

BACNET OBJECT LIST

1.1. Object Types Supported

Abbreviation	Object Type
AI	Analog Input
AV	Analog Value
BI	Binary Input
BV	Binary Value
MSI	Multi-State Input
MSV	Multi-State Value
DTV	Date/Time Value
CSV	Character String Value
PIV	Positive Integer Value
F	File
SV	Structured View

1.2. Object Organization

Object Types	Instance Range	Object Description
SV	0 - 5	Objects representing a hierarchical view of the device's objects.
F	0 - 20	Objects corresponding to files on the device's filesystem.
AI, AV, BV, MSV, PIV	0 - 65,535	Objects corresponding to the device's Modbus registers (instance = Modbus register offset)
MSI, DTV	70,000 - 79,999	Objects corresponding to the status of the device's networking module
BI, MSI, CSV	80,000 - 89,999	Objects corresponding to the device's settings, settable via the web interface on the System page.

1.3. Object Details

Notes

- R/W: Read/Write Capable
- R: Read Only

Object Type	Object Name	Instance	Units	Unit Value	R/W	Comments
AI	kW_Total	512	kilowatts	48	R	
AI	kVAR_Total	514	kilovolt-amperes	12	R	
AI	kVA_Total	516	kilovolt-amperes-reactive	9	R	
AI	Volts_LN_Avg	518	volts	5	R	
AI	Volts_LL_Avg	520	volts	5	R	
AI	Current_Avg	522	amperes	3	R	
AI	PF_Total	524	power-factor	15	R	
AI	Frequency	526	Hertz	27	R	
AI	Volts_Angle_Avg	528	degrees-angular	90	R	
AI	Quadrant_Total	530	No Units		R	
AI	Volts_AN	544	volts	5	R	
AI	Volts_BN	546	volts	5	R	
AI	Volts_CN	548	volts	5	R	
AI	Volts_AB	550	volts	5	R	
AI	Volts_BC	552	volts	5	R	
AI	Volts_AC	554	volts	5	R	
AI	Current_A	556	amps	3	R	
AI	Current_B	558	amps	3	R	
AI	Current_C	560	amps	3	R	
AI	kW_A	562	kilowatts	48	R	
AI	kW_B	564	kilowatts	48	R	
AI	kW_C	566	kilowatts	48	R	
AI	kVAR_A	568	kilovolt-amperes	12	R	
AI	kVAR_B	570	kilovolt-amperes	12	R	
AI	kVAR_C	572	kilovolt-amperes	12	R	
AI	kVA_A	574	kilovolt-amperes-reactive	9	R	
AI	kVA_B	576	kilovolt-amperes-reactive	9	R	
AI	kVA_C	578	kilovolt-amperes-reactive	9	R	
AI	PF_A	580	power-factor	15	R	
AI	PF_B	582	power-factor	15	R	
AI	PF_C	584	power-factor	15	R	

