Flush Mount Thermostat Zigbee Interface (16A with Floor Temperature input)

Internal Version

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Product: Flush Mount Thermostat, Variant 2 (16A Floor)

The Connected Flush Mount Thermostat range consists of a number of variants with largely common functionality. This document covers variants with an external (floor) temperature input as listed below:

- Elko 16A: "EKO07259"
- Exxact 16A: "WDE002497"
- Renova 16A: "WDE011680"

Document conventions

Quality column

Qualities are as defined in the CSA data model, with the addition of the "Keep" quality.

Quality	Description
R	Readable.
W	Writable.
P	MUST support a reporting configuration. Attributes without this quality MAY support a reporting configuration.
S	Attribute is part of a Scene, if the Scenes cluster is also present.
X	Nullable. Null, or the non-value, has special meaning and is a valid value, regardless of range.
K	The value of this attribute is kept through a network leave. It will only be reset by a deliberate factory reset.

Data source

Table values are formatted to indicate the source of the value.

- **Bold** - specified for this device, deviates from SE/ZCL default
- Normal - specified for this device, currently matches SE/ZCL default
- *Italic* - not specified for this device, using SE/ZCL default

Manufacturer: Schneider Electric (0x105e)

Endpoint List

Number	Profile	Device ID	Name
1	0x0104	0x0301	Thermostat Control
2	0x0104	0x0302	Temperature Sensor (ambient)
3	0x0104	0x0302	Temperature Sensor (external)
5	0x0104	0x000d	Consumption Awareness Device
242	0xa1e0	0x0061	Green Power Proxy Basic

Endpoint 1: Thermostat Control

Device type: 0x0301

Supported Clusters

Id	Name	Client/Server	MS
0x0000	Basic	server	
0x0003	Identify	server	

0x0003	Identify	client	
0x0004	Groups	server	
0x000a	Time	client	
0x0019	OTA Upgrade	client	
0x0201	Thermostat	server	
0x0204	Thermostat User Interface Configuration	server	
0x0402	Temperature Measurement	client	
0x0406	Occupancy Sensing	client	
0x0b05	Diagnostics	server	
0xff16	Cycle Time	server	MS
0xff23	Heating/Cooling Output	server	MS

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Basic Cluster server: 0x0000

Supported Attributes

Id	Name	Type	Range	Quality	Default	MS
0x0000	*ZCLVersion*	uint8	*all*	R	**0x03**	
0x0004	*ManufacturerName*	string	0 to 32 bytes	R	"Schneider Electric"	
0x0005	*ModelIdentifier*	string	0 to 32 bytes	R	**"WDE002497"**	
		Set during production to representative commercial reference. • Elko 16A: "EKO07259" • Exxact 16A: "WDE002497" • Renova 16A: "WDE011680"				
0x0007	*PowerSource*	enum8	-	R	**0x01 (Mains, single-phase)**	
0xe001	*ApplicationFWVersion*	string	0 to 20 bytes	R	*empty string*	MS
		Set to current firmware version on power up.				
0xe002	*ApplicationHWVersion*	string	0 to 20 bytes	R	*empty string*	MS
		Follows OTA Hardware version, which is configured during production.				
0xe004	*SerialNumber*	string	0 to 32 bytes	R	*empty string*	MS
		Set to MAC address on power up.				
0xe007	*ProductIdentifier*	enum16	-	R	**17540**	MS
		Set during production. • 3 button interface (EKO07259 and WDE002497): 17540 • Renova interface (WDE011680): 17543				
0xe008	*ProductRange*	string	0 to 16 bytes	R	**"Wiser"**	MS
0xe009	*ProductModel*	string	0 to 16 bytes	R	**"WDE002497"**	MS
		Identical to *ModelIdentifier* which is set during production.				
0xe00a	*ProductFamily*	string	0 to 16 bytes	R	**"Thermostat"**	MS
0xe00b	*VendorURL*	string	0 to 64 bytes	R	"https://www.se.com"	MS
0xfffd	*ClusterRevision*	uint16	0x0001 to 0xfffe	R	**1**	

Supported Commands

Direction	Id	Name
C→S	0x00	Reset to Factory Defaults
		This resets **all** attributes to their factory default setting, including installer settings and hardware configuration.

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Identify Cluster server: 0x0003

Supported Attributes

Id	Name	Type	Range	Quality	Default
0x0000	*IdentifyTime*	uint16	*all*	RW	*0x0000*
0xfffd	*ClusterRevision*	uint16	0x0001 to 0xfffe	R	**1**

Supported Commands

Direction	Id	Name
C→S	0x00	Identify
C→S	0x01	Identify Query
S→C	0x00	Identify Query Response

Identify Cluster client: 0x0003

Supported Attributes

Id	Name	Type	Range	Quality	Default
0xfffd	*ClusterRevision*	uint16	0x0001 to 0xfffe	R	**1**

Supported Commands

Direction	Id	Name
C→S	0x00	Identify
C→S	0x01	Identify Query
S→C	0x00	Identify Query Response

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Groups Cluster server: 0x0004

Supported Attributes

Id	Name	Type	Range	Quality	Default
0x0000	*NameSupport*	map8	-	R	0
0xfffd	*ClusterRevision*	uint16	0x0001 to 0xfffe	R	**1**

Supported Commands

Direction	Id	Name
C→S	0x00	Add group
C→S	0x01	View group
C→S	0x02	Get group membership
C→S	0x03	Remove group
C→S	0x04	Remove all groups
C→S	0x05	Add group if identifying

Time Cluster client: 0x000a

Used to obtain current time from a Time Server on the network.

