# Building Management Integration Card (AP9622)
Register Descriptions—Addendum

This addendum lists the UPS register reads available to your building management system through the Building Management Integration (BMI) card. It includes both analog and discrete status descriptions that are organized by UPS family. For more information about the BMI card, see the Building Management Integration Card *Installation and Operation* manual (990-7410B).
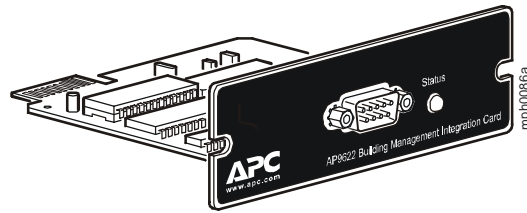
! **Note** The AIS5000 uses the Silcon® register map. The Smart-UPS® VT and the AIS3000 use the Symmetra® register map.

Smart-UPS and Matrix-UPS® Series

Register Addresses, Bits, or Descriptions may not be applicable to all models of Smart-UPS or Matrix-UPS series.

Address (Hex)	Bit	Description
0000	15–8	Reserved
	7	UPS ready to provide power to the load upon return of normal line voltage or upon user command
	6	UPS ready to power load upon user command
	5	UPS in bypass mode as a result of manual bypass control
	4	UPS returning from bypass
	3	UPS in bypass due to command
	2	UPS going to bypass due to command
	1	UPS in bypass due to an internal fault indicated through register 0002 or 0003
	0	UPS turning on
0001	15–8	Reserved
	7	UPS fault—internal temperature exceeded nominal limits
	6	Bypass relay malfunction
	5	Battery charger failure
	4	UPS in shutdown mode
	3	UPS in sleep mode
	2	Main relay malfunction
	1	UPS unable to transfer to on-battery operation due to overload
	0	UPS output not receiving power due to low-battery shutdown
0002	15–8	Reserved
	7	Inverter fault
	6	AVR Boost or trim relay fault
	5	UPS commanded out of bypass with no batteries attached—UPS in bypass
	4	UPS fault—UPS in bypass
	3	Output voltage selection failure—UPS in bypass
	2	Bypass supply failure
	1	Isolation unit fan failure
	0	Electronics unit fan failure
0003	15–8	Reserved
	7	Replace battery
	6	Low battery
	5	Overload
	4	On battery
	3	On Line
	2	AVR boost
	1	AVR trim
	0	Performing battery calibration discharge

Address (Hex)	Description	Unit
0004	Line Quality 00FF=acceptable utility line quality 0000=unacceptable utility line quality	—
0005	% Battery Capacity (0–100) Remaining battery capacity as a percent of the fully charged condition.	%
0006	Runtime remaining	minutes
0007	Battery voltage Present UPS battery voltage	V
0008	UPS internal temperature (0–209) 00XX=valid reading FFXX=invalid reading XX=sensor reading	°C
0009	Amps drawn by load	A
000A	Number of battery packs with bad batteries	each
000B	Number of battery packs	each
000C	UPS output load as a percentage of full rated load in Watts	%
000D	Nominal output voltage	V
000E	Actual output voltage	V
000F	Maximum input voltage since last reading	V
0010	Minimum input voltage since last reading	V
0011	Input voltage	V
0012	Input frequency	Hz
0013	Environmental Management Card temperature reading (Sensor 1)	°C
0014	Environmental Management Card humidity reading (Sensor 1)	%RH
0015	Environmental Management Card temperature reading (Sensor 2)	°C
0016	Environmental Management Card humidity reading (Sensor 2)	%RH
0017	Environmental Management Card contact position	—
0018–0019	Reserved	—
001A	Minimum return battery capacity	%
001B	Lower transfer point	V
001C	Upper transfer point	V
001D	Nominal output voltage	V
001E	Shutdown delay	seconds
001F	Low battery duration	minutes
0020	Turn-on delay	seconds
0021	Sensitivity	—
0022	UPS ID character #1	—
0023	UPS ID character #2	—
0024	UPS ID character #3	—
0025	UPS ID character #4	—
0026	UPS ID character #5	—
0027	UPS ID character #6	—
0028	UPS ID character #7	—
0029	UPS ID character #8	—
002A–004F	Reserved	—
0050-FFFF	Invalid address	—