Object Type	Object Name	Instance	Units	Unit Value	R/W	Comments
AI	Volts_Angle_AB	586	degrees-angular	90	R	
AI	Volts_Angle_BC	588	degrees-angular	90	R	
AI	Volts_Angle_AC	590	degrees-angular	90	R	
AI	Quadrant_A	592	No Units		R	
AI	Quadrant_B	594	No Units		R	
AI	Quadrant_C	596	No Units		R	
AI	kW_Demand	598	kilowatts	48	R	
AI	kWh_Net_Ttl	4352	kilowatt-hours	19	R	
AI	kVAh_Net_Ttl	4354	kilovolt-ampere-hours	240	R	
AI	kWh_Import_Ttl	4356	kilowatt-hours	19	R	
AI	kWh_Export_Ttl	4358	kilowatt-hours	19	R	
AI	kVAh_Import_Ttl	4360	kilovolt-ampere-hours	240	R	
AI	Q1_VARh_Ttl	4362	kilovolt-ampere-hours reactive	243	R	
AI	Q2_VARh_Ttl	4364	kilovolt-ampere-hours reactive	243	R	
AI	Q3_VARh_Ttl	4366	kilovolt-ampere-hours reactive	243	R	
AI	Q4_VARh_Ttl	4368	kilovolt-ampere-hours reactive	243	R	
AI	Q1+Q2_VARh_Ttl	4370	kilovolt-ampere-hours reactive	243	R	
AI	Q3+Q4_VARh_Ttl	4372	kilovolt-ampere-hours reactive	243	R	
AI	kWh_Net_A	4384	kilowatt-hours	19	R	
AI	kWh_Net_B	4386	kilowatt-hours	19	R	
AI	kWh_Net_C	4388	kilowatt-hours	19	R	
AI	kVAh_Net_A	4390	kilovolt-ampere-hours	240	R	
AI	kVAh_Net_B	4392	kilovolt-ampere-hours	240	R	
AI	kVAh_Net_C	4394	kilovolt-ampere-hours	240	R	
AI	kWh_Import_A	4396	kilowatt-hours	19	R	
AI	kWh_Import_B	4398	kilowatt-hours	19	R	
AI	kWh_Import_C	4400	kilowatt-hours	19	R	
AI	kWh_Export_A	4402	kilowatt-hours	19	R	
AI	kWh_Export_B	4404	kilowatt-hours	19	R	
AI	kWh_Export_C	4406	kilowatt-hours	19	R	
AI	kVAh_Import_A	4408	kilowatt-hours	240	R	
AI	kVAh_Import_B	4410	kilowatt-hours	240	R	
AI	kVAh_Import_C	4412	kilowatt-hours	240	R	
AI	kVAh_Export_A	4414	kilowatt-hours	240	R	
AI	kVAh_Export_B	4416	kilowatt-hours	240	R	
AI	kVAh_Export_C	4418	kilowatt-hours	240	R	
AI	kVARh_Q1_A	4420	kilovolt-ampere-hours reactive	243	R	
AI	kVARh_Q1_B	4422	kilovolt-ampere-hours reactive	243	R	
AI	kVARh_Q1_C	4424	kilovolt-ampere-hours reactive	243	R	
AI	kVARh_Q2_A	4426	kilovolt-ampere-hours reactive	243	R	
AI	kVARh_Q2_B	4428	kilovolt-ampere-hours reactive	243	R	
AI	kVARh_Q2_C	4430	kilovolt-ampere-hours reactive	243	R	
AI	kVARh_Q3_A	4432	kilovolt-ampere-hours reactive	243	R	
AI	kVARh_Q3_B	4434	kilovolt-ampere-hours reactive	243	R	
AI	kVARh_Q3_C	4436	kilovolt-ampere-hours reactive	243	R	
AI	kVARh_Q4_A	4438	kilovolt-ampere-hours reactive	243	R	
AI	kVARh_Q4_B	4440	kilovolt-ampere-hours reactive	243	R	
AI	kVARh_Q4_C	4442	kilovolt-ampere-hours reactive	243	R	
AV	CT_Primary_All	1280	No Units		R/W	Setting this value will set the CT (Primary) for all three phases identically
AV	CT_Secondary_All	1281	No Units		R/W	Setting this value will set the CT (Secondary) for all three phases identically
AV	CT_Primary_A	1282	No Units		R/W	CT Ratio (Primary & Secondary) for each phase (A,B,C) may be individually set
AV	CT_Secondary_A	1283	No Units		R/W	
AV	CT_Primary_B	1284	No Units		R/W	
AV	CT_Secondary_B	1285	No Units		R/W	
AV	CT_Primary_C	1286	No Units		R/W	
AV	CT_Secondary_C	1287	No Units		R/W	
AV	PT_Primary_All	1288	No Units		R/W	Setting this value will set the PT (Primary) for all three phases identically
AV	PT_Secondary_All	1289	No Units		R/W	Setting this value will set the PT (Secondary) for all three phases identically
AV	PT_Primary_A	1290	No Units		R/W	PT Ratio (Primary & Secondary) for

