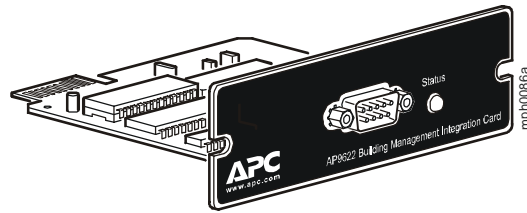


Building Management Integration Card (AP9622) Register Descriptions—Addendum

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).



The AIS5000 uses the Silcon[®] register map. The Smart-UPS[®] VT and the AIS3000 use the Symmetra[®] register map.

Note

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	Address (Hex)	Bit	Description	Address (Hex)	Bit	Description	Address (Hex)	Description	Unit	Address (Hex)	Description	Unit				
0000	15–8	Reserved	0005	15–12	Reserved	0008, continued	8	Communications to parallel interface lost	0017	Battery current	A	0036	Output current phase C	A				
	7	UPS ready to power load upon return of normal line or upon user command		11	UPS in bypass due to overload		7	Communications to controller lost	0018	Utility output frequency	Hz	0037	Peak output current phase A	A	0038	Peak output current phase B	A	
	6	UPS ready to power load upon user command		10–8	Reserved		6	Communications to display measuring unit lost	0019	Utility input voltage phase A	V	001A	Utility input voltage phase B	V	0039	Peak output current phase C	A	
	5	UPS in bypass mode as a result of manual bypass control		7	Bypass not in range (frequency or voltage)		5	Communications to voltage quality detector output lost	001B	Utility input voltage phase C	V	003A	Environmental Monitoring Card temperature reading (Sensor 1)	°C	001C	Utility input current phase A	A	
	4–2	Reserved		6–4	Reserved		4	Communications to voltage quality detector bypass lost	001D	Utility input current phase B	A	003B	Environmental Monitoring Card humidity reading (Sensor 1)	%RH	001E	Utility input current phase C	A	
	1	UPS in bypass due to an internal fault indicated through register 0002 or 0003		3	An installed battery has failed		3	Memory write error	001F	Bypass input voltage phase A	V	003C	Environmental Monitoring Card temperature reading (Sensor 2)	°C	0020	Bypass input voltage phase B	V	
	0	Reserved		2–0	Reserved		2	RAM 1 memory write error	0021	Bypass input voltage phase C	V	003D	Environmental Monitoring Card humidity reading (Sensor 2)	%RH	0022	Percent of maximum output VA phase A @ n + 0	%	
0001	15–8	Reserved	0006	15–13	Reserved		0009	1	System is locked in operational mode	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	%
	7	UPS fault—internal temperature exceeded nominal limits		12	Advanced Battery Management not installed			0	Reserved	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
	6–2	Reserved		11	Reserved			15	Weak battery	0029	Phase B output	kVA	002A	Phase C output	kVA	002B–002F	Reserved	
	1	UPS unable to transfer to on-battery operation due to overload		10	Low current failure in AC capacitors	14		High battery temperature	8	Internal power supply fault	0030	Reserved	0031	Output voltage phase A	V	0032	Output voltage phase B	V
0	UPS output not powered due to low-battery shutdown	9		Reserved	13	High temperature bypass static switch		7	Second power supply fault	0033	Output voltage phase C	V	0034	Output current phase A	A	0035	Output current phase B	A
0002	15–5	Reserved		8	Static switch temperature greater than 90°C	12–9		Reserved	6	Parallel synchronization error	0036	Output current phase A	A					
	4	UPS fault—UPS in bypass		7	High output voltage	8		Internal power supply fault	5	Inverter voltage error								
	3–0	Reserved		6	Charger 0/30 temperature shutdown	7		Second power supply fault	4	High DC voltage warning								
0003	15–8	Reserved		5	Charger 0/30 temperature warning	000A–000F		Reserved	3	Fan fault								
	7	Replace battery		4	Transistorized switching module 1/2/3 temperature shutdown			15	Reserved	2	Delta current limiter active							
	6	Low battery	3–1	Reserved	14		Reserved	1	Bypass power supply fault									
	5	Overload	0	Battery monitor alarm	13		High temperature charger magnetic	0	Peak current limiter active									
	4	On battery	0007	15	Battery monitor warning		12–3	Reserved										
	3	On Line		14	Reserved		2	Auxiliary 1 error										
	2–0	Reserved		13	High temperature charger magnetic		1	Rectifier fuse blown										
0004	15–10	Reserved		12–3	Reserved		0	Inverter fuse blown										
	9	Fault found in register 0006, 0007, 0008, or 0009		0008	15		Reserved	0008	15	Reserved	0010	Line quality 00FF=acceptable utility line quality 0000=unacceptable utility line quality	—					
	8	Battery voltage high			14		System integration interface auxiliary input activated		0011	% Battery capacity Remaining battery capacity as a percent of the fully charged condition (0–100)	%							
	7	No batteries			13	Charge error	0012		Runtime remaining	minutes								
	6	System not synchronized	12		Bypass synchronization error	0013	Scaled battery voltage (Actual UPS battery voltage times 48 divided by Nominal battery voltage)		V									
	5	Output voltage out of range	11		Communications to voltage quality detector mains lost	0014	UPS internal temperature (0–209) 00XX= valid reading FFXX=invalid reading XX=sensor reading		°C									
	4–0	Reserved	10		DC capacitor charge error	0015	Nominal battery voltage		V									
		9	External shutdown accepted		0016	Actual battery voltage	V											