Supported Attributes

Id	Name	Type	Range	Quality	Default
0xfffd	*ClusterRevision*	uint16	0x0001 to 0xfffe	R	**1**

OTA Upgrade Cluster client: 0x0019

Hardware Revision Range	Description
0000-00ff	Production
8000-80ff	Trial/Development

Supported Attributes

Id	Name	Type	Range	Quality	Default
0x0000	*UpgradeServerID*	EUI64	-	R	*0xffffffffffffffff*
0x0001	*FileOffset*	uint32	*all*	R	*0xffffffff*
0x0002	*CurrentFileVersion*	uint32	*all*	R	*0xffffffff*
0x0003	*CurrentZigBeeStackVersion*	uint16	*all*	R	*0xffff*
0x0004	*DownloadedFileVersion*	uint32	*all*	R	*0xffffffff*
0x0005	*DownloadedZigBeeStackVersion*	uint16	*all*	R	*0xffff*
0x0006	*ImageUpgradeStatus*	enum8	-	R	*0x00*
0x0007	*ManufacturerID*	uint16	*all*	R	0x105e (Schneider Electric)
0x0008	*ImageTypeID*	uint16	*all*	R	**0x1201**
		• Elko interface (EKO07259): 0x1201 • Renova interface (WDE011680): 0x1203 • Exxact interface (WDE002497): 0x1204			
0xfffd	*ClusterRevision*	uint16	0x0001 to 0xfffe	R	**1**

Supported Commands

Direction	Id	Name
C→S	0x01	Query Next Image Request
S→C	0x02	Query Next Image Response
C→S	0x03	Image Block Request
S→C	0x05	Image Block Response
C→S	0x06	Upgrade End Request
S→C	0x07	Upgrade End Response

Thermostat Cluster server: 0x0201

Supported Attributes

Id	Name	Type	Range	Quality	Default	MS
0x0000	*LocalTemperature*	int16	0x954d to 0x7fff	X R P	-	
		Reported by default every minute.				
0x0002	*Occupancy*	map8	-	R	*1*	

0x0003	AbsMinHeatSetpointLimit	int16	0x954d to 0x7fff	R	400 (4°C)	
0x0004	AbsMaxHeatSetpointLimit	int16	0x954d to 0x7fff	R	4000 (40°C)	
0x0005	AbsMinCoolSetpointLimit	int16	0x954d to 0x7fff	R	400 (4°C)	
0x0006	AbsMaxCoolSetpointLimit	int16	0x954d to 0x7fff	R	4000 (40°C)	
0x0007	PICoolingDemand	uint8	0x00 to 0x64	R P	-	
		Reported by default every minute.				
0x0008	PIHeatingDemand	uint8	0x00 to 0x64	R P	-	
		Reported by default every minute.				
0x0011	OccupiedCoolingSetpoint	int16	MinCoolSetpointLimit to MaxCoolSetpointLimit	RW S	2000 (20°C)	
0x0012	OccupiedHeatingSetpoint	int16	MinHeatSetpointLimit to MaxHeatSetpointLimit	RW S	1800 (18°C)	
0x0013	UnoccupiedCoolingSetpoint	int16	MinCoolSetpointLimit to MaxCoolSetpointLimit	RW	2200 (22°C)	
0x0014	UnoccupiedHeatingSetpoint	int16	MinHeatSetpointLimit to MaxHeatSetpointLimit	RW	1600 (16°C)	
0x0015	MinHeatSetpointLimit	int16	0x954d to 0x7fff	RW K	400 (4°C)	
0x0016	MaxHeatSetpointLimit	int16	0x954d to 0x7fff	RW K	4000 (40°C)	
0x0017	MinCoolSetpointLimit	int16	0x954d to 0x7fff	RW K	400 (4°C)	
0x0018	MaxCoolSetpointLimit	int16	0x954d to 0x7fff	RW K	4000 (40°C)	
0x001a	RemoteSensing	map8	-	RW	0	
0x001b	ControlSequenceOfOperation	enum8	-	RW K	0x02 (Heating Only)	
		0x00 (Cooling Only) and 0x02 (Heating Only) supported.				
0x001c	SystemMode	enum8	-	RW S	0x04 (Heat)	
		0x00 (Off), 0x03 (Cool) and 0x04 (Heat) supported.				
0x0034	OccupiedSetback	uint8	OccupiedSetbackMin to OccupiedSetbackMax	X RW K	5 (0.5°C)	
0x0035	OccupiedSetbackMin	uint8	0x00 to OccupiedSetbackMax	X R	1 (0.1°C)	
0x0036	OccupiedSetbackMax	uint8	OccupiedSetbackMin to 0xff	X R	50 (5°C)	
0xe012	OpenWindowDetectionStatus	uint8	0x00 to 0x01	R P	0x00	MS
		Reported by default every minute.				
0xe013	OpenWindowDetectionThreshold	uint8	0x00 to 0x0c	RW K	2 (0.2°C/minute)	MS
0xe014	OpenWindowEventDuration	uint16	0x0000 to 0x1dc4	RW K	1200 (20 minutes)	MS
0xe015	OpenWindowDetectionGuardPeriod	uint16	0x0000 to 0x1dc4	RW K	120 (2 minutes)	MS
0xe200	FallbackTimeout	uint16	0x1e (30 seconds) to 0xffff	X RW	600 (10 minutes)	MS

0xe210	*BoostAmount*	uint16	50 (0.5°C) to 1000 (10°C)	RW	200 (2°C)	MS
0xe211	*ControlStatus*	enum8	-	R P	0x00 (Normal Operation)	MS
		Reported by default every 5 minutes, or on change with a minimum interval of 1 second. Support: 0x00 (Normal Operation): Operating normally 0x20 (No Temperature) No temperature value is available. The output is using Fallback rules. 0x40 (Remote Demand Override) Output has been forced using a remote override. 0x41 (Window Open) Demand is constrained by Window Open rules. 0x61 (Local Force On): Demand forced by "emergency" button. 0x82 (Maintenance) The output is being driven as part of a maintenance operation. 0x83 (Output Temporal Limit): Output held on, or off, despite a change in demand due to minimum times. 0x84 (Sensor Fault): The output has been placed into a safe state due to a sensor failure.					
0xe212	*LocalTemperatureSourceSelect*	uint8	0x01 to 0xfe	RW K	**2 (Ambient)**	MS
		2 (Ambient), 3 (External) supported.				
0xe213	*ControlType*	enum8	-	X RW K	1 (PI)	MS
		0 (On/Off), 1 (PI) and 0xff (None) supported.				
0xe214	*Heat/CoolInputMode*	enum8	-	X RW K	0xff (Not connected)	MS
		Only supports 0xff (Not connected) as there is no physical input.				
0xe215	*UnoccupiedTrackingOffset*	uint16	0 to 1000 (10°C)	X RW	200 (2°C)	MS
0xe216	*ThermostatApplication*	enum8	-	X RW K	**0 (Occupied Space)**	MS
0xe217	*HeatingFuel*	enum8	-	X RW K	0xff (Not specified)	MS
0xe218	*HeatTransferMedium*	enum8	-	RW K	0 (None)	MS
0xe21a	*HeatingEmitter*	enum8	-	X RW K	0xff (Not specified)	MS
0xfffd	*ClusterRevision*	uint16	0x0001 to 0xfffe	R	**1**	

