

BACnet Application Map for Network Management Card 3 Easy UPS 3P Modular, Galaxy PX & Easy UPS 3M Advanced

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Introduction

This document details the BACnet objects and properties supported by the Network Management Card 3 Easy UPS 3P Modular, Galaxy PX & Easy UPS 3M Advanced. This document contains Analog Value Objects, Binary Value Objects (Data & Alarm), Character String Value Objects, Multi-State Value Objects, and Notification Class Objects.

Additional Information

- Information on the BACnet protocol specification can be found at www.bacnet.org.
- APC recommends [EcoStruxure Building Operation](#) software (formerly known as StruxureWare Building Operation/SBO) for integrated monitoring, control and management of BACnet-enabled devices.
- For more information on configuring your NMC for BACnet, see the NMC User Guides, available on the [APC website](#).
- BACnet/IP is supported with NMC3 “emgpx” application firmware.
- The “emgpx” applications run on either the AP9640 or AP9641 cards. **Note:** Analog Value Objects 6000 to 6003 are only applicable to the AP9641 card for Temperature and Humidity probes support.

Analog Value Objects

Analog value objects provide information on UPS data properties made available via the BACnet protocol:

- BACnet Units – the format of the analog (numeric) values returned. The unit format complies with the BACnet standard, and includes the enumerated code defined in the standard, which is used to represent it.
- Access values – **RO** is Read Only, **RW** is Read/Write.

Instance	BACnet Name	Description	BACnet Units	Access
0	Input.Phase.Voltage_PP_1	Input Phase Voltage (P-P) 1	volts (5)	RO
1	Input.Phase.Voltage_PP_2	Input Phase Voltage (P-P) 2	volts (5)	RO
2	Input.Phase.Voltage_PP_3	Input Phase Voltage (P-P) 3	volts (5)	RO
3	Input.Phase.Voltage_PN_1	Input Phase Voltage (P-N) 1	volts (5)	RO
4	Input.Phase.Voltage_PN_2	Input Phase Voltage (P-N) 2	volts (5)	RO
5	Input.Phase.Voltage_PN_3	Input Phase Voltage (P-N) 3	volts (5)	RO
6	Input.Phase.Current_1	Input Phase Current 1	amperes (3)	RO
7	Input.Phase.Current_2	Input Phase Current 2	amperes (3)	RO
8	Input.Phase.Current_3	Input Phase Current 3	amperes (3)	RO
9	Input.Phase.ApparentPower_1	Input Phase Apparent Power 1	kilovolt-amperes (9)	RO
10	Input.Phase.ApparentPower_2	Input Phase Apparent Power 2	kilovolt-amperes (9)	RO
11	Input.Phase.ApparentPower_3	Input Phase Apparent Power 3	kilovolt-amperes (9)	RO
12	Input.Total.ApparentPower	Input Total Apparent Power	kilovolt-amperes (9)	RO
13	Input.Phase.ActivePower_1	Input Phase Active Power 1	kilowatts (48)	RO
14	Input.Phase.ActivePower_2	Input Phase Active Power 2	kilowatts (48)	RO
15	Input.Phase.ActivePower_3	Input Phase Active Power 3	kilowatts (48)	RO
16	Input.Total.ActivePower	Input Total Active Power	kilowatts (48)	RO
17	Input.Frequency	Input Frequency	hertz (27)	RO

Instance	BACnet Name	Description	BACnet Units	Access
18	Input.Phase.PowerFactor_1	Input Phase Power Factor 1	no-units (95)	RO
19	Input.Phase.PowerFactor_2	Input Phase Power Factor 2	no-units (95)	RO
20	Input.Phase.PowerFactor_3	Input Phase Power Factor 3	no-units (95)	RO
1000	Output.Phase.Voltage_PP_1	Output Phase Voltage (P-P) 1	volts (5)	RO
1001	Output.Phase.Voltage_PP_2	Output Phase Voltage (P-P) 2	volts (5)	RO
1002	Output.Phase.Voltage_PP_3	Output Phase Voltage (P-P) 3	volts (5)	RO
1003	Output.Phase.Voltage_PN_1	Output Phase Voltage (P-N) 1	volts (5)	RO
1004	Output.Phase.Voltage_PN_2	Output Phase Voltage (P-N) 2	volts (5)	RO
1005	Output.Phase.Voltage_PN_3	Output Phase Voltage (P-N) 3	volts (5)	RO
1006	Output.Phase.Current_1	Output Phase Current 1	amperes (3)	RO
1007	Output.Phase.Current_2	Output Phase Current 2	amperes (3)	RO
1008	Output.Phase.Current_3	Output Phase Current 3	amperes (3)	RO
1009	Output.Phase.ApparentPower_1	Output Phase Apparent Power 1	kilovolt-amperes (9)	RO
1010	Output.Phase.ApparentPower_2	Output Phase Apparent Power 2	kilovolt-amperes (9)	RO
1011	Output.Phase.ApparentPower_3	Output Phase Apparent Power 3	kilovolt-amperes (9)	RO
1012	Output.Total.ApparentPower	Output Total Apparent Power	kilovolt-amperes (9)	RO
1013	Output.Phase.ActivePower_1	Output Phase Active Power 1	kilowatts (48)	RO
1014	Output.Phase.ActivePower_2	Output Phase Active Power 2	kilowatts (48)	RO
1015	Output.Phase.ActivePower_3	Output Phase Active Power 3	kilowatts (48)	RO
1016	Output.Total.ActivePower	Output Total Active Power	kilowatts (48)	RO
1017	Output.Frequency	Output Frequency	hertz (27)	RO
1018	Output.Phase.PowerFactor_1	Output Phase Power Factor 1	no-units (95)	RO
1019	Output.Phase.PowerFactor_2	Output Phase Power Factor 2	no-units (95)	RO

