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Information technology – UPnP device architecture –
Part 19-10: Solar Protection Blind Device Control Protocol – Two Way Motion
Motor Service

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CONTENTS

1	Overview and Scope.....	3
2	Service Modeling Definitions.....	3
2.1	Service Type	3
2.2	State Variables.....	4
2.2.1	OperationMode	5
2.2.2	ServiceLocked	5
2.2.3	Position	5
2.2.4	PositionArgType	5
2.2.5	Relationships between State Variables.....	6
2.3	Eventing and Moderation	6
2.4	Actions.....	6
2.4.1	(Void) Open().....	7
2.4.2	(Void) Close()	8
2.4.3	(Void) Stop().....	9
2.4.4	(String) GetOperationMode(RetVal).....	10
2.4.5	(Void) SetOperationMode(String)	10
2.4.6	(Void) IsLocked(Boolean)	11
2.4.7	(Void) Lock().....	11
2.4.8	(Void) UnLock()	12
2.4.9	(Float) GetPosition(RetVal).....	13
2.4.10	(Void) SetPosition(I1).....	13
2.4.11	(String) GetPositionArgType(RetVal).....	14
2.4.12	Non-Standard Actions Implemented by a UPnP Vendor	15
2.4.13	Relationships between Actions.....	15
2.4.14	Common Error Codes	15
2.5	Theory of Operation.....	15
3	XML Service Description	17
4	Test	20
	Table 1: State Variables	4
	Table 1.1: allowedValueList for <u>OperationMode</u>	4
	Table 1.2: DefaultValue for <u>OperationMode</u>	4
	Table 1.5: allowedValueRange for <u>Position</u>	4
	Table 1.6: DefaultValue for <u>Position</u>	4
	Table 1.7: allowedValueList for <u>PositionArgType</u>	5
	Table 1.8: DefaultValue for <u>PositionArgType</u>	5
	Table 2: Event Moderation	6
	Table 3: Actions.....	7
	Table 4.1: Arguments for <u>Open</u>	7
	Table 4.2: Arguments for <u>Close</u>	8
	Table 4.3: Arguments for <u>Stop</u>	9

Table 4.4: Arguments for <u>GetOperationMode</u>	10
Table 4.5: Arguments for <u>SetOperationMode</u>	10
Table 4.6: Arguments for <u>IsLocked</u>	11
Table 4.7: Arguments for <u>Lock</u>	11
Table 4.8: Arguments for <u>UnLock</u>	12
Table 4.9: Arguments for <u>GetPosition</u>	13
Table 4.10: Arguments for <u>SetPosition</u>	13
Table 4.11: Arguments for <u>GetPositionArgType</u>	14
Table 5: Common Error Codes	15

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INFORMATION TECHNOLOGY – UPNP DEVICE ARCHITECTURE –

Part 19-10: Solar Protection Blind Device Control Protocol – Two Way Motion Motor Service

FOREWORD

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International Standard ISO/IEC 29341-19-10 was prepared by UPnP Forum Steering committee¹, was adopted, under the fast track procedure, by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

The list of all currently available parts of the ISO/IEC 29341 series, under the general title *Information technology – UPnP device architecture*, can be found on the IEC web site.

This International Standard has been approved by vote of the member bodies, and the voting results may be obtained from the address given on the second title page.

¹ UPnP Forum Steering committee, UPnP Forum, 3855 SW 153rd Drive, Beaverton, Oregon 97006 USA. See also "Introduction".

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1 Overview and Scope

This service definition is compliant with the UPnP Device Architecture version 1.0.

This service-type enables the following functions:

- Driving a motor between two fixed end limits.
- Reaching any position written in percentage of the full run (optional).
- Returning the actual blind position written in percentage of the full run (optional).

This service template does not address:

- Any motorization whose run is not bounded.
- Any speed control.

2 Service Modeling Definitions

2.1 Service Type

The following service type identifies a service that is compliant with this template:

urn:schemas-UPnP-org:service:*TwoWayMotionMotor:1*.

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2.2 State Variables

Table 1: State Variables

Variable Name	Req. or Opt. ^a	Data Type	Allowed Value ^b	Default Value ^b	Eng. Units
<u>OperationMode</u>	<u>R</u>	<u>String</u>	“ <u>Manual Unprotected</u> ”, “ <u>Manual Protected</u> ”, “ <u>Automatic</u> ”	<i>Vendor-defined</i>	
<u>ServiceLocked</u>	<u>O</u>	<u>Boolean</u>	<u>0,1</u>	<u>1</u>	
<u>Position</u>	<u>O</u>	<u>I1</u>	<u>0 to 100</u>	<i>Vendor-defined</i>	
<u>PositionArgType</u>	<u>O</u>	<u>String</u>	“ <u>End Limits</u> ”, “ <u>Continuous</u> ”	<i>Vendor-defined</i>	
<i>Non-standard state variables implemented by an UPnP vendor go here.</i>	<u>X</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>

^a R = Required, O = Optional, X = Non-standard

^b Values listed in this column are required. To specify standard optional values or to delegate assignment of values to the vendor, you must reference a specific instance of an appropriate table below.