Supported Commands

Direction	Id	Name	MS
C→S	0x00	Setpoint Raise/Lower	
S→C	0x91	Local Setpoint Change Notification	MS
C→S	0xf1	PI Demand Override	MS

Thermostat User Interface Configuration Cluster server: 0x0204

Supported Attributes

Id	Name	Type	Range	Quality	Default	MS
0x0000	*TemperatureDisplayMode*	enum8	-	RW	0x00 (Celsius)	
		Only 0x00 (Temperature in °C) is supported.				
0x0001	*KeypadLockout*	enum8	-	RW	0x00 (no lockout)	
		Reported by default every 5 minutes, or on change with a minimum interval of 1 minute.				
0xe000	*Brightness*	uint8	1 to 100	RW	100	MS
0xe001	*InactiveBrightness*	uint8	0 to Brightness	RW	**100**	MS
0xe002	*ActivityTimeout*	uint16	5 (5 seconds) to 3600 (1 hour)	X RW	**60**	MS
0xfffd	*ClusterRevision*	uint16	0x0001 to 0xfffe	R	1	

Temperature Measurement Cluster client: 0x0402

Used to receive reports of *MeasuredValue* from a remote temperature sensor which are then used in preference to the internal sensor.

Supported Attributes

Id	Name	Type	Range	Quality	Default
0xfffd	*ClusterRevision*	uint16	0x0001 to 0xfffe	R	**1**

Occupancy Sensing Cluster client: 0x0406

Used to receive reports of *Occupancy*.

Supported Attributes

Id	Name	Type	Range	Quality	Default
0xfffd	*ClusterRevision*	uint16	0x0001 to 0xfffe	R	**1**

Diagnostics Cluster server: 0x0b05

Supported Attributes

Id	Name	Type	Range	Quality	Default
0x011c	*LastMessageLQI*	uint8	*all*	R	*0x00*
		Reported by default every 10 minutes.			
0x011d	*LastMessageRSSI*	int8	0x81 to 0x7f	R	*0x00*
0xfffd	*ClusterRevision*	uint16	0x0001 to 0xfffe	R	**1**

Cycle Time Cluster server: 0xff16 (Manufacturer Specific)

All attributes and commands relating to this cluster are to be treated as manufacturer specific extensions.

Supported Attributes

Id	Name	Type	Range	Quality	Default
0x0000	*DemandPercentage*	uint8	0x00 to 0x64	RW P	*0x64*
		In Thermostat mode, this is automatically updated from *PIHeatingDemand* or *PICoolingDemand* and values written over the network will not persist. When the Thermostat control is disabled (*ControlType* = None) this attribute is **not** updated and values written will persist.			
0x0010	*CycleTime*	uint16	0x0001 to 0xffff	RW K	**600 (10 minutes)**
0x0011	*MinCycleTime*	uint16	0x0001 to 0xfffd	R	**300 (5 minutes)**
0x0012	*MaxCycleTime*	uint16	MinCycleTime to 0xfffe	R	**1800 (30 minutes)**
0x0020	*StatusFlags*	map8	-	R P	*0x00*
0xfffd	*ClusterRevision*	uint16	0x0001 to 0xfffe	R	1

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Heating/Cooling Output Cluster server: 0xff23 (Manufacturer Specific)

All attributes and commands relating to this cluster are to be treated as manufacturer specific extensions.

Supported Attributes

Id	Name	Type	Range	Quality	Default
0x0000	MeasuredTemperature	int16	0x954d to 0x7fff	X R P	-
0x0003	AbsMinHeatTemperatureLimit	int16	0x954d to 0x7fff	R	400 (4°C)
0x0004	AbsMaxHeatTemperatureLimit	int16	0x954d to 0x7fff	R	4000 (40°C)
0x0005	AbsMinCoolTemperatureLimit	int16	0x954d to 0x7fff	R	400 (4°C)
0x0006	AbsMaxCoolTemperatureLimit	int16	0x954d to 0x7fff	R	4000 (40°C)
0x0015	MinHeatTemperatureLimit	int16	0x954d to 0x7fff	RW K	400 (4°C)
0x0016	MaxHeatTemperatureLimit	int16	0x954d to 0x7fff	RW K	4000 (40°C)
0x0017	MinCoolTemperatureLimit	int16	0x954d to 0x7fff	RW K	400 (4°C)
0x0018	MaxCoolTemperatureLimit	int16	0x954d to 0x7fff	RW K	4000 (40°C)
0x0020	HeatTemperatureHighLimit	int16	0x954d to 0x7fff	RW K	0x8000 (Disabled)
0x0021	HeatTemperatureLowLimit	int16	0x954d to 0x7fff	RW K	0x8000 (Disabled)
0x0022	CoolTemperatureHighLimit	int16	0x954d to 0x7fff	RW K	0x8000 (Disabled)
0x0023	CoolTemperatureLowLimit	int16	0x954d to 0x7fff	RW K	0x8000 (Disabled)
0x0030	CoolingOutputMode	enum8	-	RW K	1 (Relay)
		Modes 0 (Disabled), 1 (Relay) supported.			
0x0031	HeatingOutputMode	enum8	-	RW K	1 (Relay)
		Modes 0 (Disabled), 1 (Relay) supported.			
0x0041	MaximumIdleTime	uint16	1 (1 hour) to 8784 (366 days)	X RW K	**336 (2 weeks)**
0x0042	Anti-IdleExerciseTime	uint16	10 (10 seconds) to 3600 (1 hour)	RW K	180 (3 minutes)
0x0043	PreferredExerciseTime	uint16	0 (00:00) to 1439 (23:59)	RW K	660 (11:00)
0x0044	MinOffTime	uint16	all	X RW K	**60 (1 minute)**
		Will be automatically set to 10 minutes on changing to ON/OFF mode and 1 minute on returning to PI mode. It is then editable.			
0x0045	MinOnTime	uint16	all	X RW K	**60 (1 minute)**
		Will be automatically set to 10 minutes on changing to ON/OFF mode and 1 minute on returning PI mode. It is then editable.			
0xe207	MaxOverallDutyCycle	uint16	900 (25%) to 3600 (100%)	RW K	3600 (100%)
		Used for hot-spot prevention in EN50559 installations.			
0xe208	OverallDutyCyclePeriod	uint16	5 (5 minutes) to 1440 (24 hours)	R K	60 (1 hour)
0xfffd	ClusterRevision	uint16	0x0001 to 0xfffe	R	1