Instance	BACnet Name	Description	BACnet Units	Access
1020	Output.Phase.PowerFactor_3	Output Phase Power Factor 3	no-units (95)	RO
1021	Output.Total.Load	Output Load	percent (98)	RO
1022	Output.Phase.Load_1	Output Phase Load 1	percent (98)	RO
1023	Output.Phase.Load_2	Output Phase Load 2	percent (98)	RO
1024	Output.Phase.Load_3	Output Phase Load 3	percent (98)	RO
1025	Output.UpperVoltageTolerance	Output Upper Voltage Tolerance	percent (98)	RO
2000	Bypass.Phase.Voltage_PP_1	Bypass Phase Voltage (P-P) 1	volts (5)	RO
2001	Bypass.Phase.Voltage_PP_2	Bypass Phase Voltage (P-P) 2	volts (5)	RO
2002	Bypass.Phase.Voltage_PP_3	Bypass Phase Voltage (P-P) 3	volts (5)	RO
2003	Bypass.Phase.Voltage_PN_1	Bypass Phase Voltage (P-N) 1	volts (5)	RO
2004	Bypass.Phase.Voltage_PN_2	Bypass Phase Voltage (P-N) 2	volts (5)	RO
2005	Bypass.Phase.Voltage_PN_3	Bypass Phase Voltage (P-N) 3	volts (5)	RO
2006	Bypass.Phase.Current_1	Bypass Phase Current 1	amperes (3)	RO
2007	Bypass.Phase.Current_2	Bypass Phase Current 2	amperes (3)	RO
2008	Bypass.Phase.Current_3	Bypass Phase Current 3	amperes (3)	RO
2009	Bypass.Phase.ApparentPower_1	Bypass Phase Apparent Power 1	kilovolt-amperes (9)	RO
2010	Bypass.Phase.ApparentPower_2	Bypass Phase Apparent Power 2	kilovolt-amperes (9)	RO
2011	Bypass.Phase.ApparentPower_3	Bypass Phase Apparent Power 3	kilovolt-amperes (9)	RO
2012	Bypass.Total.ApparentPower	Bypass Total Apparent Power	kilovolt-amperes (9)	RO
2013	Bypass.Phase.ActivePower_1	Bypass Phase Active Power 1	kilowatts (48)	RO
2014	Bypass.Phase.ActivePower_2	Bypass Phase Active Power 2	kilowatts (48)	RO
2015	Bypass.Phase.ActivePower_3	Bypass Phase Active Power 3	kilowatts (48)	RO
2016	Bypass.Total.ActivePower	Bypass Total Active Power	kilowatts (48)	RO

Instance	BACnet Name	Description	BACnet Units	Access
2017	Bypass.Frequency	Bypass Frequency	hertz (27)	RO
2018	Bypass.Phase.PowerFactor_1	Bypass Phase Power Factor 1	no-units (95)	RO
2019	Bypass.Phase.PowerFactor_2	Bypass Phase Power Factor 2	no-units (95)	RO
2020	Bypass.Phase.PowerFactor_3	Bypass Phase Power Factor 3	no-units (95)	RO
3000	Battery.Voltage	Battery Voltage	volts (5)	RO
3001	Battery.Current	Battery Current	amperes (3)	RO
3002	Battery.Power	Battery Power	kilowatts (48)	RO
3003	Battery.Temperature.Sensor	Battery Temperature Sensor 1	degrees-Celsius (62)	RO
3004	Battery.TotalCapacity	Total Battery Capacity Alt	ampere-seconds (238)	RO
3005	Battery.EstimatedChargeLevel	Battery Estimated Charge Level	percent (98)	RO
3006	Battery.EstimatedChargeTime	Battery Estimated Charge Time	seconds (73)	RO
3007	Battery.RemainingBackupTime	Remaining Backup Time	seconds (73)	RO
3008	Battery.SelfTest.TimeOfDay_setting	Self-test Time-of-Day setting	seconds (73)	RO
5000	General.InputRampInTime	Input Ramp-in Time	seconds (73)	RO
5001	General.UPSAmbientTemperature	UPS Ambient Temperature	degrees-Celsius (62)	RO
5002	General.ApparentPower	Apparent Power	kilovolt-amperes (9)	RO
5003	General.UpperAcceptablePowerWarningSetting	Upper Acceptable Power Warning Setting	percent (98)	RO
5004	General.UPS.Time	UPS Time	seconds (73)	RO
6000	NMC.Probe.Temperature_1	NMC Probe-Temperature 1	degrees-Celsius (62)	RO
6001	NMC.Probe.Temperature_2	NMC Probe-Temperature 2	degrees-Celsius (62)	RO
6002	NMC.Probe.Humidity_1	NMC Probe-Humidity 1	percent-relative-humidity (29)	RO
6003	NMC.Probe.Humidity_2	NMC Probe-Humidity 2	percent-relative-humidity (29)	RO

