DEV_STRING	DEV_VOID	OPERATOR	Set ON the gauge given as parameter.
<a href="#">SaveParameters</a>	DEV_VOID	DEV_VOID	OPERATOR	Save the present parameters set. This command takes a few seconds to complete!
<a href="#">SetCodeMode</a>	DEV_BOOLEAN	DEV_VOID	OPERATOR	<p>If argin is set to `true` then to be operated the TPG300 waits for a code to be entered (hard coded to 1001).</p> <p>if argin is set to `false` no code is required to operate the TPG300.</p> <p>The `code_mode` is the `remote` mode for the TACO DS. The `no_code_mode` is the `local` mode for the TACO DS.</p>

### **Command State :**

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

State Definition		
Input Argument	Tango::DEV_VOID	none.
Output Argument	Tango::DEV_STATE	State Code
DisplayLevel	OPERATOR	..
Inherited	true	..
Abstract	true	..
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.

Status Definition		
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 AddGauge :**

Add a gauge to the controller.

It sends the gauge configuration to be done by the comntroller thread

<b>AddGauge Definition</b>		
Input Argument	Tango::DEVVAR_STRINGARRAY	value[0] = `A1`, `A2`, `B1` or `B2` value[1] = filter time value[2] = device name
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

### **Command ConfigureFilterTime :**

Configure the filter time for the relevant gauge:

- param[0] = Gauge name (`A1`, `A2`, `B1`, or `B2`).
- param[1] = Filter type (`fast`, `medium` or `slow`).

<b>ConfigureFilterTime Definition</b>		
Input Argument	Tango::DEVVAR_STRINGARRAY	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

### **Command ConfigureUnderrange :**

Configure the underrange control:

- "false": Control is OFF.
- "true": Control is ON.

<b>ConfigureUnderrange Definition</b>		
Input Argument	Tango::DEV_BOOLEAN	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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### **Command ConfigureUnits :**

Configure pressure value units ("mbar", "Torr", "Pa").

<b>ConfigureUnits Definition</b>		
Input Argument	Tango::DEV_STRING	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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### **Command GetGaugePressure :**

Returns the pressure read by the considered gauge.

<b>GetGaugePressure Definition</b>		
Input Argument	Tango::DEV_STRING	The gauge index (`A1`, `A2`, `B1` or `B2`).
Output Argument	Tango::DEV_DOUBLE	The pressure value.
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

### **Command GetGaugeState :**

Returns the state of the considered gauge.

<b>GetGaugeState Definition</b>		
Input Argument	Tango::DEV_STRING	The gauge index (`A1`, `A2`, `B1` or `B2`).
Output Argument	Tango::DEV_STATE	The state of the gauge.
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

### **Command GetGaugeStatus :**

Returns a string describing the status of the considered gauge.

<b>GetGaugeStatus Definition</b>	
Input Argument	Tango::DEV_STRING



Output Argument	Tango::DEV_STRING	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

### **Command IsInitialized :**

return true if specified gauge is nitialized.

<b>IsInitialized Definition</b>		
Input Argument	Tango::DEV_STRING	Channel number: e.g. B2
Output Argument	Tango::DEV_BOOLEAN	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

### **Command Off :**

Sets OFF the gauge gives as parameter.

<b>Off Definition</b>		
Input Argument	Tango::DEV_STRING	Gauge name (A1, A2, B1, B2)
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..

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

### **Command On :**

Set ON the gauge given as parameter.

<b>On Definition</b>		
Input Argument	Tango::DEV_STRING	Gauge name (A1, A2, B1, B2)
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

### **Command SaveParameters :**

Save the present parameters set. This command takes a few seconds to complete!

<b>SaveParameters Definition</b>		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..

Command allowed for	All states	..
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**Command SetCodeMode :**

If argin is set to `true` then to be operated the TPG300 waits for a code to be entered (hard coded to 1001).

if argin is set to `false` no code is required to operate the TPG300.

The `code\_mode` is the `remote` mode for the TACO DS.  
The `no\_code\_mode` is the `local` mode for the TACO DS.

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

BalzersTpg300 Class Attributes							
Name	Inherited	Abstract	Attr. type	R/W type	Data type	Level	Description
<a href="#">A1Pressure</a>	false	false	Scalar	READ	Tango::DEV_DOUBLE	OPERATOR	
<a href="#">A2Pressure</a>	false	false	Scalar	READ	Tango::DEV_DOUBLE	OPERATOR	
<a href="#">B1Pressure</a>	false	false	Scalar	READ	Tango::DEV_DOUBLE	OPERATOR	
<a href="#">B2Pressure</a>	false	false	Scalar	READ	Tango::DEV_DOUBLE	OPERATOR	
<a href="#">A1State</a>	false	false	Scalar	READ	Tango::DEV_STATE	OPERATOR	
<a href="#">A2State</a>	false	false	Scalar	READ	Tango::DEV_STATE	OPERATOR	
<a href="#">B1State</a>	false	false	Scalar	READ	Tango::DEV_STATE	OPERATOR	
<a href="#">B2State</a>	false	false	Scalar	READ	Tango::DEV_STATE	OPERATOR	

**There is no dynamic attribute defined.**

**Attribute A1Pressure :**

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

Attribute Properties	
label	
unit	
standard unit	mbar
display unit	
format	%.1e
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

**Attribute A2Pressure :**

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

Attribute Properties	
label	
unit	mbar
standard unit	
display unit	
format	%.1e
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

**Attribute B1Pressure :**

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling	

Attribute Properties	
label	
unit	mbar
standard unit	
display unit	
format	%.1e
max_value	
min_value	
max_alarm	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set

Period	Not polled
Memorized	Not set
Read allowed for	All states

min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

	set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

**Attribute B2Pressure :**

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

Attribute Properties	
label	
unit	mbar
standard unit	
display unit	
format	%.1e
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

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**Attribute A1State :**

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_STATE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

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**Attribute A2State :**

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_STATE

Attribute Properties	
label	
unit	
standard unit	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set

Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

display unit
format
max_value
min_value
max_alarm
min_alarm
max_warning
min_warning
delta_time
delta_val

Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

**Attribute B1State :**

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_STATE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user	



code	false
Push DataReady event by user code	Not set

### **Attribute B2State :**

<b>Attribute Definition</b>	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_STATE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

<b>Attribute Properties</b>	
label	
unit	
standard unit	
display unit	
format	
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

<b>Attribute Event Criteria</b>	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

### **Attribute ControlledGauges :**

Attribute Definition	
Attribute Type	Spectrum ( 4 )
R/W Type	READ
Data Type	Tango::DEV_STRING
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	false

BalzersTpg300 Class States	
Name	Description
ON	The TPG300 is in this state when it works as it should.
FAULT	The device server is in this state when the TPG300 does not run as it should.