Endpoint 2: Temperature Sensor (ambient)

Device type: 0x0302

Supported Clusters

Id	Name	Client/Server
0x0000	Basic	server
0x0003	Identify	server
0x0003	Identify	client
0x0402	Temperature Measurement	server

Basic Cluster server: 0x0000

This cluster mirrors the Basic Cluster server on Endpoint 1

Identify Cluster server: 0x0003

This cluster is identical to the Identify Cluster server on Endpoint 1

Identify Cluster client: 0x0003

This cluster is identical to the Identify Cluster client on Endpoint 1

Temperature Measurement Cluster server: 0x0402

Supported Attributes

Id	Name	Type	Range	Quality	Default	MS
0x0000	*MeasuredValue*	int16	MinMeasuredValue to MaxMeasuredValue	X R P	*0x8000*	
		Reported by default every minute.				
0x0001	*MinMeasuredValue*	int16	0x954d to 0x7ffe	X R	**0 (0°C)**	
0x0002	*MaxMeasuredValue*	int16	0x954e to 0x7fff	X R	**4000 (40°C)**	
0xe020	*SensorCorrection*	int16	*all*	RW K	0	MS
0xfffd	*ClusterRevision*	uint16	0x0001 to 0xfffe	R	**1**	

Endpoint 3: Temperature Sensor (external)

Device type: 0x0302

Supported Clusters

Id	Name	Client/Server
0x0000	Basic	server
0x0003	Identify	server
0x0003	Identify	client
0x0402	Temperature Measurement	server

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Basic Cluster server: 0x0000

This cluster mirrors the Basic Cluster server on Endpoint 1

Identify Cluster server: 0x0003

This cluster is identical to the Identify Cluster server on Endpoint 1

Identify Cluster client: 0x0003

This cluster is identical to the Identify Cluster client on Endpoint 1

Temperature Measurement Cluster server: 0x0402

Supported Attributes

Id	Name	Type	Range	Quality	Default	MS
0x0000	*MeasuredValue*	int16	MinMeasuredValue to MaxMeasuredValue	X R P	*0x8000*	
			Reported by default every minute.			
0x0001	*MinMeasuredValue*	int16	0x954d to 0x7ffe	X R	**-2000 (-20°C)**	
0x0002	*MaxMeasuredValue*	int16	0x954e to 0x7fff	X R	**10000 (100°C)**	
0xe020	*SensorCorrection*	int16	*all*	RW K	0	MS
0xe021	*TemperatureSensorType*	enum8	-	X RW K	*0xff (Not Fitted)*	MS
			Supported: • 1: 2kΩ sensor from HRT/Alre • 2: 10kΩ sensor from B+J • 3: 12kΩ sensor from OJ • 4: 15kΩ sensor from DEVI • 5: 33kΩ sensor from EBERLE • 6: 47kΩ sensor from CTM • 0xff: The null value is used to indicate that no sensor is fitted			
0xfffd	*ClusterRevision*	uint16	0x0001 to 0xfffe	R	**1**	

Endpoint 5: Consumption Awareness Device

Device type: 0x000d

Supported Clusters

Id	Name	Client/Server
0x0000	Basic	server
0x0003	Identify	server
0x0004	Groups	server
0x0702	Metering (Smart Energy)	server

Basic Cluster server: 0x0000

This cluster mirrors the Basic Cluster server on Endpoint 1

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Identify Cluster server: 0x0003

This cluster is identical to the Identify Cluster server on Endpoint 1

Groups Cluster server: 0x0004

This cluster is identical to the Groups Cluster server on Endpoint 1

Metering (Smart Energy) Cluster server: 0x0702

Supported Attributes

Id	Name	Type	Range	Quality	Default	MS
0x0000	*CurrentSummationDelivered*	uint48	*all*	R	-	
		Reported by default every minute.				
0x0200	*Status*	map8	-	R	*0x00*	
0x0300	*UnitofMeasure*	enum8	-	R	0x00 (kWh/kW)	
0x0301	*Multiplier*	uint24	*all*	R	**1**	
0x0302	*Divisor*	uint24	*all*	R	**1000**	
		This gives a base resolution of 1W.				
0x0303	*SummationFormatting*	map8	-	R	**0b10101011 (5.3)**	
0x0304	*DemandFormatting*	map8	-	R	**0b10010011 (2.3)**	
0x0306	*MeteringDeviceType*	map8	-	R	**0 (Electric)**	
0x0400	*InstantaneousDemand*	int24	*all*	R	*0*	
		Reported by default every minute.				
0x4510	*FixedLoadDemand*	uint24	0x000000 to 0x7fffff	RW K	0	MS
0xfffd	*ClusterRevision*	uint16	0x0001 to 0xfffe	R	**1**	

Endpoint 242: Green Power Proxy Basic

Device type: 0x0061

Supported Clusters

Id	Name	Client/Server
0x0021	Green Power	client

Green Power Cluster client: 0x0021

Supported Attributes

Id	Name	Type	Range	Quality	Default
0x0010	*gppMaxProxyTableEntries*	uint8	*all*	R	*0x14*
0x0011	*ProxyTable*	octstr16	-	R	*0x0000*
0x0016	*gppFunctionality*	map24	-	R	-
0x0017	*gppActiveFunctionality*	map24	-	R	*0xffffff*
0x0022	*gpLinkKey*	key128	-	RW	*ZigBeeAlliance09*
0xfffd	*ClusterRevision*	uint16	0x0001 to 0xfffe	R	**1**

Supported Commands

Direction	Id	Name
S→C	0x01	GP Pairing
S→C	0x02	GP Proxy Commissioning Mode
S→C	0x06	GP Response
S→C	0x0b	GP Proxy Table Request

Manufacturer Specific Extensions

Basic Cluster: 0x0000

Application FWVersion Attribute: 0xe001

This attribute specifies the firmware version of the application. The format of this attribute is xxx.yyy.zzz as defined by PTI021. Extra information can be added at the end of the string for SVN indication or any other.

Application HWVersion Attribute: 0xe002

SEZCL: This attribute specifies the hardware version of the application design. The format of this attribute is xxx.yyy.zzz as defined by PTI021.