Instance	BACnet Name	Description	BACnet Units	Access
7000	Parallel.UPS.Unit.Present	Parallel UPS Units Present(number)	no-units (95)	RO
7001	Parallel.Input.Phase.Current_1	Parallel Input Phase Current 1	amperes (3)	RO
7002	Parallel.Input.Phase.Current_2	Parallel Input Phase Current 2	amperes (3)	RO
7003	Parallel.Input.Phase.Current_3	Parallel Input Phase Current 3	amperes (3)	RO
7004	Parallel.Output.Phase.Current_1	Parallel Output Phase Current 1	amperes (3)	RO
7005	Parallel.Output.Phase.Current_2	Parallel Output Phase Current 2	amperes (3)	RO
7006	Parallel.Output.Phase.Current_3	Parallel Output Phase Current 3	amperes (3)	RO
7007	Parallel.Bypass.Phase.Current_1	Parallel Bypass Phase Current 1	amperes (3)	RO
7008	Parallel.Bypass.Phase.Current_2	Parallel Bypass Phase Current 2	amperes (3)	RO
7009	Parallel.Bypass.Phase.Current_3	Parallel Bypass Phase Current 3	amperes (3)	RO
7010	Parallel.Output.Total.Apparent.Power	Parallel Output Total Apparent Power	kilovolt-amperes (9)	RO
7011	Parallel.Output.Total.Load	Parallel Output Total Load	percent (98)	RO
7012	Parallel.Output.Total.Active.Power	Parallel Output Total Active Power	kilowatts (48)	RO

Binary Value Objects

There are two variations of Binary Value Objects included herein: **Binary Value Objects – Data** and **Binary Value Objects – Alarm**.

- Access values - **RO** is Read Only, **RW** is Read/Write.

Binary Value Objects – Data

- Options – all possible values that can be returned for a UPS multi-value property.

Instance	BACnet Name	Description	Options	Access
4000	SwitchGear.BreakerStatus.UIB_closed	Switch Gear Breaker Status - UIB closed	0=Open, 1=Closed	RO
4001	SwitchGear.BreakerStatus.SSIB_closed	Switch Gear Breaker Status - SSIB closed	0=Open, 1=Closed	RO
4002	SwitchGear.BreakerStatus.IMB_closed	Switch Gear Breaker Status - IMB closed	0=Open, 1=Closed	RO
4003	SwitchGear.BreakerStatus.UOB_closed	Switch Gear Breaker Status - UOB closed	0=Open, 1=Closed	RO
4004	SwitchGear.BreakerStatus.SIB_closed	Switch Gear Breaker Status - SIB closed	0=Open, 1=Closed	RO
4005	SwitchGear.BreakerStatus.MBB_closed	Switch Gear Breaker Status - MBB closed	0=Open, 1=Closed	RO
4006	SwitchGear.BreakerStatus.BBFB_closed	Switch Gear Breaker Status - BBFB closed	0=Open, 1=Closed	RO
4007	SwitchGear.BreakerStatus.ExtMBB_closed	External MBB (Maintenance Bypass Breaker) Status	0=Open, 1=Closed	RO
4008	SwitchGear.BreakerPresent.UIB	UIB (Unit Input Breaker) Presence	0=Not Present, 1=Present	RO
4009	SwitchGear.BreakerPresent.SSIB	SSIB (Static Switch Input Breaker) Presence	0=Not Present, 1=Present	RO
4010	SwitchGear.BreakerPresent.MBB	MBB (Maintenance Bypass Breaker) Presence	0=Not Present, 1=Present	RO
4011	SwitchGear.BreakerPresent.UOB	UOB (Unit Output Breaker) Presence	0=Not Present, 1=Present	RO
4012	SwitchGear.BreakerPresent.SIB	SIB (System Isolation Breaker) Presence	0=Not Present, 1=Present	RO
4013	SwitchGear.BreakerPresent.BBFB	BBFB Presence	0=Not Present, 1=Present	RO
4014	SwitchGear.BreakerPresent.ExtMBB	External MBB Presence	0=Not Present, 1=Present	RO
8000	PowerModule.PM1_present	Power Module 1 Present	0=Present, 1=Not Present	RO

Instance	BACnet Name	Description	Options	Access
8001	PowerModule.PM2_present	Power Module 2 Present	0=Present, 1=Not Present	RO
8002	PowerModule.PM3_present	Power Module 3 Present	0=Present, 1=Not Present	RO
8003	PowerModule.PM4_present	Power Module 4 Present	0=Present, 1=Not Present	RO
8004	PowerModule.PM5_present	Power Module 5 Present	0=Present, 1=Not Present	RO
8005	PowerModule.PM6_present	Power Module 6 Present	0=Present, 1=Not Present	RO

Binary Value Objects – Alarm

- Alarm: A notification will be sent to the recipients in the notification class defined in the Notification Class Object. UPS events are model-specific, and only events supported by the UPS are accessible via the Building Management System used.

Instance	BACnet Name	Description	Alarm	Access
105000	sys.status.epoinput.activated	An emergency power off (EPO) switch is activated	Yes	RO
105001	output.status.source.sync.input.ext.source	The UPS is synchronized to the external source	Yes	RO
105002	output.status.source.sync.input.freerunning	The UPS is unable to synchronize to the bypass input, external source or parallel system	Yes	RO
105003	output.status.source.sync.input.parallel	The UPS is synchronized to the parallel system	Yes	RO
105004	output.status.source.sync.input.int.source	The UPS is synchronized to the internal source	Yes	RO
105005	output.status.inverter.sync.nok	The UPS inverter output is not in phase with the bypass input	Yes	RO
105006	sys.status.upsmode.battery	On battery power in response to an input power problem or due to a transfer out of ECOconversion	Yes	RO
105007	sys.status.upsmode.requested.bypass	The UPS is in bypass in response to the UPS front-panel or a user-initiated software command, typically for maintenance	Yes	RO
105008	sys.status.upsmode.forced.bypass	The UPS is in forced static bypass	Yes	RO