Object Type	Object Name	Instance	Units	Unit Value	R/W	Comments
AV	PT_Secondary_A	1291	No Units		R/W	each phase (A,B,C) may be individually set
AV	PT_Primary_B	1292	No Units		R/W	
AV	PT_Secondary_B	1293	No Units		R/W	
AV	PT_Primary_C	1294	No Units		R/W	
AV	PT_Secondary_C	1295	No Units		R/W	
AV	Reset_Energy	1316	No Units		R/W	Write 0xA5A5 (42405) to reset the accumulated energy to 0
AV	Phase_Comp_All	1322	No Units		R/W	Phase compensation (set equally for all phases)
AV	Phase_Comp_A	1323	No Units		R/W	Phase compensation for each phase may be individually set
AV	Phase_Comp_B	1324	No Units		R/W	
AV	Phase_Comp_C	1325	No Units		R/W	
AV	Integer_Divider	1326	No Units		R/W	
AV	Window_Length	1327	No Units		R/W	The length in seconds of a sub-interval for sliding window power
AV	Window_Count	1328	No Units		R/W	The number of sub-intervals for sliding window power
AV	Window_Sync	1329	No Units		R/W	Resets the timer of the sliding window power calculation
AV	Reboot_Device	1545	No Units		R/W	Write 0xAA55 (43605) to reboot the device. Always reads "0"
AI	Serial_Number	1309	No Units		R	Factory programmed Serial Number of the device
AI	Debug_Register	1299	No Units		R	Always returns 1234.567. Useful for verifying proper communications with the device
AI	Hardware_Ver	1311	No Units		R	Device Hardware Version
AI	Firmware_Ver	1312	No Units		R	Device Firmware Version
AI	Bootloader_Ver	1313	No Units		R	Device Bootloader Version
AI	Input_Config		No Units		R	"1" for mA CTs, "2" for mV CTs, "3" for 5A CTs, "4" for Rogowski Coil, "0" for Custom Setup
AV	K1_Reg_Offset	2304	No Units		R/W	Offset Register for K1 Relay
AV	K1_Upper_Bound	2306	No Units		R/W	Upper Bound for K1 Relay
AV	K1_Lower_Bound	2308	No Units		R/W	Lower Bound for K1 Relay
AV	K1_Min_Duration	2310	No Units		R/W	Minimum Duration for K1 Relay
AV	K2_Reg_Offset	2314	No Units		R/W	Offset Register for K2 Relay
AV	K2_Upper_Bound	2316	No Units		R/W	Upper Bound for K2 Relay
AV	K2_Lower_Bound	2318	No Units		R/W	Lower Bound for K2 Relay
AV	K2_Min_Duration	2320	No Units		R/W	Minimum Duration for K2 Relay
PIV	Passcode	1319	No Units		R/W	Used for entering a passcode when locking or unlocking the device.
BV	Lock	1321	No Units		R/W	"0" indicates unlocked. "1" indicates locked. With a passcode entered above, write "0" to unlock, "1" to lock, or "2" to change passcode.
BV	Freq_Auto	1330	No Units		R/W	Auto-select a valid voltage channel for frequency measurements
MSV	Freq_Channel	1331	No Units		R/W	Voltage channel used to measure frequency. 0, 1, 2, for A, B, C
MSV	PF_Sign_Mode	1318	No Units		R/W	Indicates how the sign of the power factor is calculated
MSV	K1_Trigger_Type	2305	No Units		R/W	Trigger type for K1 Relay
MSV	K1_Active_Mode	2311	No Units		R/W	Output Mode for K2 Relay
MSV	K2_Trigger_Type	2315	No Units		R/W	Trigger type for K2 Relay
MSV	K2_Active_Mode	2321	No Units		R/W	Output Mode for K2 Relay
F	/spiffs/template.json	10	—	—	R	File object representing the posting template file
SV	Metering	0	—	—	R	Metering module-related objects
SV	Networking	1	—	—	R	Networking module-related objects
SV	Instantaneous	2	—	—	R	Power, voltage, current, etc.
SV	Accumulated	3	—	—	R	Active, reactive, apparent energy, etc.
SV	Configuration	4	—	—	R	Settings for the metering module
SV	Filesystem	5	—	—	R	The files stored on the filesystem