RTC devices: To simplify mapping from the OTA Upgrade Query Next Image Request Hardware version field and satisfy requirements from PTI021:

- "xxx" is the decimal value of the high byte of the OTA Hardware version, indicating hardware changes which require different firmware. This may be hard coded in to the firmware.
- "yyy" is unused and is always "000".
- "zzz" is the decimal value of the low byte of the OTA Hardware version, indicating minor hardware changes which do not affect firmware. This defaults to "000" and should be set on the production line to a non-zero value indicating the build version.

For example: OTA Hardware version 0x010c should be represented as "001.000.012".

Serial Number Attribute: 0xe004

This attribute specifies the serial number of the product. The format of this attribute shall be as defined by PTI019: it shall be a read only non-empty string.

Product Identifier Attribute: 0xe007

This attribute specifies the unique internal numerical identifier of the product according to PTI019.

Product Range Attribute: 0xe008

This attribute specifies the name of the range to which the product belongs according to PTI019.

Product Model Attribute: 0xe009

This attribute specifies the name of the product model according to PTI019.

Product Family Attribute: 0xe00a

This attribute specifies the name of the family to which the product belongs according to PTI019.

Vendor URL Attribute: 0xe00b

This attribute specifies the unique internal numerical identifier of the product according to PTI019. This attribute shall be set to "https://www.se.com".

Thermostat Cluster: 0x0201

Open Window Detection Status Attribute: 0xe012

This indicates the current status of the Open Window Detection functionality.

Open Window Detection Status Attribute Values

Value	Name	Description
0x00	Not Detected	Open Window Not Detected.
0x01	Detected	Open Window Detected. Device specific demand limiting is in operation.

Open Window Detection Threshold Attribute: 0xe013

This is the rate of temperature decrease (in units of 0.1°C/minute) recognised as an Open Window condition. A fall in temperature meeting or exceeding this threshold will trigger device specific Open Window behaviour.

Open Window Detection Threshold Attribute Values

Value	Name	Description
0x00	Disabled	Disables Open Window Detection.

Open Window Event Duration Attribute: 0xe014

This is the duration (in seconds) that the device will remain in an Open Window state once triggered.

Open Window Event Duration Attribute Values

Value	Name	Description
0x0000	Disabled	Disables Open Window Detection.

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Open Window Detection Guard Period Attribute: 0xe015

This is the period (in seconds) after a new setpoint is received **or** an Open Window state ends during which the detection of an Open Window condition is supressed.

This is particularly useful in systems with a slow heating response, such as hydronic radiator or underfloor heating applications.

Open Window Detection Guard Period Attribute Values

Value	Name	Description
0x0000	Disabled	Disables the Guard Period.

Fallback Timeout Attribute: 0xe200

This is the duration (in seconds) that a remote value is considered valid before fallback behaviour is triggered. This applies to temperature reports and PI Demand Override commands.

Fallback Timeout Attribute Values

Value	Name	Description
0xffff	Disable Fallback	

Boost Amount Attribute: 0xe210

The amount (in steps of 0.01°C) above, or below, _LocalTemperature_ to adjust the setpoint when a Boost is initiated locally.

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Control Status Attribute: 0xe211

This indicates the status of the thermostat and allows reporting of abnormal and fault conditions.

Control Status Attribute Values

Value	Name	Description
0x0X	**Normal Operation**	Output is under control to maintain regulation, as configured.
0x00	Normal Operation	Output is controlled to maintain temperature regulation based on *SystemMode* and the relevant setpoint. This also applies to "Off".
0x2X	**Fallback operation**	Regulation not possible due to configuration or input problems. Output is under control of fallback rules.
0x20	No Temperature	No temperature value is available. The output is using Fallback rules. See Thermostat: No Temperature Available, Basic Fallback for an example of use.
0x21	No Demand	Not applicable. Used by Heating/Cooling Output cluster.
0x4X	**Output regulation**	Output is being controlled, but not by the usual control input.
0x40	Remote Demand Override	Output has been forced using a remote override.
0x41	Window Open	Demand is constrained by Window Open rules.
0x6X	**User forced operation**	A user has forced the output state, overriding programmed control.
0x60	Local Force Off	Output has been forced off using the local interface.
0x61	Local Force On	Output has been forced on using the local interface.
0x8X	**Output limitations**	The output device cannot fulfil the required demand, but is under control.
0x80	Output Thermal Limit	The output has been limited as the emitter temperature is out of bounds. See Thermostat: Output Temperature Limiting for an example of use.
0x81	Condensation Detected	The output has been limited as condensation has been detected.
0x82	Maintenance	The output is being driven as part of a maintenance operation.
0x83	Output Temporal Limit	The output has been limited by time based constraints. For example, attempting to switch the output on and off too rapidly or exceeding a maximum duty cycle.
0x84	Sensor Fault	The output has been placed into a safe state due to a sensor failure.
0xAX	**Output faults**	The output device cannot fulfil the required demand, and is **not under control**.
0xA0	Actuator Fault	Output is not under control due to an unknown fault. PI Demand may not reflect real world output.
0xA1	Power Fault	Output is not under control due to insufficient power to drive actuator. PI Demand may not reflect real world output.
0xA2	Communications Fault	Output is not under control due to communication failure with actuator. PI Demand may not reflect real world output.

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Local Temperature Source Select Attribute: 0xe212

On devices with more than one temperature input, this selects which should be used for *LocalTemperature*.

Where temperature inputs are associated with a Temperature Measurement cluster, this value must correspond to the Endpoint of that cluster.

Control Type Attribute: 0xe213

This specifies the type of control algorithm to be used to regulate temperature.

Control Type Attribute Values

Value	Name	Description
0	On/Off	Setpoint with Hysteresis. Demand is either On (100%) or Off (0%).
1	PI	PI control loop. Demand varies continuously to maintain setpoint.
0xff	None	No control loop - temperature regulation disabled. Demand is not updated. This can be used where the UX includes modes allowing the user long-term direct control of the output power, rather than temperature control.

Heat/Cool Input Mode Attribute: 0xe214

This is used to specify the type of input connected to a heat/cool input. This input can be used to automatically select the correct mode when external plant is switched from one mode to another.

When the input indicates Heating, *ControlSequenceOfOperation* will be forced to "Heating Only". When it indicates Cooling, *ControlSequenceOfOperation* will be forced to "Cooling Only". *SystemMode* will also be updated, if necessary, to a valid mode.

The null value indicates that the input is unconnected. *ControlSequenceOfOperation* will not be affected by the state of the input and may be configured normally.