Instance	BACnet Name	Description	Alarm	Access
105009	sys.status.upsmode.maintenance.bypass	The UPS load is supplied through maintenance bypass breaker (MBB)	Yes	RO
105010	sys.status.upsmode.battery.test	On battery power in response to a test of the performance of the batteries	Yes	RO
105011	sys.status.upsmode.off	The output power is turned off	Yes	RO
105012	sys.status.upsmode.initialization	The UPS is initializing	Yes	RO
105013	sys.status.upsmode.bypass.standby	The UPS is ready to enter static bypass but awaits permission from the system. UPS output is off	Yes	RO
105014	sys.status.upsmode.inverter.standby	The UPS is ready to enter battery operation but awaits permission from the system. UPS output is off	Yes	RO
105015	sys.status.sysmode.off	The system output power is turned off	Yes	RO
105016	sys.status.sysmode.forced.bypass	The system is in bypass in response to a critical event or an inverter off request	Yes	RO
105017	sys.status.sysmode.req.bypass	The system is in bypass in response to the UPS front-panel or a user-initiated software command, typically for maintenance	Yes	RO
105018	sys.status.sysmode.maintenance.bypass	The system load is supplied through maintenance bypass breaker (MBB)	Yes	RO
105019	sys.status.sysmode.spot	The system is in SPoT mode (smart power test by connecting the output via the bypass to the input)	Yes	RO
105020	sys.status.sysmode.eco	The system has entered ECO mode and the load is supplied via the static bypass switch	Yes	RO
105021	sys.status.sysmode.econversion	The system has entered ECOnversion mode	Yes	RO
105022	sys.status.sysmode.bypass.standby	The system is in static bypass standby operation in response to a critical event or an inverter off request	Yes	RO
105023	sys.product.no.registered	Your UPS is not registered	Yes	RO
105024	sys.bypass.locked	The system is locked in bypass operation	Yes	RO
105025	sys.power.module.type.unsupported_1	The detected power module type is not supported by the current UPS power configuration	Yes	RO

Instance	BACnet Name	Description	Alarm	Access
105026	sys.power.module.type.unsupported_2	The detected power module type is not supported by the current UPS power configuration	Yes	RO
105027	sys.power.module.type.unsupported_3	The detected power module type is not supported by the current UPS power configuration	Yes	RO
105028	sys.power.module.type.unsupported_4	The detected power module type is not supported by the current UPS power configuration	Yes	RO
105029	sys.power.module.type.unsupported_5	The detected power module type is not supported by the current UPS power configuration	Yes	RO
105030	sys.power.module.type.unsupported_6	The detected power module type is not supported by the current UPS power configuration	Yes	RO
105031	sys.sbs.module.type.unsupported	The detected SBS module type is not supported by the current UPS power configuration	Yes	RO
105032	inst.power.module.exceeds.frame.power	The configured UPS power rating is higher than the power rating of the frame	Yes	RO
105033	no.sbs.present	No SBS present	Yes	RO
105034	no.power.modules.present	No power module(s) present	Yes	RO
105035	sys.ambient.temp.nok	Ambient temperature is out of tolerance	Yes	RO
105036	sys.ambient.temp.high	Ambient temperature is high	Yes	RO
105037	sys.off.from.user	The inverter is off due to a request by the user	Yes	RO
105038	sys.warrnty.expiring	The product is reaching the end of warranty	Yes	RO
105039	sys.tech.check	The product and its batteries need to be checked as preventive maintenance is recommended	Yes	RO
105040	batt.air.filter.check	The air filters need to be checked as preventive maintenance is recommended	Yes	RO
105041	ups.surveillance.fault	UPS surveillance detected a fault	Yes	RO
105042	pm.redundancy.lost	The configured internal power module redundancy is lost because there are not enough power modules available	Yes	RO

Instance	BACnet Name	Description	Alarm	Access
105043	disp.comm.lost.dis	Communication link between display and SMC is lost. HMI is disconnected	Yes	RO
105044	disp.comm.lost.conn	Communication link between display and SMC is lost. HMI is connected	Yes	RO
105045	disp.comm.not.auth	Communication link between display and SMC is not authenticated	Yes	RO
105046	pfc.ac.current.limit.thres.low.due.hitemp	The AC current limitation threshold of the PFC has been lowered due to high ambient temperature	Yes	RO
105047	dc.current.limitation.threshold.lowered	The DC current limitation threshold of the DC-DC has been lowered due to high ambient temperature	Yes	RO
105048	pm.id.configuration.not.ok	Power module ID is out of range happened	Yes	RO
105049	pm.exceeds.frame.power.rating	Installed power modules exceed frame power rating	Yes	RO
105050	incorrect.ups.model.nr	The UPS model number does not match the UPS base model number	Yes	RO
100000	input.status.mains1.phase.voltage.nok	Input voltage is out of tolerance	Yes	RO
100001	input.status.phase.sequence.nok	The phase rotation on input is incorrect	Yes	RO
100002	input.status.frequency.nok	Input frequency is out of tolerance	Yes	RO
100003	input.status.phase.missing	Input is missing a phase	Yes	RO
100004	input.status.neutral.displacement.present	Neutral displacement detected	Yes	RO
101000	output.status.output.voltage.nok	The output voltage is out of tolerance	Yes	RO
101001	output.status.frequency.nok	Output frequency is out of tolerance	Yes	RO
101002	im.output.status.inverter.output.overload	The load exceeds 100% of rated capacity or there is a short circuit on the output	Yes	RO
101003	im.status.ambient.temperature.overload	The load exceeds the rated UPS capacity when running in high ambient temperature	Yes	RO
101004	output.status.output.overload	Load on UPS has exceeded the warning level	Yes	RO

