Form 1677-211207

This table compares SNAP PAC controllers and brains using PAC firmware R10.0 and PAC Project R10.0 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-R1 SNAP-PAC-R1-FM	SNAP-PAC-R1-B	SNAP-PAC-R2 SNAP-PAC-R2-FM	SNAP-PAC-EB1 SNAP-PAC-EB1-FM	SNAP-PAC-EB2 SNAP-PAC-EB2-FM	SNAP-PAC-SB1	SNAP-PAC-SB2
Runs PAC Control strategies		●	●	●	●	●	●				
Maximum PAC Control charts running at once (plus host task)		64	32	32	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							●	●		
	Total number of RS-232 serial ports	[b]	2	4[c]	1	1	1	0	0	0	0
	Total number of RS-485 serial ports	[b]	1	4[c]	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 support	●	●	●	●	●	●	●	●	●[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)	●	●	●	●	●	●				
SNAP-PAC nodes for Node-RED; RESTful API			●	●	●	●	●				
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		16 4 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		5.0 to 5.2 VDC @ 1.2–1.5 A			5.0 to 5.2 VDC @ 750 mA–1.0 A			
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%			

OPTO 22 SNAP PAC CONTROLLER & BRAIN COMPARISON CHART

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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-R1 SNAP-PAC-R1-FM	SNAP-PAC-R1-B	SNAP-PAC-R2 SNAP-PAC-R2-FM	SNAP-PAC-EB1 SNAP-PAC-EB1-FM	SNAP-PAC-EB2 SNAP-PAC-EB2-FM	SNAP-PAC-SB1	SNAP-PAC-SB2
Compatible I/O units[n]	SNAP PAC EB brains	●	●	●	●	●	●				
	SNAP PAC SB brains		●	●							
	SNAP PAC R-series controllers	●	●	●	●	●	●				
	groov EPIC processors	●	●	●	●	●	●				
	groov RIO modules	●	●	●	●	●	●				
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			●					
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					●	●	●	●	●		

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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-R1 SNAP-PAC-R1-FM	SNAP-PAC-R1-B	SNAP-PAC-R2 SNAP-PAC-R2-FM	SNAP-PAC-EB1 SNAP-PAC-EB1-FM	SNAP-PAC-EB2 SNAP-PAC-EB2-FM	SNAP-PAC-SB1	SNAP-PAC-SB2

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*.
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 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.