Heat/Cool Input Mode Attribute Values

Value	Name	Description
0	Cooling When Active	The system is in Cooling mode when the input is asserted, Heating otherwise.
1	Heating When Active	The system is in Heating mode when the input is asserted, Cooling otherwise.
0xff	Not connected	The null value is used to indicate that nothing is connected to the input.

Unoccupied Tracking Offset Attribute: 0xe215

This specifies an offset to maintain between Occupied and Unoccupied setpoints when the Occupied setpoint is modified.

UnoccupiedCoolingSetpoint shall be set to *OccupiedCoolingSetpoint* + *UnoccupiedTrackingOffset*.

UnoccupiedHeatingSetpoint shall be set to *OccupiedHeatingSetpoint* - *UnoccupiedTrackingOffset*.

Modifying either Unoccupied setpoint directly will result in this attribute being set to the null value, disabling tracking and reverting to standard Zigbee behaviour.

Unoccupied Tracking Offset Attribute Values

Value	Name	Description
0xffff	Disabled	The null value is used to indicate that Unoccupied setpoints do not track Occupied ones.

Thermostat Application Attribute: 0xe216

This is used to specify what the Thermostat is regulating. Devices MAY use this information to optimise regulation.

Thermostat Application Attribute Values

Value	Name	Description
0	Occupied Space	Typical HVAC application where ambient temperature is controlled. This includes under floor heating where the room temperature is used as the control value.
1	Floor	Floor warming applications where the temperature of the floor itself is regulated.
0xff	Not known	The null value is used to indicate that the application is not known, or does not fit into an available category.

Heating Fuel Attribute: 0xe217

This is used to specify the fuel used to increase temperature. Devices MAY use this information to optimise regulation.

Heating Fuel Attribute Values

Value	Name	Description
0	Electricity	Electricity is converted to heat. Excludes heat pumps which extract energy from the environment.
1	Gas	Heat generated by burning gas.
2	Oil	Heat generated by burning oil.
3	Solid fuel	Heat generated by burning solid fuel.
4	Solar	Heat derived from solar energy.
5	Community Heating	Heat provided from a central source serving multiple dwellings.
6	Heat Pump	Energy is exchanged with the external environment.
0xff	Not specified	The null value is used to indicate that the fuel type is not known.

Heat Transfer Medium Attribute: 0xe218

This is used to specify how heat is transferred from a central heat source. Devices MAY use this information to optimise regulation.

Heat Transfer Medium Attribute Values

Value	Name	Description
0	None	No central heat source. Thermostat has direct control of the energy source.
1	Hydronic	Heat is conveyed from a central heat source using a piped fluid.
2	Air	Heat is conveyed from a central heat source using ducted air.

Heating Emitter Attribute: 0xe21a

This is used to specify the heat emitter. Devices MAY use this information to optimise regulation.

Heating Emitter Attribute Values

Value	Name	Description
0	None	The object under control is heated directly.
1	Radiator	The space is heated by "Radiators", which heat predominantly by natural convection.
2	Fan Assisted Radiator	The space is heated by "Radiators", which heat predominantly by fan assisted convection.
3	Radiant Panel	The space is heated by Infra-Red emitting Radiant Panels.
4	Floor	The space is heated by warming the floor.
0xff	Not specified	The null value is used to indicate that the emitter type is not known.

Heating Emitter Attribute Values

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PI Demand Override Command: 0xf1

This command overrides the control loop and forces *PICoolingDemand* or *PIHeatingDemand* to a fixed value, possibly for a limited period.

User actions **via the local interface** which affect the setpoint SHOULD cause the demand override to be cancelled.

If the requested demand is not compatible with the current *SystemMode* then the demand SHALL remain unchanged and the device SHALL respond with a status of INVALID_FIELD.

Payload Format

Octets	1	1	1
Data Type	enum8	uint8	uint8
Quality		X	X
Field Name	Type	Demand	Duration

Type Field (enum8)

The demand to override. These values are equivalent to *SystemMode*.

Type Field Value	Name	Description
0x00	No Demand Override	Clears any demand override.
0x03	Cooling Demand Override	Overrides *PICoolingDemand*.
0x04	Heating Demand Override	Overrides *PIHeatingDemand*.

Demand Field (uint8)

The value to apply to *PICoolingDemand* or *PIHeatingDemand*.

Demand Field Value	Name	Description
0xff	No value	May be used with "No Demand Override".

Duration Field (uint8)

The duration of this override, in minutes.

Duration Field Value	Name	Description
0x00	Default	Use device default duration, which will be *FallbackTimeout*, if implemented.
0xff	Forever	Override will not expire automatically.

Local Setpoint Change Notification Command: 0x91

This command notifies bound clients that a change has been performed **at the local UI** that affects the Setpoint.

When the device is under remote management then:

- The local change should be a reasonable estimate of the system controller's response to the UI action to ensure reasonable "offline" behaviour and provide immediate user feedback.
- The system controller will write back the actual values to use.
- The system controller will update other devices in the same control region when they next check in.

To facilitate rapid correction of the initial estimates, the device should enter Fast Poll Mode on successfully sending this command. This will allow the system controller to read and write attributes as required.

Examples

- Heating Boost: (Boost, Heat, Occupied Heating, 22°C, 0xffff)
- Cooling Boost: (Boost, Cool, Occupied Cooling, 23°C, 0xffff)
- Heating Boost with duration: (Boost, Heat, Occupied Heating, 23°C, 1800)
- Heating Manual Override: (Setpoint Adjustment, Heat, Occupied Heating, 21°C, 0xffff)
- Change Heating Setpoint in Auto: (Setpoint Adjustment, Auto, Occupied Heating, 21°C, 0xffff)
- Change Cooling Setpoint in Auto: (Setpoint Adjustment, Auto, Occupied Cooling, 24°C, 0xffff)
- Switch Off: (System Mode Change, Off, None, 0x8000, 0xffff)
- Switch On (Heating): (System Mode Change, Heat, Occupied Heating, 22°C, 0xffff)

Payload Format

Octets	1	1	1	2	2
Data Type	enum8	enum8	enum8	int16	uint16
Quality				X	X
Field Name	Reason	System Mode	Affected Setpoint	Setpoint Value	Duration

Reason Field (enum8)

The reason for the change

Reason Field Value	Name	Description
0x00	Setpoint Adjustment	
0x01	Boost	Used with confirmed setpoint. For delta type boost, see Boost Notification
0x02	Boost Cancel	User has terminated a Boost early.
0x03	System Mode Change	
0x04	Away Start	
0x05	Away End	

System Mode Field (enum8)

The currently active *SystemMode*. If the mode has changed, then this reflects the new mode.