Object Type	Object Name	Instance	Units	Unit Value	R/W	Comments
MSI	active_connection	70000	—	—	R	Currently active network connection. 1 = Ethernet, 2 = Wi-Fi, 3 = Wi-Fi Access Point
CS	active_ip	70000	—	—	R	Currently active IP address
CS	active_nm	70001	—	—	R	Currently active network mask
CS	active_gw	70002	—	—	R	Currently active default gateway
CS	active_dns0	70003	—	—	R	Currently active DNS server (primary)
CS	active_dns1	70004	—	—	R	Currently active DNS server (backup)
CS	eth_mac	70005	—	—	R	Ethernet MAC address/Cloud ID
CS	wifi_mac	70006	—	—	R	Wi-Fi MAC address
DTV	utc_datetime	70000	—	—	R	Current date/time, as determined by NTP or by battery backup (certain models only).
CSV	Net/mbtcp_port	80009	—	—	R	Port # for the Modbus TCP server
CSV	Net/http_port	80010	—	—	R	Port # for the HTTP server
CSV	Net/api_udp_port	80013	—	—	R	Port # for the UDP API
BI	Net/post_en	80015	—	—	R	Posting enabled. Valid range: 0 to 1.
CSV	Net/post_seconds	80016	—	—	R	Posting interval, in seconds. Valid range: 1 to 999999999.
BI	Net/post_auth_en	80017	—	—	R	Posting authorization enabled. Valid range: 0 to 1.
CSV	Net/post_timeout_s	80018	—	—	R	Amount of time to wait for a response to a web post before giving up. Valid range: 1 to 1000000.
BI	Net/post_buf_en	80019	—	—	R	Post buffering enabled. Valid range: 0 to 1.
CSV	Net/post_buf_limit	80020	—	—	R	Percentage of the flash to use as buffer space. Valid range: 1 to 100.
BI	Net/ntp_en	80021	—	—	R	Network Time Protocol enabled. Valid range: 0 to 1.
CSV	Net/ntp_listen_port	80022	—	—	R	Port to listen on for NTP
CSV	Net/ntp_port_0	80023	—	—	R	Port of the primary NTP server
CSV	Net/ntp_port_1	80024	—	—	R	Port of the secondary NTP server
CSV	Net/ntp_port_2	80025	—	—	R	Port of the tertiary NTP server
CSV	Net/ntp_rate_m	80026	—	—	R	Frequency to update NTP time. Valid range: 30 to 65535.
CSV	Net/ntp_timeout_ms	80027	—	—	R	Amount of time to wait for an NTP response before giving up. Valid range: 10 to 65535.
CSV	Net/ntp_retry_ms	80028	—	—	R	Amount of time to wait before retrying an NTP request. Valid range: 10 to 65535.
CSV	Net/eth_static_ip	80029	—	—	R	Statically assigned Ethernet IP
CSV	Net/eth_static_nm	80030	—	—	R	Statically assigned Ethernet network mask
CSV	Net/eth_static_gw	80031	—	—	R	Statically assigned Ethernet default gateway
CSV	Net/eth_static_dn0	80032	—	—	R	Statically assigned Ethernet DNS server (primary)
CSV	Net/eth_static_dn1	80033	—	—	R	Statically assigned Ethernet DNS server (backup)
CSV	Net/wifi_static_ip	80034	—	—	R	Statically assigned Wi-Fi IP
CSV	Net/wifi_static_nm	80035	—	—	R	Statically assigned Wi-Fi network mask
CSV	Net/wifi_static_gw	80036	—	—	R	Statically assigned Wi-Fi default gateway
CSV	Net/wifi_static_dn0	80037	—	—	R	Statically assigned Wi-Fi DNS server (primary)
CSV	Net/wifi_static_dn1	80038	—	—	R	Statically assigned Wi-Fi DNS server (backup)
CSV	Net/http_sto_ms	80040	—	—	R	HTTP send timeout (ms). Valid range: 1 to 1000000.
CSV	Net/http_rto_ms	80041	—	—	R	HTTP receive timeout (ms). Valid range: 1 to 1000000.

