







# PAL System - Valve Bases

## Valve Bases

The PAL Bases for valves can be provided with 3 or 4 positions. A version is available with an electrical connection for a single control of each position, suitable for 5/2 single solenoid valves or 3/2 high flow valves (physically impossible to install other valves). Another version comes with two electrical connections for each position and is suitable for all types of valves. The electronics in the base controls the signal coming from both the multi-pole connector and the fieldbus, so the base is the same, regardless of the control system of the island. The air delivery ports (ports 2 and 4) are made up of easy to replace cartridge-style push-in fittings.

PAL System - Valve Bases					
Item	Part No.	Price	Description	Weight (lbs)	Drawing Link
	<a href="#">PAL-B3314</a>	\$82.00	NITRA pneumatic modular valve base, fiberglass-reinforced thermoplastic, (3) solenoid(s), (3) stations, (6) 1/4in push-to-connect tubing outlet(s), IP65. For use with PAL series.	0.6	<a href="#">PDF</a>
	<a href="#">PAL-B3614</a>	\$87.00	NITRA pneumatic modular valve base, fiberglass-reinforced thermoplastic, (6) solenoid(s), (3) stations, (6) 1/4in push-to-connect tubing outlet(s), IP65. For use with PAL series.	0.6	<a href="#">PDF</a>
	<a href="#">PAL-B4414</a>	\$99.00	NITRA pneumatic modular valve base, fiberglass-reinforced thermoplastic, (4) solenoid(s), (4) stations, (8) 1/4in push-to-connect tubing outlet(s), IP65. For use with PAL series.	0.75	<a href="#">PDF</a>
	<a href="#">PAL-B4814</a>	\$107.00	NITRA pneumatic modular valve base, fiberglass-reinforced thermoplastic, (8) solenoid(s), (4) stations, (8) 1/4in push-to-connect tubing outlet(s), IP65. For use with PAL series.	0.75	<a href="#">PDF</a>

Valve Flow Rate (scfm) @ 91.4 psi (6.3 bar) ΔP 14.5 psi (1 bar)					
Valve	Ø 4mm (5/32")	Ø 6mm	Ø 8mm (5/16")	Ø 1/4" (Default)	Ø 3/8"*
3-way/2-position	12.4	21.2	24.7	21.2	44.1
5-way/2-position	12.4	23.0	28.3	23.0	44.1 - 49.4
5-way/3-position	12.4	16.2	17.7	16.2	35.3 - 44.1
PAL-V1-SR	-	-	-	-	35.3





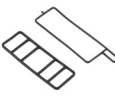
\* Using high-flow valves or connected valves with PAL-Y38



Click the icon or scan the QR code to be taken to <https://www.automationdirect.com/selectors/pal> for our online PAL system Configuration Tool for further selection assistance.



# PAL System - Valve Bases

PAL System - Valve Base Accessories					
Item	Part No.	Price	Description	Weight (lbs)	Drawing Link
	<a href="#"><u>PAL-PC04M</u></a>	\$22.00	NITRA pneumatic push-to-connect cartridge, 5/32in (4mm) tubing. Package of 10. For use with PAL series valve bases.	0.25	<a href="#"><u>PDF</u></a>
	<a href="#"><u>PAL-PC06M</u></a>	\$22.00	NITRA pneumatic push-to-connect cartridge, 6mm tubing. Package of 10. For use with PAL series valve bases.	0.2	N/A
	<a href="#"><u>PAL-PC08M</u></a>	\$22.00	NITRA pneumatic push-to-connect cartridge, 5/16in (8mm) tubing. Package of 10. For use with PAL series valve bases.	0.15	N/A
	<a href="#"><u>PAL-PC14</u></a>	\$22.00	NITRA pneumatic push-to-connect cartridge, replacement, 1/4in tubing. Package of 10. For use with PAL series valve bases.	0.2	N/A
	<a href="#"><u>PAL-ACC16</u></a>	\$11.50	NITRA gasket, replacement. Package of 10. For use with PAL series base and valve.	0.05	N/A



# PAL System - Accessories and Mounting Options

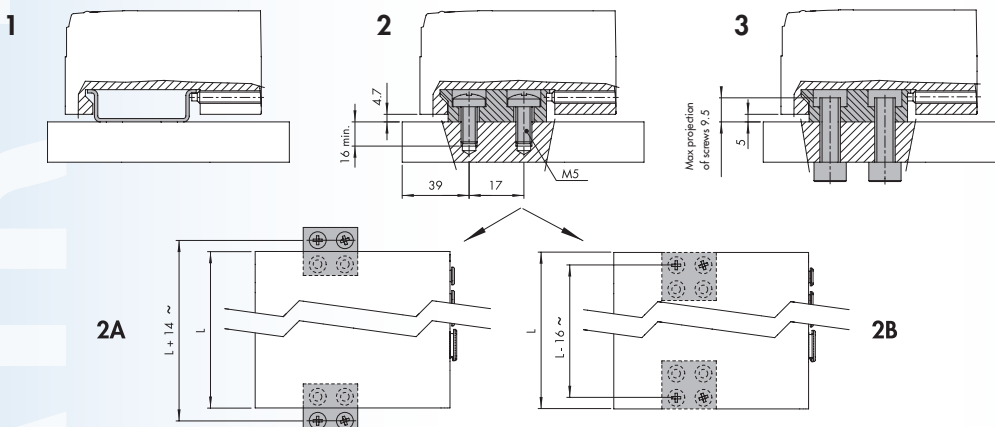
PAL System - Accessories					
Item	Part No.	Price	Description	Weight (lbs)	Drawing Link
	<a href="#">PAL-ACC01</a>	\$11.50	NITRA base mount, panel. Package of 2. For use with PAL series. Mounting screws included.	0.1	<a href="#">PDF</a>
	<a href="#">PAL-ACC02</a>	\$2.00	NITRA M8 protective cap, for use with PAL series.	0.05	N/A
	<a href="#">PAL-ACC03</a>	\$1.00	NITRA M12 protective cap, for use with PAL series.	0.05	N/A

