Take Productivity to New Heights with the Next Generation
PAT 4.0 Cable Tie System

Productivity is critical when it comes to high-volume harnessing, assembly, fastening, and packaging applications. To remain competitive, manufacturers are faced with the constant struggle to increase throughput, reduce lead times, and meet customer expectations. The Panduit PAT 4.0 Automatic Cable Tie Installation System addresses these challenges by introducing a series of next generation features and functionality to transform wire bundling and assembly as you know it.

The PAT 4.0 Cable Tie System drives productivity through:

- Industry leading cycle times that are 25% faster than other automatic cable tie systems which provide maximum bundling productivity that is 6X that of conventional manual cable tie installations

- User friendly icon-based LCD touch screen simplifies user navigation and provides intuitive help screens to improve troubleshooting and minimize the learning curve for operators, thus keeping your work force dynamic and productive

- Lightweight Ergonomic Tool Head reduces operator fatigue and maximizes maneuverability while minimizing the risk of repetitive motion injury commonly associated with manual cable tie installation tools.

The PAT 4.0 Cable Tie System can be configured for factory network communication, industrial control applications, and robotics integration through the following components:

- Data Interface (DI)- RJ45 Ethernet connection that provides production data for analysis as well as troubleshooting

- Electronic Interface (EI)- 15 pin D-Sub connection allows the user to remotely control the PAT system through industrial controls and robotic applications

6X
Faster than conventional manual cable tie installations

Bundling Systems   **PAT/Robot Integration Kit**

Key Features	Benefits
Tool heads for several bundle diameters	Allows user to apply cable ties to a maximum bundle diameter of 0.82", 1.31", 1.94", and 2.75", in three tensile strengths for application flexibility and versatility
Ergonomic, lightweight tool head	Reduces operator fatigue and repetitive motion injuries to increase productivity
Multiple cable tie styles and sizes	Continuously molded cable ties in reels containing up to 5,000 ties-per-reel provide continuous feeding and quick reel changes to reduce downtime and maximize efficiency
LCD touch screen display (PDM4.0)	User friendly display allows for easy user navigation via icon based menus and multiple language options
Microprocessor-based controller	Monitors system performance through user-friendly LCD touch screen display; provides production data and reporting, including error detection and cycle count for improved reliability
Data interface accessory	System monitoring and asset tracking option to maximize system performance
PAT/Robot integration kit	Utilizes the PAT system electronic interface option (PDM-EI) to optimally integrate the PAT system to a robot for a completely automated manufacturing process

PAT System Selection Guide

Selection Guide for Bundling

Maximum Bundle Dia.		Tooling			Reel-Fed Cable Ties**
In.	mm	Tool Head	Dispenser	Transfer Hose	
0.82	21	PAT1M4.0	PDM4.0	PHM1, PHM2, PHM3, PHM4	PLT1M-XMR
1.31	33	PAT1.5M4.0	PDM4.0		PLT1.5M-XMR
0.82	21	PAT1M4.0-BT	PDM4.0	PHM1, PHM2, PHM3, PHM4	BT1M-XMR
1.31	33	PAT1.5M4.0-BT	PDM4.0		BT1.5M-XMR
1.94*	49	PAT2S	PDS	PHS2, PHS3	PLT2S-VMR
2.75*	70	PAT3S	PD3S		PLT3S-VMR

*Maximum bundle diameter will be less for solid round bundles.
**See Page 5 for cable tie material options.

Tool Heads

Four sizes accommodate a wide variety of bundling applications

**PAT1M4.0
PAT1M4.0-BT**   **PAT1.5M4.0
PAT1.5M4.0-BT**   **PAT2S**   **PAT3S**

Part Number	Maximum Bundle Diameter		Used with Cable Ties	Std. Pkg. Qty.
	In.	mm		
PAT1M4.0	0.82	21	PLT1M-XMR	1
PAT1.5M4.0	1.31	33	PLT1.5M-XMR	1
PAT1M4.0-BT	0.82	21	BT1M-XMR	1
PAT1.5M4.0-BT	1.31	33	BT1.5M-XMR	1
PAT2S	1.94*	49	PLT2S-VMR	1
PAT3S	2.75*	70	PLT3S-VMR	1

Order number of pieces required, in multiples of Standard Package Quantity.