Table 1.1: allowedValueList for OperationMode

Value	Req. or Opt.
<u>Manual Unprotected</u>	<u>O</u> ^a
<u>Manual Protected</u>	<u>O</u> ^a ^b
<u>Automatic</u>	<u>O</u> ^b
<i>Vendor-defined</i>	<u>O</u> ^b

^a At least one out of “Manual Unprotected” and “Manual Protected” must be implemented.

^b If one of those optional values is implemented “ServiceLocked” must be implemented.

Table 1.2: DefaultValue for OperationMode

Value	Req. or Opt.
<i>Vendor-defined</i>	<u>R</u>

Table 1.5: allowedValueRange for Position

	Value	Req. or Opt.
Minimum	<u>0</u>	<u>R</u>
Maximum	<u>100</u>	<u>R</u>
Step	<i>Vendor-defined</i>	<u>O</u>

Table 1.6: DefaultValue for Position

Value	Req. or Opt.
<i>Vendor-defined</i> ^a	<u>R</u>

^a This value must reflect the real position of the device.

Table 1.7: allowedValueList for *PositionArgType*

Value	Req. or Opt.
<i>End Limits</i>	<i>R</i>
<i>Continuous</i>	<i>R</i>

Table 1.8: DefaultValue for *PositionArgType*

Value	Req. or Opt.
<i>Vendor-defined</i> ^a	<i>R</i>
^a This value cannot be changed afterward.	

2.2.1 OperationMode

This variable describes with “ServiceLocked” the actual operation mode of the device:

- “Manual Unprotected” allows the user to control the device and disables all the protections available. “Manual Unprotected” is required.
- “Manual Protected” allows the user to control the device and enable all the protections available. “Manual Protected” is optional,
- “Automatic” disables any manual order. “Automatic” is optional.

2.2.2 ServiceLocked

This variable defines if the device is locked or not:

- 1: actions that get information from the service and those that change the operation mode (i.e. “OperationMode” + “ServiceLocked”) are enabled. All other actions are disabled. “ServiceLocked” overcomes automation and protections.
- 0: all actions are enabled.

“ServiceLocked” is optional, but it must be implemented if automation or protections can be turned on.

2.2.3 Position

This variable stores the actual position of the device. It’s written in percentage of the full run:

- 0 is at one end of the full run. For a human being looking at the device, it should be synonymous with closed, down, far right or switch limit of a clockwise move.
- 100 is at the other end of the full run. For a human being looking at the device, it should be synonymous with open, up, far left or switch limit of a counter-clockwise move.
- 50 is the half run. It’s also the value of “Position” if an accurate number cannot be provided which is memorized by “PositionArgType”.

“Position” can be implemented if and only if the service can inform when a limit switch is reached and which one is it. This variable is optional, but if it’s implemented, “PositionArgType” must also be implemented.

2.2.4 PositionArgType

This variable describes how to interpret “Position”:

- “End Limits”: the service can only determine if the device has reached a limit switch and if so, which one.
- “Continuous”: the service can always give an accurate value.

“PositionArgType” is implemented if and only if “Position” is implemented. This state variable must be defined by the vendor and cannot be changes afterward.

2.2.5 Relationships between State Variables

“ServiceLocked” must be implemented if “OperationMode” can value Manual Protected” or “Automatic”.

“PositionArgType” and “Position” cannot be implemented one without the other.

2.3 Eventing and Moderation

Table 2: Event Moderation

Variable Name	Evented	Moderated Event	Max Event Rate ^a	Logical Combination	Min Delta per Event ^b
<u>OperationMode</u>	<u>Yes</u>	<u>No</u>			
<u>ServiceLocked</u>	<u>Yes</u>	<u>No</u>			
<u>Position</u>	<u>Yes</u>	<u>Yes</u>			<u>5</u>
<u>PositionArgType</u>	<u>No</u>	<u>n/a</u>			
<i>Non-standard state variables implemented by an UPnP vendor go here.</i>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>
^a Determined by N, where Rate = (Event)/(N secs). ^b (N) * (allowedValueRange Step).					

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2.4 Actions

The service provides three kinds of action:

- a) to control the device (“Open”, “Close”; “Stop”; “SetPosition”). “SetPosition” is implemented if and only if the device can perform it,
- b) to know and to set the operation mode (“GetOperationMode”, “SetOperationMode”, “IsLocked”, “Lock” and “UnLock”),
- c) to have information about the device position (“GetPosition”, “GetPositionArgType”). These functions are implemented if and only if the variables “Position” and “PositionArgType” are implemented.

Immediately following this table is detailed information about these actions, including short descriptions of the actions, the effects of the actions on state variables, and error codes defined by the actions.

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