Silcon Series UPS

Address (Hex)	Bit	Description
0000	15–8	Reserved
	7	UPS ready to power load upon return of normal line or upon user command
	6	UPS ready to power load upon user command
	5	UPS in bypass mode as a result of manual bypass control
	4–2	Reserved
	1	UPS in bypass due to an internal fault indicated through register 0002 or 0003
	0	Reserved
0001	15–8	Reserved
	7	UPS fault—internal temperature exceeded nominal limits
	6–2	Reserved
	1	UPS unable to transfer to on-battery operation due to overload
	0	UPS output not powered due to low-battery shutdown
0002	15–5	Reserved
	4	UPS fault—UPS in bypass
	3–0	Reserved
0003	15–8	Reserved
	7	Replace battery
	6	Low battery
	5	Overload
	4	On battery
	3	On Line
	2–0	Reserved
0004	15–10	Reserved
	9	Fault found in register 0006, 0007, 0008, or 0009
	8	Battery voltage high
	7	No batteries
	6	System not synchronized
	5	Output voltage out of range
	4–0	Reserved

Address (Hex)	Bit	Description
0005	15–12	Reserved
	11	UPS in bypass due to overload
	10-8	Reserved
	7	Bypass not in range (frequency or voltage)
	6–4	Reserved
	3	An installed battery has failed
	2–0	Reserved
0006	15–13	Reserved
	12	Advanced Battery Management not installed
	11	Reserved
	10	Low current failure in AC capacitors
	9	Reserved
	8	Static switch temperature greater than 90°C
	7	High output voltage
	6	Charger 0/30 temperature shutdown
	5	Charger 0/30 temperature warning
	4	Transistorized switching module 1/2/3 temperature shutdown
	3–1	Reserved
	0	Battery monitor alarm
0007	15	Battery monitor warning
	14	Reserved
	13	High temperature charger magnetic
	12–3	Reserved
	2	Auxiliary 1 error
	1	Rectifier fuse blown
	0	Inverter fuse blown
0008	15	Reserved
	14	System integration interface auxiliary input activated
	13	Charge error
	12	Bypass synchronization error
	11	Communications to voltage quality detector mains lost
	10	DC capacitor charge error
	9	External shutdown accepted

Address (Hex)	Bit	Description
0008, continued	8	Communications to parallel interface lost
	7	Communications to controller lost
	6	Communications to display measuring unit lost
	5	Communications to voltage quality detector output lost
	4	Communications to voltage quality detector bypass lost
	3	Memory write error
	2	RAM 1 memory write error
	1	System is locked in operational mode
	0	Reserved
0009	15	Weak battery
	14	High battery temperature
	13	High temperature bypass static switch
	12–9	Reserved
	8	Internal power supply fault
	7	Second power supply fault
	6	Parallel synchronization error
	5	Inverter voltage error
	4	High DC voltage warning
	3	Fan fault
	2	Delta current limiter active
	1	Bypass power supply fault
	0	Peak current limiter active
000A–000F		Reserved

Address (Hex)	Description	Unit
0010	Line quality 00FF=acceptable utility line quality 0000=unacceptable utility line quality	—
0011	% Battery capacity Remaining battery capacity as a percent of the fully charged condition (0–100)	%
0012	Runtime remaining	minutes
0013	Scaled battery voltage (Actual UPS battery voltage times 48 divided by Nominal battery voltage)	V
0014	UPS internal temperature (0–209) 00XX= valid reading FFXX=invalid reading XX=sensor reading	°C
0015	Nominal battery voltage	V
0016	Actual battery voltage	V