System Mode Field Value	Name	Description
0x00	Off	
0x01	Auto	
0x03	Cool	
0x04	Heat	
0x05	Emergency Heating	
0x06	Precooling	
0x07	Fan only	
0x08	Dry	
0x09	Sleep	

Affected Setpoint Field (enum8)

The affected Setpoint. If the mode has changed, then this reflects the new active setpoint.

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Affected Setpoint Field Value	Name	Description
0x00	None	Used when switching to "Off" mode where there is no active setpoint.
0x01	Occupied Heating	
0x02	Occupied Cooling	
0x03	Unoccupied Heating	
0x04	Unoccupied Cooling	

Setpoint Value Field (int16)

The new value of Setpoint that has been changed. The null value should be used in Off mode when there is no active setpoint.

Duration Field (uint16)

Where the action has a duration that can be specified via the local UI, this contains the requested duration in minutes. The null value is used to indicate the change has no duration.

Thermostat User Interface Configuration Cluster: 0x0204

Brightness Attribute: 0xe000

This is used to specify the brightness of the display when it is operational. Minimum usable brightness is represented by a level of 1 and maximum brightness by 100. Intermediate values are mapped such that the perceived brightness increases as linearly as possible with increased values.

Inactive Brightness Attribute: 0xe001

This is used to specify the brightness of the display when it is idle. Levels are equal to *Brightness*, however 0 may be used here to represent the display being entirely off.

The device will ensure that the value of this attribute is not greater than *Brightness*, updating it, if necessary, when *Brightness* is modified.

Activity Timeout Attribute: 0xe002

This is used to specify the time (in seconds) since the last user interaction before the device is considered idle and *InactiveBrightness* is used. The null value may be used to indicate that the UI should always be considered "active".

Activity Timeout Attribute Values

Value	Name	Description
0xffff	No timeout	The user interface is always "active".

Temperature Measurement Cluster: 0x0402

Sensor Correction Attribute: 0xe020

This is a user correction, possibly negative, (in units of 0.01°C) to be added to the temperature measured by the sensor (after any calibration) before populating *MeasuredValue*. This is typically used to compensate for sensor placement. As a reset of the device causes it to revert to the default value this is not to be used as a calibration value.

MeasuredValue = Sensor Temperature + *SensorCorrection*

Temperature Sensor Type Attribute: 0xe021

This is used to specify the type of temperature sensor connected to this input.

Temperature Sensor Type Attribute Values

Value	Name	Description
1	HRT/Alre 2k	2kΩ sensor from HRT/Alre
2	B+J 10k	10kΩ sensor from B+J
3	OJ 12k	12kΩ sensor from OJ
4	DEVI 15k	15kΩ sensor from DEVI
5	EBERLE 33k	33kΩ sensor from EBERLE
6	CTM 47k	47kΩ sensor from CTM
0xff	Not Fitted	The null value is used to indicate that no sensor is fitted.

Metering (Smart Energy) Cluster: 0x0702

Fixed Load Demand Attribute: 0x4510

This attribute specifies the demand of a switched load when it is energised. The units shall be the same as *InstantaneousDemand*.

This attribute is used for configuration of devices which can not compute directly their power consumption by internal electrical measurement.

Simple On/Off devices may estimate energy consumption by integrating over the On period, rather than performing electrical measurement.

Cycle Time Manufacturer Specific Cluster: 0xff16

This cluster provides an interface for controlling the Cycle Time characteristics of a device. Typical applications include heating elements.

Heating/Cooling Output Manufacturer Specific Cluster: 0xff23

This cluster provides an interface to an output device which is capable of heating and/or cooling.

This operates in conjunction with a Thermostat cluster to provide controlled demand. The Heating/Cooling Output server should reside on the same device as the physical output so depending on the application the associated Thermostat cluster may be a **server** (in a Thermostat device with direct control of a heating/cooling unit) or a **client** (in a Heating/Cooling Unit device).

Measured Temperature Attribute: 0x0000

This represents the temperature **of the output device itself** (in steps of 0.01°C).

For example, an underfloor heating system would report the floor temperature and a panel radiator would report the surface temperature.

Abs Min Heat Temperature Limit Attribute: 0x0003

This specifies the absolute minimum temperature (in steps of 0.01°C) that heating limits may be set to. This is a limitation imposed by the manufacturer.

Abs Max Heat Temperature Limit Attribute: 0x0004

This specifies the absolute maximum temperature (in steps of 0.01°C) that heating limits may be set to. This is a limitation imposed by the manufacturer.

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Abs Min Cool Temperature Limit Attribute: 0x0005

This specifies the absolute minimum temperature (in steps of 0.01°C) that cooling limits may be set to. This is a limitation imposed by the manufacturer.

Abs Max Cool Temperature Limit Attribute: 0x0006

This specifies the absolute maximum temperature (in steps of 0.01°C) that cooling limits may be set to. This is a limitation imposed by the manufacturer.

Min Heat Temperature Limit Attribute: 0x0015

This specifies the minimum temperature (in steps of 0.01°C) that heating limits may be set to. It must be greater than or equal to *AbsMinHeatTemperatureLimit* and less than *MaxHeatTemperatureLimit*. If this attribute is not present, it shall be taken as equal to *AbsMinHeatTemperatureLimit*.

This attribute allows setting limits more constrictive than the manufacturer imposed ones. For example, this would allow an underfloor system to have limits based on the materials used in a particular installation.

Max Heat Temperature Limit Attribute: 0x0016

This specifies the maximum temperature (in steps of 0.01°C) that heating limits may be set to. It must be less than or equal to *AbsMaxHeatTemperatureLimit* and greater than *MinHeatTemperatureLimit*. If this attribute is not present, it shall be taken as equal to *AbsMaxHeatTemperatureLimit*.

This attribute allows setting limits more constrictive than the manufacturer imposed ones. For example, this would allow an underfloor system to have limits based on the materials used in a particular installation.

Min Cool Temperature Limit Attribute: 0x0017

This specifies the minimum temperature (in steps of 0.01°C) that cooling limits may be set to. It must be greater than or equal to *AbsMinCoolTemperatureLimit* and less than *MaxCoolTemperatureLimit*. If this attribute is not present, it shall be taken as equal to *AbsMinCoolTemperatureLimit*.