Instance	BACnet Name	Description	Alarm	Access
102000	bps.status.mains2.voltage.nok	Bypass voltage is out of tolerance and UPS is prevented from going into requested bypass mode	Yes	RO
102001	bps.status.phase.sequence.nok	The phase rotation on bypass is incorrect	Yes	RO
102002	bps.status.frequency.nok	Bypass frequency is out of tolerance	Yes	RO
102003	bps.status.phase.missing	Bypass is missing a phase	Yes	RO
103000	battery.breaker.bb1.open	Battery breaker BB1 is open	Yes	RO
103001	battery.breaker.bb2.open	Battery breaker BB2 is open	Yes	RO
103002	battery.breaker.bb3.open	Battery breaker BB3 is open	Yes	RO
103003	battery.breaker.bb4.open	Battery breaker BB4 is open	Yes	RO
103004	ups.battery.resting	The UPS batteries are resting	Yes	RO
103005	battery.discharging	The load is drawing more power than the UPS can draw from the input, causing the UPS to draw power from the batteries	Yes	RO
103006	charge.shutdown.high.batt.temp	The charger has been shut down due to a high battery temperature	Yes	RO
103007	battery.config.invalid	The configuration of the settings for number of batteries in series, number of cells in battery and nominal cell voltage does not match the battery voltage range of the UPS	Yes	RO
103008	battery.below.min.accruntime	The battery runtime is below configured minimum acceptable value	Yes	RO
103009	battery.volt.no.match.batt.config	Battery voltage does not match the battery configuration settings	Yes	RO
103010	batt.cond.unknown	The battery state is unknown. Either the battery is new or a battery runtime calibration test has been aborted	Yes	RO
103011	batt.cond.weak	Battery capacity is between 50% to 75%	Yes	RO
103012	batt.cond.poor	Battery capacity is lower than 50%	Yes	RO
103013	batt.temp.high	The battery temperature is above the Alarm setting	Yes	RO
103014	batt.temp.low	The battery temperature is below the Alarm setting	Yes	RO

Instance	BACnet Name	Description	Alarm	Access
103015	batt.capacity.below.minimum	The battery capacity is below the minimum acceptable value according to UPS power rating. Risk of battery damage	Yes	RO
103016	charge.power.reduced	The battery charge power has been reduced	Yes	RO
103017	batt.fail	A battery is not working correctly	Yes	RO
103018	batt.float.charge.cur.exceeds.exp.value	The battery float charge current exceeds the expected value and has been limited to avoid thermal runaway	Yes	RO
103019	high.batt.temp.shutdown	The energy storage surveillance has detected a battery temperature above shutdown limit	Yes	RO
103020	charge.shutdown.low.batt.temmm	The charger has been shut down due to a low battery temperature	Yes	RO
103021	battery.over.currnet	Battery over current has been detected	Yes	RO
104000	switchgear.status.uib.open	Unit input breaker UIB is open, and the UPS is prevented from running in normal operation	Yes	RO
104001	switchgear.status.uob.open	Unit output breaker UOB is open, and the UPS is prevented from supplying the load	Yes	RO
104002	switchgear.status.mbb.closed	Maintenance bypass breaker MBB is closed, supplying the load with unprotected power from bypass	Yes	RO
104003	switchgear.status.sib.open	System isolation breaker SIB is open, and system cannot supply the load	Yes	RO
104004	switchgear.status.ssib.open	Static switch input breaker SSIB is open, preventing static bypass operation	Yes	RO
104005	switchgear.status.imb.closed	Internal maintenance bypass breaker IMB is closed, supplying the load with unprotected power from bypass	Yes	RO
104006	switchgear.status.rimb.closed	Remote internal maintenance bypass breaker RIMB is closed, supplying the load with unprotected power from bypass	Yes	RO
104007	ground.fault.detected	Input contact indicates that a ground wire fault has been detected	Yes	RO
104008	genset.supply.ups	Input contact indicates that a genset is supplying the UPS	Yes	RO

Instance	BACnet Name	Description	Alarm	Access
104009	battery.room.nok	Input contact indicates that the battery room ventilation is not working correctly	Yes	RO
104010	external.battery.fault	Input contact indicates external battery monitoring detected fault	Yes	RO
104011	switchgear.status.uobredundant.monito ring.nok	The two redundant AUX switches of UOB do not report the same status	Yes	RO
104012	switchgear.status.mbbredundant.monit oring.nok	The two redundant AUX switches of MBB do not report the same status	Yes	RO
104013	ups.locked.in.static.bypass	Input contact for UPS locked in static bypass mode is activated	Yes	RO
104014	eco.disabled	High efficiency mode is disabled from an input contact	Yes	RO
104015	external.monitor.minor.alarm	Input contact indicates that the external energy storage monitoring has detected a minor alarm	Yes	RO
104016	external.monitor.major.alarm	Input contact indicates that the external energy storage monitoring has detected a major alarm	Yes	RO
104017	external.charger.off.activated	Input contact for charger off is activated	Yes	RO
104018	breaker.extern.mbb.closed	External maintenance bypass breaker MBB is closed, supplying the load with unprotected power from bypass	Yes	RO
109000	para.pbus1.nok_1	PBUS cable 1 may be damaged	Yes	RO
109001	para.pbus1.nok_2	PBUS cable 1 may be damaged	Yes	RO
109002	para.pbus1.nok_3	PBUS cable 1 may be damaged	Yes	RO
109003	para.pbus1.nok_4	PBUS cable 1 may be damaged	Yes	RO
109004	para.pbus1.nok_5	PBUS cable 1 may be damaged	Yes	RO
109005	para.pbus2.nok_1	PBUS cable 2 may be damaged	Yes	RO
109006	para.pbus2.nok_2	PBUS cable 2 may be damaged	Yes	RO
109007	para.pbus2.nok_3	PBUS cable 2 may be damaged	Yes	RO
109008	para.pbus2.nok_4	PBUS cable 2 may be damaged	Yes	RO