Address (Hex)	Description	Unit
0017	Battery current	A
0018	Utility output frequency	Hz
0019	Utility input voltage phase A	V
001A	Utility input voltage phase B	V
001B	Utility input voltage phase C	V
001C	Utility input current phase A	A
001D	Utility input current phase B	A
001E	Utility input current phase C	A
001F	Bypass input voltage phase A	V
0020	Bypass input voltage phase B	V
0021	Bypass input voltage phase C	V
0022	Percent of maximum output VA phase A @ n + 0	%
0023	Percent of maximum output VA phase B @ n + 0	%
0024	Percent of maximum output VA phase C @ n + 0	%
0025	Percent of maximum output VA phase A @ n + x	%
0026	Percent of maximum output VA phase B @ n + x	%
0027	Percent of maximum output VA phase C @ n + x	%
0028	Phase A output	kVA
0029	Phase B output	kVA
002A	Phase C output	kVA
002B–002F	Reserved	
0030	Reserved	
0031	Output voltage phase A	V
0032	Output voltage phase B	V
0033	Output voltage phase C	V
0034	Output current phase A	A
0035	Output current phase B	A

Address (Hex)	Description	Unit
0036	Output current phase C	A
0037	Peak output current phase A	A
0038	Peak output current phase B	A
0039	Peak output current phase C	A
003A	Environmental Monitoring Card temperature reading (Sensor 1)	°C
003B	Environmental Monitoring Card humidity reading (Sensor 1)	%RH
003C	Environmental Monitoring Card temperature reading (Sensor 2)	°C
003D	Environmental Monitoring Card humidity reading (Sensor 2)	%RH
003E	Environmental Monitoring Card contact position	—
003F	Minimum return battery capacity	%
0040	Lower transfer point	V
0041	Upper transfer point	V
0042	Nominal output voltage	V
0043	Shutdown delay	seconds
0044	Low battery duration	minutes
0045	Turn-on delay	seconds
0046	Sensitivity	—
0047	UPS ID character #1	—
0048	UPS ID character #2	—
0049	UPS ID character #3	—
004A	UPS ID character #4	—
004B	UPS ID character #5	—
004C	UPS ID character #6	—
004D	UPS ID character #7	—
004E	UPS ID character #8	—
004F	Reserved	
0050–FFFF	Invalid address	

Symmetra Series UPS

Register Addresses, Bits, or Descriptions may not be applicable to all models of the Symmetra UPS.

Address (Hex)	Bit	Description
0000	15–8	Reserved
	7	UPS ready to provide power to the load upon return of normal line voltage or upon user command
	6	UPS ready to provide power to the load upon user command
	5	UPS in bypass mode as a result of manual bypass control
	4	UPS returning from bypass
	3	UPS in bypass due to command
	2	UPS going to bypass due to command
	1	UPS in bypass due to an internal fault indicated through register 0002 or 0003
	0	UPS turning on
0001	15–8	Reserved
	7	UPS fault—internal temperature exceeded nominal limits
	6	Bypass relay malfunction
	5	Battery charger failure
	4	UPS in shutdown mode
	3	UPS in sleep mode
	2	Main relay malfunction
	1	UPS unable to transfer to on-battery operation due to overload
	0	UPS output not receiving power due to low-battery shutdown
0002	15–6	Reserved
	5	UPS commanded out of bypass with no batteries attached—UPS in bypass.
	4	UPS fault—UPS in bypass
	3	Output voltage select failure—UPS in bypass
	2	Reserved
	1	Isolation unit fan failure
	0	Electronics unit fan failure

Address (Hex)	Bit	Description
0003	15–8	Reserved
	7	Replace battery
	6	Low battery
	5	Overload
	4	On battery
	3	On-line
	2	AVR boost
	1	AVR trim
	0	Performing battery calibration discharge
0004	15–12	Reserved
	11	Backfeed relay open (fault)
	10	Site wiring fault
	9	Fault found in register 0033, 0034, 0035, or 0036
	8	Battery voltage high
	7	No batteries
	6	System not synchronized
	5	Output voltage out of range
	4	XR frame fault
	3	Runtime below alarm threshold
	2	Load shutdown from bypass—Input frequency or voltage outside limits
	1	No functional modules present
	0	Internal communication failure
0005	15	Redundant intelligence module is in control
	14	System level fan failed
	13	Input circuit breaker tripped open
	12	System is in maintenance bypass
	11	UPS in bypass due to overload
	10	UPS in bypass due to internal fault
	9	Bypass contactor stuck in online position.
	8	Bypass contactor stuck in bypass position.