Symmetra Series UPS

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

Address (Hex)	Bit	Description	Address (Hex)	Bit	Description	Address (Hex)	Bit	Description	Address (Hex)	Description	Unit
0000	15–8	Reserved	0003	15–8	Reserved	0005, <i>continued</i>	7	Bypass not in range (frequency or voltage)	001A	Phase A output voltage	V
	7	UPS ready to provide power to the load upon return of normal line voltage or upon user command		7	Replace battery		6	Redundancy below threshold	001B	Phase A output current	A
	6	UPS ready to provide power to the load upon user command		6	Low battery		5	Loss of redundancy	001C–002E	Specific to Symmetra PX*	—
	5	UPS in bypass mode as a result of manual bypass control		5	Overload		4	Load is above alarm threshold	002F	Environmental Monitoring Card temperature reading (Sensor 1)	°C
	4	UPS returning from bypass		4	On battery		3	An installed battery has failed	0030	Environmental Monitoring Card humidity reading (Sensor 1)	%RH
	3	UPS in bypass due to command		3	On-line		2	Redundant intelligence module is installed and failed	0031	Environmental Monitoring Card temperature reading (Sensor 2)	°C
	2	UPS going to bypass due to command		2	AVR boost		1	Main intelligence module is installed and failed	0032	Environmental Monitoring Card humidity reading (Sensor 2)	%RH
	1	UPS in bypass due to an internal fault indicated through register 0002 or 0003		1	AVR trim		0	An installed Power Module has failed	0033–0034	Reserved	—
	0	UPS turning on		0	Performing battery calibration discharge				0035–0036	Specific to Symmetra PX*	—
0001	15–8	Reserved	0004	15–12	Reserved	Address (Hex)	Description	Unit	*For register descriptions specific to the Symmetra PX UPS, see the table on the back of this page.		
	7	UPS fault—internal temperature exceeded nominal limits		11	Backfeed relay open (fault)	0006	Line Quality 00FF=acceptable utility line quality 0000=unacceptable utility line quality	—			
	6	Bypass relay malfunction		10	Site wiring fault	0007	% Battery Capacity Remaining battery capacity as a percent of the fully charged condition (0-100)	%	0038	Minimum return battery capacity	%
	5	Battery charger failure		9	Fault found in register 0033, 0034, 0035, or 0036	0008	Runtime remaining	minutes	0039	Lower transfer point	V
	4	UPS in shutdown mode		8	Battery voltage high	0009	Battery voltage Present UPS battery voltage	V	003A	Upper transfer point	V
	3	UPS in sleep mode		7	No batteries	000A	UPS internal temperature (0-209) 00XX=valid reading FFXX=invalid reading XX=sensor reading	°C	003B	Nominal output voltage	V
	2	Main relay malfunction		6	System not synchronized	000B	Amps drawn by load	A	003C	Shutdown delay	seconds
	1	UPS unable to transfer to on-battery operation due to overload		5	Output voltage out of range	000C	Number of battery packs with bad batteries	each	003D	Low battery duration	minutes
	0	UPS output not receiving power due to low-battery shutdown		4	XR frame fault	000D	Number of battery packs	each	003E	Turn on delay	seconds
0002	15–6	Reserved	3	Runtime below alarm threshold	000E	UPS output load as a percentage of full rated load in Watts	%	003F	Sensitivity	—	
	5	UPS commanded out of bypass with no batteries attached—UPS in bypass.	2	Load shutdown from bypass—Input frequency or voltage outside limits	000F	Maximum input voltage since last reading	V	0040	UPS ID character #1	—	
	4	UPS fault—UPS in bypass	1	No functional modules present	0010	Minimum input voltage since last reading	V	0041	UPS ID character #2	—	
	3	Output voltage select failure—UPS in bypass	0	Internal communication failure	0011	Nominal battery voltage	V	0042	UPS ID character #3	—	
	2	Reserved	0005	15	Redundant intelligence module is in control	0012	Actual battery voltage	V	0043	UPS ID character #4	—
	1	Isolation unit fan failure		14	System level fan failed	0013	Utility input frequency	Hz	0044	UPS ID character #5	—
	0	Electronics unit fan failure		13	Input circuit breaker tripped open	0014	Phase A utility input voltage	V	0045	UPS ID character #6	—
		12		System is in maintenance bypass	0015	Phase A utility input current	A	0046	UPS ID character #7	—	
		11		UPS in bypass due to overload	0016	Phase A bypass input voltage	V	0047	UPS ID character #8	—	
		10		UPS in bypass due to internal fault	0017	Phase A percent of maximum output VA @ n + 0	%	0048	Battery current	A	
		9		Bypass contactor stuck in online position.	0018	Phase A percent of maximum output VA @ n + x	%	0049-004F	Reserved	—	
		8	Bypass contactor stuck in bypass position.	0019	Phase A output	kVA	0050-FFFF	Invalid Address	—		

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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