Object Type	Object Name	Instance	Units	Unit Value	R/W	Comments
CSV	Net/auto_reboot_s	80042	—	—	R	Time, in seconds, after which the device automatically reboot. 0 indicates that this feature is disabled.
CSV	Net/reconnect_s	80043	—	—	R	If no network connection is obtained after this time (s), reboot the device. Valid range: 1 to 1000000.
CSV	Net/wifi_chan_start	80048	—	—	R	First valid Wi-Fi channel. Configure according to regional laws. Valid range: 1 to 14.
CSV	Net/wifi_chan_count	80049	—	—	R	Number of Wi-Fi channels to use. Configure according to regional laws. Valid range: 1 to 14.
CSV	Net/wifi_max_tx_pwr	80050	—	—	R	Wi-Fi transmit power, as a percentage of maximum. Valid range: 1 to 100.
CSV	Net/bac_port	80070	—	—	R	Port # of the BACnet server
CSV	Net/bac_instance	80071	—	—	R	Instance # of the BACnet device object. -1 indicates that it will be automatically generated from the MAC.
BI	Net/mbtcp_en	80073	—	—	R	Modbus TCP server enabled. Valid range: 0 to 1.
CSV	Net/bac_apdu_max	80074	—	—	R	MAX APDU size of BACnet packets.
CSV	Net/bac_frqn_reg_ip	80075	—	—	R	IP address of BBMD to register with. All zeroes indicates not to register.
CSV	Net/bac_frqn_reg_s	80076	—	—	R	TTL of BACnet BBMD registration. Valid range: 30 to 65535.
BI	Net/bac_segment_en	80077	—	—	R	BACnet segmentation enabled. Valid range: 0 to 1.
CSV	Net/bac_seg_to_ms	80078	—	—	R	BACnet segmentation timeout (ms). Valid range: 10 to 60000.
BI	Net/mqtt_retain_en	80079	—	—	R	Use MQTT Retain flag. Valid range: 0 to 1.
CSV	Net/mqtt_max_flying	80080	—	—	R	Number of MQTT packets to send before waiting for an acknowledgement.
CSV	Net/mqtt_version_id	80081	—	—	R	MQTT protocol version code to use. Valid values are 4 for MQTT v3.1.1, or 5 for MQTT v5.
BI	Net/mqtt_no_cid_en	80082	—	—	R	Allow an empty Client ID; supporting servers can assign one to the device (MQTT v5). Valid range: 0 to 1.
BI	Net/mqtt_en	80083	—	—	R	MQTT Enabled. Valid range: 0 to 1.
BI	Net/mqtt_persist_en	80084	—	—	R	MQTT persistent connections. Posting intervals < 300 seconds will re-use the same TCP connection if possible. Valid range: 0 to 1.
BI	Net/mqtt_aliases_en	80085	—	—	R	MQTT aliases enabled (MQTT v5) for saving bandwidth. Valid range: 0 to 1.
MSI	Net/eth_mode	80202	—	—	R	Ethernet mode. 0 = static, 1 = DHCP.
MSI	Net/wifi_mode	80203	—	—	R	Wi-Fi mode. 0 = static, 1 = DHCP.
CSV	Net/name	80250	—	—	R	Device friendly name. Max length: 32 characters
CSV	Net/wifi_ssid	80251	—	—	R	Wi-Fi SSID. Max length: 33 characters
CSV	Net/post_url	80254	—	—	R	Posting URL. Max length: 256 characters
CSV	Net/post_auth_user	80255	—	—	R	Posting authorization username, used for HTTP and MQTT. Max length: 32 characters
CSV	Net/ntp_server_0	80257	—	—	R	Primary NTP server URL. Max length: 64 characters
CSV	Net/ntp_server_1	80258	—	—	R	Secondary NTP server URL. Max length: 64 characters
CSV	Net/ntp_server_2	80259	—	—	R	Tertiary NTP server URL. Max length: 64 characters
CSV	Net/post_file_0	80260	—	—	R	Filename of template used to generate first post. Max length: 64 characters

Object Type	Object Name	Instance	Units	Unit Value	R/W	Comments
CSV	Net/post_file_1	80261	—	—	R	Filename of template used to generate first post. Max length: 64 characters
CSV	Net/post_file_2	80262	—	—	R	Filename of template used to generate first post. Max length: 64 characters
CSV	Net/post_file_3	80263	—	—	R	Filename of template used to generate first post. Max length: 64 characters
CSV	Net/post_file_4	80264	—	—	R	Filename of template used to generate first post. Max length: 64 characters
CSV	Net/post_method	80270	—	—	R	HTTP verb to use when posting (GET, PUT, POST, etc.) Max length: 32 characters
CSV	Net/post_headers	80271	—	—	R	Additional headers to include in HTTP post. Each line must be terminated with \r\n. Max length: 256 characters
CSV	Net/post_ct	80272	—	—	R	Content Type of HTTP posts. Max length: 32 characters
CSV	Net/http_headers	80273	—	—	R	Additional headers to use for HTTP server responses. Each line must be terminated with \r\n. Max length: 256 characters
CSV	Net/wifi_country	80279	—	—	R	Country code for Wi-Fi. WW indicates non-specific country (worldwide). Max length: 3 characters
CSV	Net/post_addr_0	80350	—	—	R	URL of the first web post. Max length: 32 characters
CSV	Net/post_addr_1	80351	—	—	R	URL of the first web post. Max length: 32 characters
CSV	Net/post_addr_2	80352	—	—	R	URL of the first web post. Max length: 32 characters
CSV	Net/post_addr_3	80353	—	—	R	URL of the first web post. Max length: 32 characters
CSV	Net/post_addr_4	80354	—	—	R	URL of the first web post. Max length: 32 characters