Address (Hex)	Bit	Description
0005, continued	7	Bypass not in range (frequency or voltage)
	6	Redundancy below threshold
	5	Loss of redundancy
	4	Load is above alarm threshold
	3	An installed battery has failed
	2	Redundant intelligence module is installed and failed
	1	Main intelligence module is installed and failed
	0	An installed Power Module has failed

Address (Hex)	Description	Unit
0006	Line Quality 00FF=acceptable utility line quality 0000=unacceptable utility line quality	—
0007	% Battery Capacity Remaining battery capacity as a percent of the fully charged condition (0-100)	%
0008	Runtime remaining	minutes
0009	Battery voltage Present UPS battery voltage	V
000A	UPS internal temperature (0-209) 00XX=valid reading FFXX=invalid reading XX=sensor reading	°C
000B	Amps drawn by load	A
000C	Number of battery packs with bad batteries	each
000D	Number of battery packs	each
000E	UPS output load as a percentage of full rated load in Watts	%
000F	Maximum input voltage since last reading	V
0010	Minimum input voltage since last reading	V
0011	Nominal battery voltage	V
0012	Actual battery voltage	V
0013	Utility input frequency	Hz
0014	Phase A utility input voltage	V
0015	Phase A utility input current	A
0016	Phase A bypass input voltage	V
0017	Phase A percent of maximum output VA @ n + 0	%
0018	Phase A percent of maximum output VA @ n + x	%
0019	Phase A output	kVA

Address (Hex)	Description	Unit
001A	Phase A output voltage	V
001B	Phase A output current	A
001C–002E	Specific to Symmetra PX*	—
002F	Environmental Monitoring Card temperature reading (Sensor 1)	°C
0030	Environmental Monitoring Card humidity reading (Sensor 1)	%RH
0031	Environmental Monitoring Card temperature reading (Sensor 2)	°C
0032	Environmental Monitoring Card humidity reading (Sensor 2)	%RH
0033–0034	Reserved	—
0035–0036	Specific to Symmetra PX*	—
0037	Environmental Monitoring Card contact position	—
0038	Minimum return battery capacity	%
0039	Lower transfer point	V
003A	Upper transfer point	V
003B	Nominal output voltage	V
003C	Shutdown delay	seconds
003D	Low battery duration	minutes
003E	Turn on delay	seconds
003F	Sensitivity	—
0040	UPS ID character #1	—
0041	UPS ID character #2	—
0042	UPS ID character #3	—
0043	UPS ID character #4	—
0044	UPS ID character #5	—
0045	UPS ID character #6	—
0046	UPS ID character #7	—
0047	UPS ID character #8	—
0048	Battery current	A
0049-004F	Reserved	—
0050-FFFF	Invalid Address	—

*For register descriptions specific to the Symmetra PX UPS, see the table on the back of this page.

Register descriptions specific to Symmetra PX UPS

Address (Hex)	Description	Unit
001C	Phase A peak output current	A
001D	Phase B utility input voltage	V
001E	Phase B utility input current	A
001F	Phase B bypass input voltage	V
0020	Phase B percent of maximum output VA @ n + 0	%
0021	Phase B percent of maximum output VA @ n + x	%
0022	Phase B output	kVA
0023	Phase B output voltage	V
0024	Phase B output current	A
0025	Phase B peak output current	A
0026	Phase C utility input voltage	V
0027	Phase C utility input current	A
0028	Phase C bypass input voltage	V
0029	Phase C percent of maximum output VA @ n + 0	%
002A	Phase C percent of maximum output VA @ n + x	%
002B	Phase C output	kVA
002C	Phase C output voltage	V
002D	Phase C output current	A
002E	Phase C peak output current	A

Address (Hex)	Bit	Description
0035	15–2	Reserved
	1	Battery charger shut down externally
	0	System startup configuration failed
0036	15	Static bypass switch module removed
	14	UPS in forced bypass state
	13	System ID card failed
	12	System ID card removed
	11	Static bypass switch module fault
	10	Internal DC disconnect switch tripped
	9	Switch gear communication card removed
	8	Switch gear communication card failure
	7	XR Communication card removed
	6	XR Communication card failure
	5	Battery monitor card removed
	4	Battery monitor card failure
	3	System power supply card failure
	2	External DC disconnect switch tripped
	1	Isolation transformer over temperature
	0	Maintenance bypass failure

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