## Mounting Options

Using the [PAL-ACC01](#)

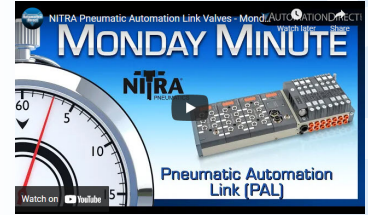
1. Mounting to DIN rail: tighten the set screws into modules E (electrical connection) and C (closed end plate).
2. Mounting on a flat surface: use the pair of brackets part number [PAL-ACC01](#) and the M5x20 screws supplied. You can choose where to position the brackets in relation to the base:
  - 2a. Protruding brackets: Can be used to install the base + brackets unit from above. First secure the brackets to the modules E and C using the set screws, then secure everything with M5x20 screws.
  - 2b. Concealed brackets: the overall dimensions of the base are reduced. First secure the brackets to the flat top with M5x20 screws, then place the base onto the brackets and lock the two set screws provided in the modules E and C.
3. Mounting through a wall: use the brackets part number [PAL-ACC01](#). The brackets come with M6 threaded holes and can be fixed with M6 screws (not included in the supply) passing through the wall. The brackets can be fixed either protruded or concealed.

Note: Planar surfaces are required to ensure correct mounting. Avoid twisting or bending the valve units.





# Pneumatic Automation Link (PAL)



Click on the thumbnail or go to <https://www.automationdirect.com/VID-PN-0055> for a short video on the Nitra PAL system.

The Pneumatic Automation Link (PAL) system is defined as an electro-pneumatic system as it can contain both electrical I/O as well as a solenoid valve bank. In effect, a single assembly can combine solenoid valves of various types, digital or analog I/O and common power sources for all of the above.



Using a limited variety of basic components many different configurations can be built. Valves supported are compact yet have high flow ratings (Cv) and high performance. The system can be controlled by direct wiring if only pneumatic valves are used or via Ethernet/IP if a combination of electrical I/O and valves are part of your application. To simplify wiring and system design, DC power is connected through a central module using M8 connections. All PAL components come with an efficient diagnostic system.

Click or scan the QR code to be taken to <https://cdn.automationdirect.com/static/manuals/nitra-pal/nitrapal.html> for online PAL system Documentation including Manual and Module Options Insert.

PAL System - General Specifications			
<b>Nominal Supply Voltage</b>	12 or 24 VDC		
<b>Minimum Operating Voltage</b>	10.8 V *		
<b>Maximum Operating Voltage</b>	31.2 V		
<b>Maximum Admissible Voltage</b>	32V **		
<b>Power for Each Controlled Pilot</b>	3W for 15ms, then holding 0.3 W		
<b>Drive (for multi-pole)</b>	PNP or NPN		
<b>Solenoid Rating</b>	100% ED		
<b>Protection</b>	Overload and short-circuit protected solenoid pilot Output		
<b>Maximum Number of Solenoid Pilots</b>	21 or 38 multi-pole connection; field bus 128		
<b>Ambient Temperature</b>	-10°C to + 50°C (at 8 bar) 14°F to 122°F (at 8 bar)		
<b>Operating Pressure</b>	Common supply	Port 1	5/2 and 5/3 3 to 8 bar (43 to 116 psi)    3/2 3.5 to 8 bar (51 to 116 psi)
	Separate pilot supply	Assisted valves	Vacuum to 10bar (Vacuum to 145psi)
		Pilot pressure	3 to 8 bar (43 to 116 psi)
<b>Actuation Response Time (TRA) / Reset Response Time (TRR) at 6 bar</b>	TRA/TRR valve 2/2 and 3/2		14 / 28 ms
	TRA/TRR valves 5/2 monostable and shut-off valve		12 / 45 ms
	TRA/TRR valve 5/2 bistable		12 / 14 ms
	TRA/TRR valve 5/3		15 / 45 ms
	TRA/TRR valve 3/2 high flow		13 / 36 ms
<b>Fluid</b>	Unlubricated air		
<b>Air Quality Required</b>	ISO 8573-1 class 4-7-3		
<b>Degree of Protection</b>	IP65 (with connectors connected or plugged if not used)		
<b>Agency Approvals</b>	CE, cURus		
* Minimum voltage 10.8V required at solenoid pilots.			
** IMPORTANT! Voltage greater than 32VDC can permanently damage the system.			