OPTO 22 SNAP PAC CONTROLLER & BRAIN COMPARISON CHART

Form 1677-170523

This table compares SNAP PAC controllers and brains using PAC firmware R9.5 and PAC Project R9.6 software (or higher).

FEATURE		SNAP PAC Controllers										SNAP PAC Brains					
		SW	Standalone				Rack-mounted					Ethernet				Serial	
		SoftPAC	SNAP-PAC-S1 SNAP-PAC-S1-FM	SNAP-PAC-S2	SNAP-PAC-S1-W	SNAP-PAC-S2-W	SNAP-PAC-R1 SNAP-PAC-R1-FM	SNAP-PAC-R1-B	SNAP-PAC-R2 SNAP-PAC-R2-FM	SNAP-PAC-R1-W	SNAP-PAC-R2-W	SNAP-PAC-EB1 SNAP-PAC-EB1-FM	SNAP-PAC-EB2	SNAP-PAC-EB1-W	SNAP-PAC-EB2-W	SNAP-PAC-SB1	SNAP-PAC-SB2
Runs PAC Control strategies		●	●	●	●	●	●	●	●	●	●						
Maximum PAC Control charts running at once (plus host task)		64	32	32	32	32	16	16	16	16	16						
Communication	Two independent Ethernet network interfaces (two IP addresses)	[a]	●	●	●	●	●	●	●	●	●						
	Two switched Ethernet network interfaces (one IP address) for multi-drop configuration											●	●	●	●		
	Wireless LAN interface (802.11a, b, or g): WPA2-AES, WPA-TKIP, WEP	[a]			●	●				●	●			●	●		
	Total number of RS-232 serial ports	[b]	2	4[c]	2	4[c]	1	1	1	1	1	0	0	0	0	0	0
	Total number of RS-485 serial ports	[b]	1	4[c]	1	4[c]	0	0	0	0	0	0	0	0	0	1	1
Protocols	TCP/IP, UDP/IP	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	EtherNet/IP™ (Allen-Bradley® RSLogix® systems and others)		●	●	●	●	●	●	●	●	●	●	●	●	●		
	Modbus®/TCP (slave)[d]		●	●	●	●	●	●	●	●	●	●	●	●	●		
	OPC driver supporte	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●[f]	●[f]
	RESTful API		●	●	●	●	●	●	●	●	●						
	HTTP/HTTPS		●	●	●	●	●	●	●	●	●						
	OptoMMP memory-mapped protocol	●[g]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	SNMP (network management)		●	●	●	●	●	●	●	●	●	●	●	●	●		
	FTP server, file system		●	●	●	●	●	●	●	●	●	●	●	●	●		
	FTP client	●	●	●	●	●	●	●	●	●	●						
	SMTP (email client with authentication and attachments)	●	●	●	●	●	●	●	●	●	●						
Direct access to hard drive & network drives (Dropbox®, etc.)		●															
Realtime clock		[a]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Backup battery (recharges when brain has power)[h]			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Physical RAM (MB) RAM available for Strategy (MB) Battery-backed RAM (MB) Flash memory (MB)		[a] 64 8 [i]	32 16 8 16		128 64 8 16		16 4 2 8			32 10 2 8		16 -- -- 8				16 -- -- 8	
Removable data storage (microSD card slot)		[a]	32 GB max.[k]				32 GB max.[k]										
32-bit processor		[a]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Floating-point unit (FPU)		[a]	●	●	●	●	●	●	●	●	●						
Power requirements		[a]	8–32 VDC[l] 10 W–11.3 W max[m]				5.0 to 5.2 VDC @ 1.2–1.5 A[m]					5.0 to 5.2 VDC @ 750 mA–1.0 A[m]					
Operating Temperature in degrees C Storage Temperature in degrees C		[a]	-20 to 60 -40 to 85				-20 to 60 -40 to 85					-20 to 60 -40 to 85					
Humidity (non-condensing)		[a]	0–95%				0–95%					0–95%					
Compatible brains[n]	SNAP PAC EB brains	●	●	●	●	●	●	●	●	●	●						
	SNAP PAC SB brains		●	●	●	●											
Combination controller and I/O processor							●	●	●	●	●						
Mounts on SNAP PAC I/O mounting rack		n/a	n/a				●		●	●	●	●	●	●	●	●	●
Mounts on SNAP B-series I/O mounting rack		n/a	n/a					●									