Dispenser

PDM4.0   **PDS**   **PD3S**

Part Number	Used with Tool Head	Description	Std. Pkg. Qty.
PDM4.0	PAT1M4.0, PAT1M4.0-BT, PAT1.5M4.0, PAT1.5M4.0-BT	Stationary dispenser with electronic display. Online help menu. System operates on 65 psig (minimum) non-lubricated filtered air and 100 – 24 FAC/TP or 60 MHz.	1
PDS	PAT2S		1
PD3S	PAT3S		1

Order number of pieces required, in multiples of Standard Package Quantity.

Transfer Hose

PHM3

Part Number	Used with Tool Head	Description	Length		Std. Pkg. Qty.
			Ft.	m	
PHM1	PAT1M4.0 PAT1.5M4.0 PAT1M4.0-BT PAT1.5M4.0-BT	Transfers cable tie and signal from dispenser to tool head; electrical connectors designed for easy attachment provide a reliable, secure connection.	3.2	1	1
PHM2			6.5	2	1
PHM3			10.0	3	1
PHM4			13.1	4	1
PHS2	PAT2S, PAT3S		6.5	2	1
PHS3			10.0	3	1

Filter/Regulator and Air Supply Hose

PL283N1   **PDH10-37**

Part Number	Used with Dispenser	Description	Std. Pkg. Qty.
PL283N1	PDM4.0, PDS	Regulates air flow to dispenser. Filter/regulator 25 micron (maximum) element. Includes a male connector and a 3/8" port.	1
PDH10-37	PDM, PDS, PD3S	Air hose from filter/regulator to dispenser; 10' (3m) – includes standard air fittings.	1

Dispenser Frame
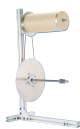
PDSF   **PD3SF**

Part Number	Used with Dispenser	Part Description	Std. Pkg. Qty.
PDSF	PDS	Metal frame supports the PDS dispenser for PAT2S above the cable tie reel as ties are loaded into the dispenser; can be used as a freestanding unit or permanently mounted to a bench or cart.	1
PD3SF	PD3S	Assembly holds cable tie reel and rewinds the packaging paper liner as cable ties are being loaded into the dispenser.	1

Bench Mount

PATMBM

Part Number	Used with Tool Head	Part Description	Std. Pkg. Qty.
PATMBM	PAT1M4.0 PAT1.5M4.0 PAT1M4.0-BT PAT1.5M4.0-BT	Allows hands-free operation for high volume usage. Includes bench mount fixture and foot pedal assembly.	1
PAT2SBM	PAT2S		1

Data Interface Software and Ethernet-Enabled Dispenser Option

Panduit exclusive Ethernet-enabled dispenser and customized data interface software allow production personnel to monitor real-time data in a shop floor environment.

- The Ethernet enabled dispenser provides a physical connection between the cable tie installation system and an industrial Ethernet network via an RJ45 connection and internal Ethernet card
- Allows the capability to measure and track production performance such as job tracking, cycle counts, tool and dispenser serial numbers, and routine maintenance
- Provides the ability to send email notifications for specific system messages

Part Number	Part Description	Std. Pkg. Qty.
PDS-DI	Ethernet enabled PDS dispenser and data interface software with PAT2S system.	1
PD-DIA	Data interface accessory for existing PDM and PDS dispensers; includes software and network interface card.	1

Order number of pieces required, in multiples of Standard Package Quantity.

Electronic Interface Option

- This option provides the capability to remotely control the PAT System
- Applications include robot control of the PAT System

Part Number	Used with Tool Head	Part Description	Std. Pkg. Qty.
PDM4.0	PAT1M4.0, PAT1.5M4.0, PAT1M4.0-BT, PAT1.5M4.0-BT	Electronic interface PDM 4.0 using an input female port added to the unit; this port is a 15 pin D-Sub and is located on the back side of the unit.	1
PDS-EI	PAT2S, PAT3S	Electronic interface PDS using an input female port added to the unit; this port is a 15 pin D-Sub and is located on the back side of the unit.	1