Instance	BACnet Name	Description	Alarm	Access
109009	para.pbus2.nok_5	PBUS cable 2 may be damaged	Yes	RO
109010	para.general.system.nok	The parallel system is not configured correctly or is not working correctly	Yes	RO
109011	para.unit.not.present_1	UPS is unable to communicate with parallel UPS %d. The UPS might have been powered down or PBUS cables may be damaged	Yes	RO
109012	para.unit.not.present_2	UPS is unable to communicate with parallel UPS %d. The UPS might have been powered down or PBUS cables may be damaged	Yes	RO
109013	para.unit.not.present_3	UPS is unable to communicate with parallel UPS %d. The UPS might have been powered down or PBUS cables may be damaged	Yes	RO
109014	para.unit.not.present_4	UPS is unable to communicate with parallel UPS %d. The UPS might have been powered down or PBUS cables may be damaged	Yes	RO
109015	para.unit.not.present_5	UPS is unable to communicate with parallel UPS %d. The UPS might have been powered down or PBUS cables may be damaged	Yes	RO
109016	para.unit.redundancy.nok	The configured parallel redundancy is lost, either because the output load is too high, or because there are not enough parallel UPS units available.	Yes	RO
109017	para.not.ready.to.inv.on	One or more parallel UPS units have been requested to turn on inverter, but not enough UPS units are ready for system to enter inverter on operation	Yes	RO
109018	para.confirm.redundancy.lost	Inverter OFF button has been pushed and user must confirm that the redundancy will be lost and/or system will transfer to forced static bypass	Yes	RO
110000	im.communication.disconnected_1	Communication link between IM and SMC is lost. IM is disconnected	Yes	RO
110001	im.communication.connected_1	Communication link between IM and SMC is lost. IM is connected	Yes	RO
110002	im.communication.notauthenticated_1	Communication link between IM and SMC is not authenticated	Yes	RO

Instance	BACnet Name	Description	Alarm	Access
110003	im.communication.disconnected_2	Communication link between IM and SMC is lost. IM is disconnected	Yes	RO
110004	im.communication.connected_2	Communication link between IM and SMC is lost. IM is connected	Yes	RO
110005	im.communication.not.authenticated_2	Communication link between IM and SMC is not authenticated	Yes	RO
110006	im.enable.switch.disabled_1	IM controller box has been disabled by user	Yes	RO
110007	im.enable.switch.disabled_2	IM controller box has been disabled by user	Yes	RO
110008	pm.available.num.not.same	PM available number not same	Yes	RO
110009	im.redundancy.lost	IM redundancy lost	Yes	RO
110010	sbs.lost.available.not.same	MIM SBS available status is not the same with RIM	Yes	RO
112000	sbs.fan.nok	Static Bypass Switch has one or more inoperable fans. Fan redundancy is lost	Yes	RO
112001	sbs.status.bypass.switch.inoperable	Static bypass switch is inoperable. UPS is prevented from going into static bypass operation	Yes	RO
112002	sbs.status.communication.disconnected	Communication link between SBSC and IM is lost. SBSC is disconnected	Yes	RO
112003	sbs.status.communication.connected	Communication link between SBSC and IM is lost. SBSC is connected	Yes	RO
112004	sbs.status.communication.not.authenticated	Communication link between SBSC and IM is not authenticated	Yes	RO
112005	sbs.module.disable	The SBS module has been disabled by user	Yes	RO
108000	pm.status.inoperable_1	Power module is inoperable	Yes	RO
108001	pm.status.inoperable_2	Power module is inoperable	Yes	RO
108002	pm.status.inoperable_3	Power module is inoperable	Yes	RO
108003	pm.status.inoperable_4	Power module is inoperable	Yes	RO
108004	pm.status.inoperable_5	Power module is inoperable	Yes	RO

Instance	BACnet Name	Description	Alarm	Access
108005	pm.status.inoperable_6	Power module is inoperable	Yes	RO
108006	pm.status.temperature.warning_1	Power module temperature exceeds warning level	Yes	RO
108007	pm.status.temperature.overheat_1	Power module temperature exceeds critical level	Yes	RO
108008	pm.status.temperature.warning_2	Power module temperature exceeds warning level	Yes	RO
108009	pm.status.temperature.overheat_2	Power module temperature exceeds critical level	Yes	RO
108010	pm.status.temperature.warning_3	Power module temperature exceeds warning level	Yes	RO
108011	pm.status.temperature.overheat_3	Power module temperature exceeds critical level	Yes	RO
108012	pm.status.temperature.warning_4	Power module temperature exceeds warning level	Yes	RO
108013	pm.status.temperature.overheat_4	Power module temperature exceeds critical level	Yes	RO
108014	pm.status.temperature.warning_5	Power module temperature exceeds warning level	Yes	RO
108015	pm.status.temperature.overheat_5	Power module temperature exceeds critical level	Yes	RO
108016	pm.status.temperature.warning_6	Power module temperature exceeds warning level	Yes	RO
108017	pm.status.temperature.overheat_6	Power module temperature exceeds critical level	Yes	RO
108018	pm.status.fan.nok_1	The power module has one or more inoperable fans. Fan redundancy is lost	Yes	RO
108019	pm.status.fan.nok_2	The power module has one or more inoperable fans. Fan redundancy is lost	Yes	RO
108020	pm.status.fan.nok_3	The power module has one or more inoperable fans. Fan redundancy is lost	Yes	RO
108021	pm.status.fan.nok_4	The power module has one or more inoperable fans. Fan redundancy is lost	Yes	RO
108022	pm.status.fan.nok_5	The power module has one or more inoperable fans. Fan redundancy is lost	Yes	RO
108023	pm.status.fan.nok_6	The power module has one or more inoperable fans. Fan redundancy is lost	Yes	RO
108024	pm.status.module.disabled_1	The power module has been disabled	Yes	RO

