

Selecting Controls for Palletizers

Material Handling Application Brief



Palletizers and Wrappers Prepare Finished Goods for Shipping and Storage

- Types of palletizers
- Ergonomic and safety advantages of palletizers
- What types of controls are used on palletizers

Palletizers Improve Production Throughput and Operator Safety

Introduction

Learn the types of palletizers and their applications on packaging lines. They reduce worker injuries and fatigue from repetitive motion of moving heavy cartons. Discover which Omron industrial components provide control throughout the machine, from the operator interface to product detection to end of process wrapping.

At the end of production, finished goods need to be prepared for shipping and storage for the supply chain. Whether in cartons, crates or bags, most goods are stacked on pallets and wrapped into a structurally stable block that protects the goods and efficiently fills truck trailers and shipping containers.

Four basic types of palletizers are widely used in packaging and material handling applications today. These are high-level palletizers, low level palletizers, articulated arm robots and gantry palletizers. (Gantry type palletizers may use a robot arm or crane arrangement to pick and place the product on the pallet.)

Beyond the four basic units there are a number of other palletizer types with very specialized designs. These designs address unique products or situations including bulk palletizers for empty cans or bottles, and miscellaneous palletizers designed to palletize products packed in bags, drums and kegs. These are a small part of the overall market. Some types of palletizers include high-level palletizers that ramp the boxes or products to the top of the pallet stack, Floor level palletizer that will place product up onto the pallet and robotic Pick and Place palletizers. Most palletizers also include some type of wrapper to hold the material in place.



Both conventional and robotic palletizers can receive product at a high elevation (typically between 84" - 2.13m to 124" - 3.15m) or low "floor level" elevation (typically at 30" - 0.76m to 36" - 0.91m). All of these types of palletizers can be part of an automated system or a standalone manual machine.

Operator Safety, Increased Productivity Expand the Demand for Palletizers

Machine operators play a significant part in the productivity equation in warehousing and transportation. Workers experiencing fatigue and pain from repetitive motion activities are more likely to have an accident that causes injury, damage to goods, and lost production time. Work related Musculoskeletal Disorders (MSDs) are among the most

frequently reported causes of lost or restricted work time. According to U.S. Bureau of Labor Statistics, the 387,820 MSD cases accounted for 33% of all worker injury and illness cases in 2011.

Ergonomics--fitting a job to a person--are a big advantage palletizers bring to smaller manufacturers. A palletizer, either a conventional low level or robot, will minimize ergonomic issues associated with repetitive motion, lifting and rotation by employees doing hand palletizing. Small manufacturers are becoming aware of these advantages and in many cases are installing machines in operations that were not considered for a palletizer based on ergonomic improvements for employees alone.



Control Components Typically Found in Material Handling Equipment

The common feature to these palletizers is the need for control components to sense, drive and place the boxes, bags or products. For most manual controlled palletizers an operator will need to be on hand to help turn on and move product this can be done with simple, manual pushbutton control. The automated control may use a HMI (Human Machine Interface) with little operator interaction.

The Bill of Materials (BOM) for both types of palletizers could include these industrial components.



Part Number	Description	Location
A22R-FG-10M	Start Pushbutton (Green)	Control Station or Control Cabinet Cover
A22R-TR-01M	Stop Pushbutton (Red)	Control Station or Control Cabinet Cover
A22E-MP-01	Emergency Stop	Control Station or Control Cabinet Cover
M22R-EG 24A	Green Indicating Light	Control Station or Control Cabinet Cover
M22R-ER-24A	Red Indicating Light	Control Station or Control Cabinet Cover
G2RV-SL700 DC24 (DC21)	Control Logic Relays	Inside Control Cabinet
S8VK-G12024	Power Supply 24VDC Output	Inside Control Cabinet
G7Z-3A1B-20Z DC24	Power Relays 40A	Inside Control Cabinet
K8AK-VS2 24VAC/DC	Voltage Monitor	Inside Control Cabinet
E3RA-DP21	Product Sensing Photoelectric Sensor	On Product Conveyor
E3FA-BP22	Transparent Film and Bottle Detection	At Wrapping Station

When making ergonomic customized palletizing stations the requirement for reliable control is one that should not be ignored. Omron Automation and Safety can meet these needs for all of the industrial control and automation in the many different types of palletizers and wrappers.



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