Dispenser Remote Control Option

- Enables remote control of the PDM and PDS dispensers to accommodate locating the dispenser in hard to reach areas as needed by the manufacturing layout
- Provides the same options and functionality as the PDM and PDS unit displays
- Offered in 25' (7.62m) and 9.84' (3m) cord lengths

Part Number	Part Description	Std. Pkg. Qty.
PDM-RC	PDM dispenser with remote control using a 25 pin, D-Sub Connector on the back side of the unit.	1
PDS-RC	PDS dispenser with remote control using a 25 pin, D-Sub Connector on the back side of the unit.	1

PAT/Robot Integration Kit*

- Utilizes the PAT system electronic interface option, PDM 4.0, to optimally integrate the PAT system to a robot for a completely automated cable tie installation process
- Significantly reduces labor costs while improving installation quality, reliability, and consistency

PATM-RK

PATM-TT

| Part Number	Std. Pkg. Qty.	Components	Description
PATM-RK	1	Metallic housing	Includes a pneumatic trigger actuator for remote cable tie installation and a mounting bolt pattern to ease PAT tool integration with a robot end effect or for a robust and accurate grip.
		Transfer hose strain relief kit	Strain relief to maintain transfer hose bend radius reducing tie misfeeds due to sharp hose bend radii during robot motion; also sold separately under part number PATM-RKS (includes two 1-foot strain relief tubes with fastening cable ties).
		Quick start guides	Provides easily understood electrical, network, and mechanical installation instructions minimizing the robot integrator's design time and simplifying the integration process.
		Best practices document	List of best practices when integrating the PAT system to a robot optimizing system performance and productivity.
PATM-TT	1	Test tool with rubber jaws	This test tool is used during robot cable tie installation programming, providing a safe method to debug robot software without damaging actual PAT tools (test tool is not provided with the PAT/robot integration kit).
PATM-RKS	1	Transfer hose strain relief kit	Strain relief to maintain transfer hose bend radius reducing cable tie misfeeds due to sharp hose bend radii during robot motion; kit is also included on the PATM-RK kit or sold separately (includes two 1-foot strain relief tubes with fastening cable ties).

*NOTE: Used with the PAT1M4.0 and PAT1.5M4.0 tool heads only.

Reel-Fed Cable Ties

- Continuously molded cable ties (up to 5,000 ties/reel) for high productivity and reduced downtime
- Up to 30 lbs. minimum loop tensile strength in miniature cross section; 50 lbs. in standard cross section
- Available in all-nylon and stainless steel locking barb styles
- Available in a variety of materials, colors, and sizes
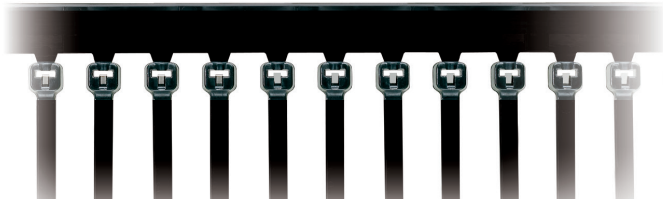
BT1M-XMR0
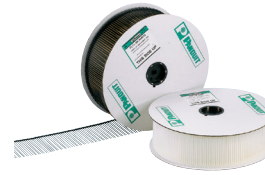
PLT1M-XMR0, PLT1M-XMR