Instance	BACnet Name	Description	Alarm	Access
108025	pm.status.module.disabled_2	The power module has been disabled	Yes	RO
108026	pm.status.module.disabled_3	The power module has been disabled	Yes	RO
108027	pm.status.module.disabled_4	The power module has been disabled	Yes	RO
108028	pm.status.module.disabled_5	The power module has been disabled	Yes	RO
108029	pm.status.module.disabled_6	The power module has been disabled	Yes	RO
108030	pm.status.power.module.surveillance.fault_1	Power module surveillance detected a fault	Yes	RO
108031	pm.status.power.module.surveillance.fault_2	Power module surveillance detected a fault	Yes	RO
108032	pm.status.power.module.surveillance.fault_3	Power module surveillance detected a fault	Yes	RO
108033	pm.status.power.module.surveillance.fault_4	Power module surveillance detected a fault	Yes	RO
108034	pm.status.power.module.surveillance.fault_5	Power module surveillance detected a fault	Yes	RO
108035	pm.status.power.module.surveillance.fault_6	Power module surveillance detected a fault	Yes	RO
108036	pm.status.communication.disconnected_1	Communication link between PMC and IM is lost. PMC is disconnected	Yes	RO
108037	pm.status.communication.connected_1	Communication link between PMC and IM is lost. PMC is connected	Yes	RO
108038	pm.status.communication.not.authenticated_1	Communication link between PMC and IM is not authenticated	Yes	RO
108039	pm.status.communication.disconnected_2	Communication link between PMC and IM is lost. PMC is disconnected	Yes	RO
108040	pm.status.communication.connected_2	Communication link between PMC and IM is lost. PMC is connected	Yes	RO
108041	pm.status.communication.not.authenticated_2	Communication link between PMC and IM is not authenticated	Yes	RO

Instance	BACnet Name	Description	Alarm	Access
108042	pm.status.communication.disconnected_3	Communication link between PMC and IM is lost. PMC is disconnected	Yes	RO
108043	pm.status.communication.connected_3	Communication link between PMC and IM is lost. PMC is connected	Yes	RO
108044	pm.status.communication.not.authenticated_3	Communication link between PMC and IM is not authenticated	Yes	RO
108045	pm.status.communication.disconnected_4	Communication link between PMC and IM is lost. PMC is disconnected	Yes	RO
108046	pm.status.communication.connected_4	Communication link between PMC and IM is lost. PMC is connected	Yes	RO
108047	pm.status.communication.not.authenticated_4	Communication link between PMC and IM is not authenticated	Yes	RO
108048	pm.status.communication.disconnected_5	Communication link between PMC and IM is lost. PMC is disconnected	Yes	RO
108049	pm.status.communication.connected_5	Communication link between PMC and IM is lost. PMC is connected	Yes	RO
108050	pm.status.communication.not.authenticated_5	Communication link between PMC and IM is not authenticated	Yes	RO
108051	pm.status.communication.disconnected_6	Communication link between PMC and IM is lost. PMC is disconnected	Yes	RO
108052	pm.status.communication.connected_6	Communication link between PMC and IM is lost. PMC is connected	Yes	RO
108053	pm.status.communication.not.authenticated_6	Communication link between PMC and IM is not authenticated	Yes	RO
106000	nmc.com.lost.dis_1	Communication link between NMC and SMC is lost. NMC is disconnected	Yes	RO
106001	nmc.com.lost.con_1	Communication link between NMC and SMC is lost. NMC is connected	Yes	RO
106002	nmc.com.not.auth_1	Communication link between NMC and SMC is not authenticated	Yes	RO

Instance	BACnet Name	Description	Alarm	Access
106003	nmc.com.lost.dis_2	Communication link between NMC and SMC is lost. NMC is disconnected	Yes	RO
106004	nmc.com.lost.con_2	Communication link between NMC and SMC is lost. NMC is connected	Yes	RO
106005	nmc.com.not.auth_2	Communication link between NMC and SMC is not authenticated	Yes	RO
106006	nmc/fw/incompatible_1	Firmware version of the NMC is incompatible	Yes	RO
106007	nmc/fw/incompatible_2	Firmware version of the NMC is incompatible	Yes	RO
106008	NMC.communication_lost	Communication with UPS not established	Yes	RO

Multi-State Value Objects

Multi-state value objects provide information on UPS data properties that return a list of options via the BACnet protocol:

- Options – all possible values that can be returned for a UPS multi-value property.
- Access values - **RO** is Read Only, **RW** is Read/Write.

