

## MKSPR4000B Tango Cpp Class

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### MKSPR4000B Class Identification :

Contact : at desy.de - johannes.blume  
Class Family : Instrumentation  
Platform : Unix Like  
Bus : Not Applicable  
Manufacturer : MKS Instruments  
Manufacturer : [http://www.mksinst.com/product/product.aspx?](http://www.mksinst.com/product/product.aspx?ref. ProductID=831&source=search)  
ref. ProductID=831&source=search

### MKSPR4000B Class Inheritance :

- [Tango::DeviceImpl](#)
  - MKSPR4000B

### MKSPR4000B Class Description :

**MKSPR4000B Properties :**

**There is no class properties**

Device Properties			
Name	Description	Type	Default Value
Controller	Tango device name of MKSPR4000BCtrl device	String	""
ChannelNr	Channel number (1 or 2)	short	0
SimulationMode		boolean	false

MKSPR4000B 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 device_state 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 device_status data member) and returns it to the caller.

**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	Device state
DisplayLevel	OPERATOR	..
Inherited	true	..
Abstract	false	..
Polling Period	Not polled	..

**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	Device status
DisplayLevel	OPERATOR	..
Inherited	true	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

MKSPR400B Class Attributes							
Name	Inherited	Abstract	Attr. type	R/W type	Data type	Level	Description
<a href="#">Value</a>	false	false	Scalar	READ	Tango::DEV_DOUBLE	OPERATOR	
<a href="#">SetPoint</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	
<a href="#">ValveEnable</a>	false	false	Scalar	READ_WRITE	Tango::DEV_BOOLEAN	OPERATOR	enable / disable valve get valve status  true: enable(d) false: disable(d)
<a href="#">Range</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	Range
							Unit: ubar = 0 mbar = 1 bar = 2 mTor = 3 Torr = 4 KTor = 5 Pa = 6 kPa = 7

<a href="#">Unit</a>	false	false	Scalar	READ_WRITE	Tango::DEV_USHORT	OPERATOR	mH2O = 8 cH2O = 9 PSI = 10 N/qm = 11 SCCM = 12 SLM = 13 SCM = 14 SCFH = 15 SCFM = 16 mA = 17 V = 18 % = 19 C = 20
<a href="#">OffSet</a>	false	false	Scalar	READ_WRITE	Tango::DEV_SHORT	OPERATOR	
<a href="#">Gain</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	
<a href="#">SignalMode</a>	false	false	Scalar	READ_WRITE	Tango::DEV_USHORT	OPERATOR	signal mode: 0 = METER 1 = OFF 2 = INDEP 3 = EXTRN, 4 = SLAVE 5 = RTD
<a href="#">InputRange</a>	false	false	Scalar	READ_WRITE	Tango::DEV_USHORT	OPERATOR	
<a href="#">OutputRange</a>	false	false	Scalar	READ_WRITE	Tango::DEV_USHORT	OPERATOR	
<a href="#">ExternalInputRange</a>	false	false	Scalar	READ_WRITE	Tango::DEV_USHORT	OPERATOR	
<a href="#">ExternalOutputRange</a>	false	false	Scalar	READ_WRITE	Tango::DEV_USHORT	OPERATOR	
<a href="#">Scale</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	
<a href="#">LimitMode</a>	false	false	Scalar	READ_WRITE	Tango::DEV_USHORT	OPERATOR	limit mode: 0 = SLEEP 1 = LIMIT 2 = BAND 3 = MLIMIT 4 = MBAND
<a href="#">DeadBand</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	
<a href="#">UpperLimit</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	
<a href="#">LowerLimit</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	
<a href="#">ExternalInput</a>	false	false	Scalar	READ	Tango::DEV_DOUBLE	OPERATOR	

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**There is no dynamic attribute defined.**

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**Attribute Value :**



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 NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>

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

**Attribute SetPoint :**

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>
Write NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>

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

**Attribute ValveEnable :**

enable / disable valve  
get valve status

true: enable(d)  
false: disable(d)

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_BOOLEAN
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>
Write NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>

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

**Attribute Range :**

Range

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>
Write NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	
max_value	99999
min_value	0
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

### **Attribute Unit :**

Unit:  
ubar = 0  
mbar = 1  
bar = 2  
mTor = 3  
Torr = 4  
KTor = 5  
Pa = 6  
kPa = 7  
mH2O = 8  
cH2O = 9  
PSI = 10  
N/qm = 11  
SCCM = 12  
SLM = 13  
SCM = 14  
SCFH = 15  
SCFM = 16  
mA = 17  
V = 18  
% = 19

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_USHORT
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>
Write NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	
max_value	20
min_value	0
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

**Attribute OffSet :**

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_SHORT
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	
max_value	+250
min_value	-250
max_alarm	
min_alarm	

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



Read NOT allowed for	• FAULT
Write NOT allowed for	• FAULT

max_warning	
min_warning	
delta_time	
delta_val	

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

### **Attribute Gain :**

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	• FAULT
Write NOT allowed for	• FAULT

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	
max_value	2.0
min_value	0.001
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

### **Attribute SignalMode :**

signal mode:

- 0 = METER
- 1 = OFF
- 2 = INDEP
- 3 = EXTRN,
- 4 = SLAVE
- 5 = RTD

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_USHORT
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>
Write NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>

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

**Attribute InputRange :**

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_USHORT
Display Level	OPERATOR
Inherited	false

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	

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

Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	• FAULT
Write NOT allowed for	• FAULT

max_value	10
min_value	1
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

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

**Attribute OutputRange :**

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_USHORT
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	• FAULT
Write NOT allowed for	• FAULT

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	
max_value	10
min_value	1
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

**Attribute ExternalInputRange :**

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_USHORT
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>
Write NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	
max_value	10
min_value	1
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

**Attribute ExternalOutputRange :**

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_USHORT
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	
max_value	10
min_value	1

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

Memorized	Not set
Read NOT allowed for	• FAULT
Write NOT allowed for	• FAULT

max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

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

**Attribute Scale :**

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	• FAULT
Write NOT allowed for	• FAULT

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

**Attribute LimitMode :**

limit mode:  
 0 = SLEEP  
 1 = LIMIT  
 2 = BAND  
 3 = MLIMIT  
 4 = MBAND

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_USHORT
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>
Write NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>

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

**Attribute DeadBand :**

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

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	

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

Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>
Write NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>

max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

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

**Attribute UpperLimit :**

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>
Write NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>

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

**Attribute LowerLimit :**

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>
Write NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>

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

**Attribute ExternalInput :**

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

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	
max_value	
min_value	

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



Memorized	Not set
Read NOT allowed for	<ul style="list-style-type: none"> <li>• FAULT</li> </ul>

max_alarm
min_alarm
max_warning
min_warning
delta_time
delta_val

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

MKSPR4000B Class States	
Name	Description
ON	
FAULT	