Part Number	Tie Style	Material	Color	Maximum Bundle Dia.		Length		Width		Min. Loop Tensile Str.		Std. Ctn. Qty.
				In.	mm	In.	mm	In.	mm	Lbs.	N	
Reel-Fed Cable Ties for PAT1M System												
BT1M-XMR	Barbed	Nylon 6.6	Natural	0.82	21	4.0	102	.100	2.5	30	133	10,000 Pieces (2 Reels – 5,000 ties per reel)
BT1M-XMR0		Weather Resistant Nylon 6.6	Black									
BT1M-XMR30		Heat Stabilized Nylon 6.6	Black									
PLT1M-XMR	One-Piece, All-Nylon	Nylon 6.6	Natural							18	80	
PLT1M-XMR0		Weather Resistant Nylon 6.6	Black									
PLT1M-XMR30		Heat Stabilized Nylon 6.6	Black									
PLT1M-XMR00		Mil. Spec. Weather Resistant Nylon 6.6	Black									
Reel-Fed Cable Ties for PAT1.5M and PAT1.5M-ATM System												
BT1.5M-XMR	Barbed	Nylon 6.6	Natural	1.31	33	5.6	142	.100	2.5	30	133	10,000 Pieces (2 Reels – 5,000 ties per reel)
BT1.5M-XMR0		Weather Resistant Nylon 6.6	Black									
BT1.5M-XMR30		Heat Stabilized Nylon 6.6	Black									
BT1.5M-XMR69		Flame Retardant Nylon 6.6	Natural									
PLT1.5M-XMR	One-Piece, All-Nylon	Nylon 6.6	Natural							18	80	
PLT1.5M-XMR0		Weather Resistant Nylon 6.6	Black									
PLT1.5M-XMR30		Heat Stabilized Nylon 6.6	Black									
PLT1.5M-XMR00		Mil. Spec. Weather Resistant Nylon 6.6	Black									
Reel-Fed Cable Ties for PAT2S System												
PLT2S-VMR	One-Piece, All-Nylon	Nylon 6.6	Natural	1.94*	49	8.1	206	.190	4.8	50	222	5,000 Pieces (2 Reels – 5,000 ties per reel)
PLT2S-VMR0		Weather Resistant Nylon 6.6	Black									
PLT2S-VMR30		Heat Stabilized Nylon 6.6	Black									
Reel-Fed Cable Ties for PAT3S System												
PLT3S-VMR	One-Piece, All-Nylon	Nylon 6.6	Natural	2.75*	70	11.3	287	.190	4.8	50	222	2,500 Pieces per reel
PLT3S-VMR30		Heat Stabilized Nylon 6.6	Black									

Order number of pieces required, in multiples of Standard Carton Quantity.
*Maximum Bundle Dia. will be less for solid round bundles.
Note: UL Recognized, UL Listed, and CSA Certified except 69 material.
PLT1M-XMR ties are also available in colors. Add the following suffix to the end of the part number to order: (ex. PLT1M-XMR2 = Red).
1 = Brown, 2 = Red, 3 = Orange, 4Y = Yellow, 5 = Green, 6 = Blue, 7 = Purple, 8 = Gray, 10 = White.
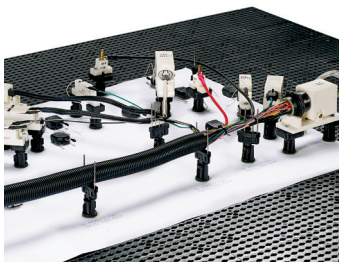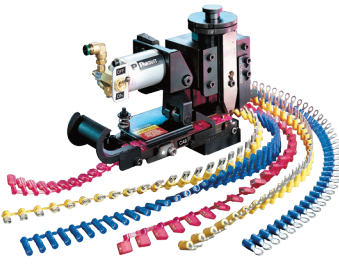
Complete your harness assembly with:

Harness Board System

- Modular, reusable solution consists of grid tiles and specially designed, repositionable accessories that improve productivity

- Easy twist and lock in place accessories allows for faster routing of wires and design flexibility

$$$$$ 65% COST REDUCTION
compared to traditional nail and board methods

18% FASTER
wire harness build times

50% LESS
square footage space associated with storing plywood

Automated Termination System

- Speeds the process of indexing and crimping connectors resulting in consistent quality terminations to minimize installed cost and boost profits

- Choose from a wide selection of molded disconnects, splices, rings, forks, pins, and ferrules on reels

Measure your productivity gains:

Fast and easy die changeovers save time

UP TO 30% FASTER
crimp cycle time

Identification

- Proper wire harness identification improves quality assurance and ensures compliance with industry standards

- Desktop printers and labeling software provide fast, high-quality label production

- Available in a wide variety of materials for wire and cable identification, including heat shrink labels, self-laminating labels, turn-tell labels, and marker plates

Reduce time for labeling by up to 75%

Abrasion Protection

- Insulate, protect, and color code wires to help ensure high-quality performance even in demanding environments

- Choose from Pan-Wrap™, spiral wrap, corrugated loom tubing and braided sleeving, and heat shrink

Protect from vibration and environmental factors
Bundle and route wires and cables efficiently

ROYAL ELECTRIC SUPPLY COMPANY