Instance	BACnet Name	Description	Options	Access
1000	Output.AcceptableFrequency	Output Acceptable Frequency Local	1=50Hz 0.5pct, 2=50Hz 1.0pct, 3=50Hz 2.0pct, 4=50Hz 4.0pct, 5=50Hz 6.0pct, 6=50Hz 8.0pct	RO
3000	Battery.UserSuppliedChargerStatus	User Supplied Battery Charger Status(ENUM)	1=Float, 2=Boost, 3=Reserved, 4=Cyclic, 5=Off, 6=Equalization, 7=Test	RO
3001	Battery.CombinedBreakerStatus	Combined Battery Breaker Status	1=Open, 2=Closed	RO
3002	Battery.Type	User Supplied Battery Type(ENUM)	1=VRLA, 2=Open Cell, 3=Lithium Ion, 4=NiCd	RO
3003	Battery.SelfTest.DayOfWeek_setting	Self-test Day-of-Week setting (enum)	1=Sunday, 2=Monday, 3=Tuesday, 4=Wednesday, 5=Thursday, 6=Friday, 7=Saturday	RO
3004	Battery.SelfTest.Interval	Self-test Interval (enum)	1=Never, 2=Every Week, 3=Every 2 Weeks, 4=Every 4 Weeks, 5=Every 8 Weeks, 6=Every 12 Weeks, 7=Every 26 Weeks, 8=Every 52 Weeks	RO
3005	Battery.SelfTest.Status	Test Status (enum)	1=Pending, 2=In Progress, 3=Passed, 4=Failed, 5=Refused, 6=Aborted, 7=Protocol	RO
3006	Battery.SelfTest.Result	Battery Health Test Result (enum)	1=Unknown, 2=Battery OK, 3=Battery Capacity Reduced, 4=Battery Defect	RO
5000	General.NominalOutputVoltage	Nominal Output Voltage(ENUM)	1=100 V, 2=120 V, 3=200 V, 4=208 V, 5=220 V, 6=230 V, 7=240 V, 8=220/380 V, 9=230/400 V, 10=240/415 V, 11=277/480 V, 12=110 V, 13=127 V, 14=120-208 240 V, 15=120-208 V, 16=120-240 V, 17=100-200 V, 18=254/440 V	RO
5001	General.SingleDual_Mains	Single/Dual Mains(ENUM)	1=Single, 2=Dual	RO

Instance	BACnet Name	Description	Options	Access
5002	General.UPSOperationalState	UPS Operation State	1=Unknown, 2=Frc. Static Bypass, 3=Req. Static Bypass, 4=Maint. Bypass, 5=Emer. Static Bypass, 6=Static Byp. Stndby, 7=Invert. Stndby, 8=Pwr Saving, 9=Inverter SPoT, 10=On Line, 11=Off, 12=On Battery, 13=Battery Test, 14=ECO Mode, 15=ECOnversion, 16=Charger SPoT, 17=Batt. Dischg SPoT, 18=Self Test	RO
5003	General.SystemOperationMode	System Operation Mode(ENUM)	1=Change-Not Used, 2=Inverter, 3=Requested Static Bypass, 4=Forced Static Bypass, 5=Off, 6=Inquiring-Not Used, 7=Maintenance Bypass, 8=ECO Mode, 9=ECOnversion, 10=Static Bypass Standby	RO
5004	General.PowerCabinetRedundancySetting	Power Cabinet Redundancy Setting enum	1=N+0, 2=N+1	RO
5005	General.MaintenanceBypassBreakerClosed	Maintenance Bypass Breaker Closed	1=Open, 2=Closed	RO
5006	General.FrequencySlewRateSetting	Frequency Slew Rate Setting(ENUM)	1=0.25 Hz/s, 2=0.5 Hz/s, 3=1 Hz/s, 4=2 Hz/s, 5=4 Hz/s, 6=6 Hz/s	RO
6000	NMC.Probe.Type_1	NMC Probe-Type 1	1=Unknown, 2=Temperature, 3=Temperature And Humidity, 4=Dry Contact	RO
6001	NMC.Probe.Type_2	NMC Probe-Type 2	1=Unknown, 2=Temperature, 3=Temperature And Humidity, 4=Dry Contact	RO
7000	Parallel.UPS.Number	Parallel UPS Unique Number ENUM	1=1, 2=2, 3=3, 4=4, 5=5	RO
7001	Parallel.Redundancy.Settings	Parallel Redundancy Setting ENUM	1=N+0, 2=N+1, 3=N+2, 4=N+3, 5=N+4	RO

Character String Value Objects

Character string value objects provide information on UPS data properties that return character strings via the BACnet protocol:

- Access values - **RO** is Read Only, **RW** is Read/Write.
- Maximum Characters – the maximum number of characters that can be returned for a UPS property.

Instance	BACnet Name	Description	Maximum Characters	Access
5000	General.UPS.FWVersion	UPS Firmware Version	24	RO
5001	General.UPS.SerialNumber	UPS Serial Number	12	RO
5002	General.UPS.ModelName	UPS SKU number	24	RO
6000	NMC.FW_Version	NMC Local FW Version	32	RO
6001	NMC.HW_Version	NMC Local HW Version	20	RO
6002	NMC.Serial_Number	NMC Local Serial Number	20	RO
6003	NMC.ModelName	NMC Local Model Number	32	RO
8000	Display.HWVersion	Display Hardware Version	50	RO
8001	Display.FWVersion	Display Firmware Version	50	RO
8002	Display.SKU	Display SKU	50	RO
8003	Display.SerialNumber	Display Serial Number	50	RO

Notification Class Object

When UPS event alarms specified in the Binary Value Objects table occur, a notification is sent to the recipients in the notification class defined in the Notification Class Object.

Instance	BACnet Name	Description	Access
0	DefaultNotifier	Default Notification Class	RW

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