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FEATURE		SNAP PAC Controllers											SNAP PAC Brains							
		SW	Standalone				Rack-mounted						Ethernet				Serial			
		SoftPAC	SNAP-PAC-S1 SNAP-PAC-S1-FM	SNAP-PAC-S2	SNAP-PAC-S1-W	SNAP-PAC-S2-W	SNAP-PAC-R1	SNAP-PAC-R1-FM	SNAP-PAC-R1-B	SNAP-PAC-R2	SNAP-PAC-R2-FM	SNAP-PAC-R1-W	SNAP-PAC-R2-W	SNAP-PAC-EB1 SNAP-PAC-EB1-FM	SNAP-PAC-EB2	SNAP-PAC-EB1-W	SNAP-PAC-EB2-W	SNAP-PAC-SB1	SNAP-PAC-SB2
Maximum number of modules allowed on largest rack: Any mix of 16 digital, 16 analog, and 8 serial		n/a	n/a				●o	●o	●	●	●	●	●	●	●	●	●p	●p
Digital I/O point features	Input latching	n/a	n/a				●	●	●	●	●	●	●	●	●	●	●	●
	On/off status						●	●	●	●	●	●	●	●	●	●	●	●
	Watchdog timer						●	●	●	●	●	●	●	●	●	●	●	●
	High-speed counting (up to 20 kHz)[q]						●	●		●		●		●		●	●	
	Quadrature counting[r]						●	●		●		●		●		●	●	
	On-pulse & off-pulse measurement[q]						●	●		●		●		●		●	●	
	Frequency & Period measurement[q]						●	●		●		●		●		●	●	
	TPO (time-proportional output)						●	●	●	●	●	●	●	●	●	●	●	●
	Digital totalizing[q]						●	●	●	●	●	●	●	●	●	●	●	●
	Pulse generation (continuous square wave, N pulses, on-pulse, off-pulse)						●	●	●	●	●	●	●	●	●	●	●	●
Analog I/O point features	Thermocouple linearization (32-bit floating point for linearized values)	n/a	n/a				●	●	●	●	●	●	●	●	●	●	●	●
	Minimum/maximum values						●	●	●	●	●	●	●	●	●	●	●	●
	Offset and gain						●	●	●	●	●	●	●	●	●	●	●	●
	Scaling						●	●	●	●	●	●	●	●	●	●	●	●
	TPO (Time-proportional output)[s]						●	●	●	●	●	●	●	●	●	●	●	●
	Output clamping						●	●	●	●	●	●	●	●	●	●	●	●
	Filter weight						●	●	●	●	●	●	●	●	●	●	●	●
	Watchdog timer						●	●	●	●	●	●	●	●	●	●	●	●
	Analog totalizing[t]						●	●	●	●	●	●	●	●	●	●	●	●
	Ramping[t]						●	●	●	●	●	●	●	●	●	●	●	●
PID logic (maximum 96 PID loops per controller or brain)			n/a				●	●	●	●	●	●	●	●	●	●	●	●
Data logging							●	●	●	●	●	●	●	●	●	●	●	●
Digital events, alarm events, serial events							●	●	●	●	●	●	●	●	●	●	●u	●u
Event messaging							●	●	●	●	●	●	●	●	●	●		
UDP streaming of I/O data to host							●	●	●	●	●	●	●	●	●	●		
I/O point data mirroring and memory map copying							●	●	●	●	●	●	●	●	●	●		

a As provided by the Microsoft Windows computer the software runs on.
b SoftPAC cannot communicate through serial ports on the PC.
c Serial ports are software configurable for RS-232 or RS-485.
d PAC firmware >=R9.4b, 8 max connections. Lower firmware, 2 max connections.
e Requires OptoOPCServer or third-party compatible OPC server.
f Available with OptoOPCServer and PAC Control, through a SNAP PAC controller.
g SoftPAC includes Status Read, Status Write, and Scratch Pad memory map areas.
h Models manufactured before August 2007 and S1s with serial numbers 625653 and lower have user-replaceable backup batteries. See original user's guide.
i Flash memory function implemented via a file; size is limited only by disk space.
k PAC firmware 9.4a and loader 6.1a or higher. S-series with microSD & manufacture date older than 06/14 supports max. 2 GB microSD.
l Units with serial numbers lower than 500,000 have an 8–24 VDC input voltage rating. *Verify voltage on the unit's faceplate before applying power.*
m Higher requirement applies to -W models.
n For compatibility with legacy Opto 22 hardware, see form #1693.
o SNAP-PAC-R1s with serial numbers lower than 600,000, and all SNAP-PAC-R1-Bs: limited to eight 4-point digital modules per rack.
p Not supported: serial, motion control, Profibus, & Wiegand modules.
q Four-channel modules only; not on high-density modules.
r Requires a SNAP-IDC5Q quadrature input module.
s Requires a SNAP analog TPO module (SNAP-AOD-29).
t Requires a SNAP PAC controller and PAC Control commands.
u Does not support serial events.