This attribute allows setting limits more constrictive than the manufacturer imposed ones. For example, this would allow an underfloor system to have limits based on the materials used in a particular installation.

Max Cool Temperature Limit Attribute: 0x0018

This specifies the maximum temperature (in steps of 0.01°C) that cooling limits may be set to. It must be less than or equal to *AbsMaxCoolTemperatureLimit* and greater than *MinCoolTemperatureLimit*. If this attribute is not present, it shall be taken as equal to *AbsMaxCoolTemperatureLimit*.

This attribute allows setting limits more constrictive than the manufacturer imposed ones. For example, this would allow an underfloor system to have limits based on the materials used in a particular installation.

Heat Temperature High Limit Attribute: 0x0020

This specifies the maximum temperature (in steps of 0.01°C) that the output device is permitted to reach while heating. It must be greater than both *HeatTemperatureLowLimit* and *MinHeatTemperatureLimit* and also less than or equal to *MaxHeatTemperatureLimit*. The null value can be used to indicate that limiting is not required, in which case any limiting imposed by *MaxHeatTemperatureLimit* will apply.

The device will reduce output power to remain below this limit, regardless of the associated *Thermostat* demand. This is typically used to keep output devices within safe limits and to prevent damage in underfloor heating systems.

Heat Temperature Low Limit Attribute: 0x0021

This specifies the minimum temperature (in steps of 0.01°C) that the output device is permitted to reach while the associated *Thermostat* is in a heating capable mode. It must be greater than or equal to *MinHeatTemperatureLimit* and less than both *HeatTemperatureHighLimit* and *MaxHeatTemperatureLimit*. The null value can be used to indicate that limiting is not required, in which case the output device will not attempt to respect this limit.

The device will increase output power to remain above this limit, even if the associated *Thermostat* does not demand heat. This is a comfort limit. It can be used in underfloor heating systems to maintain a minimum floor temperature, despite a low room setpoint. This is particularly useful where an alternative source of heat, such as a log burner, which may cause condensation on a cool floor may be used for part of the time.

Cool Temperature High Limit Attribute: 0x0022

This specifies the maximum temperature (in steps of 0.01°C) that the output device is permitted to reach while the associated Thermostat is in a cooling capable mode. It must be greater than both *CoolTemperatureLowLimit* and *MinCoolTemperatureLimit* and also less than or equal to *MaxCoolTemperatureLimit*. The null value can be used to indicate that limiting is not required, in which case the output device will not attempt to respect this limit.

The device will increase output power to remain below this limit, even if the associated Thermostat does not demand cooling. This is a comfort limit.

Cool Temperature Low Limit Attribute: 0x0023

This specifies the minimum temperature (in steps of 0.01°C) that the output device is permitted to reach while cooling. It must be greater than or equal to *MinCoolTemperatureLimit* and less than both *CoolTemperatureHighLimit* and *MaxCoolTemperatureLimit*. The null value can be used to indicate that limiting is not required, in which case any limiting imposed by *MinCoolTemperatureLimit* will apply.

The device will reduce output power to remain above this limit, regardless of the associated Thermostat demand. This is typically used to keep output devices within safe limits and to prevent damage in underfloor heating systems.

Cooling Output Mode Attribute: 0x0030

On devices with alternate cooling output types, this selects which should be used to control the cooling unit.

Cooling Output Mode Attribute Values

Value	Name	Description
0	Disabled	This may be used on a Thermostat when it is being used to control a remote Heating/Cooling Unit using *PICoolingDemand* reports.
1	Relay	Relay, Normally Open, closes on demand.
4	Relay NC	Relay, Normally Closed, opens on demand (Inverted operation).

Heating Output Mode Attribute: 0x0031

On devices with alternate heating output types, this selects which should be used to control the heating unit.

Heating Output Mode Attribute Values

Value	Name	Description
0	Disabled	This may be used on a Thermostat when it is being used to control a remote Heating/Cooling Unit using *PIHeatingDemand* reports.
1	Relay	Relay, Normally Open, closes on demand.
2	OpenTherm	
3	Fil Pilote	
4	Relay NC	Relay, Normally Closed, opens on demand (Inverted operation).

Maximum Idle Time Attribute: 0x0041

This specifies the maximum time (in hours) the output can remain in one position before being exercised. This may be used when controlling hydronic systems to reduce the likelihood of valves becoming stuck during seasons where climate control is not required.

Output exercising may take place at shorter intervals than the maximum, particularly if it needs to align with a specific time.

Maximum Idle Time Attribute Values

Value	Name	Description
0xffff	No maximum	The null value is used to indicate no maximum and the output should never be exercised.

Anti-Idle Exercise Time Attribute: 0x0042

This specifies the time (in seconds) the output should be driven in order to exercise it if there has been no movement for a long period of time (see *MaximumIdleTime*).

Preferred Exercise Time Attribute: 0x0043

This specifies the preferred time of day (in minutes since midnight) to exercise the output. It may be used to schedule potentially noisy activities to avoid nuisance or to synchronise or desynchronise multiple devices in a system for performance reasons.

Where *MaximumIdleTime* is less than 24 hours, this attribute may be ignored by the device.

Min Off Time Attribute: 0x0044

For On/Off and PWM type outputs, this is the minimum duration (in seconds) that the output will remain in the off state. This may be used for short-cycle protection.

The null value indicates that the device should use a default or automatically determined value.

Min On Time Attribute: 0x0045

For On/Off and PWM type outputs, this is the minimum duration (in seconds) that the output will remain in the on state. This may be used for short-cycle protection.

The null value indicates that the device should use a default or automatically determined value.

Max Overall Duty Cycle Attribute: 0xe207

This is the maximum long-term duty cycle (in seconds per hour) that the output is permitted to achieve over a relatively long period. The period is typically greater than any PWM cycle time, allowing for 100% demand for short periods but preventing a persistent high demand.

The device will reduce output power to remain below this limit, regardless of any demand. This may be used for EN50559 hot-spot prevention.

The use of seconds per hour allows for configuration applications to work easily with either minutes per hour or percentage.

Overall Duty Cycle Period Attribute: 0xe208

This is the period (in minutes) that the duty cycle is averaged over when calculating *MaxOverallDutyCycle*.

Devices that do allow this attribute to be configured may reject values shorter than their cycle time.

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