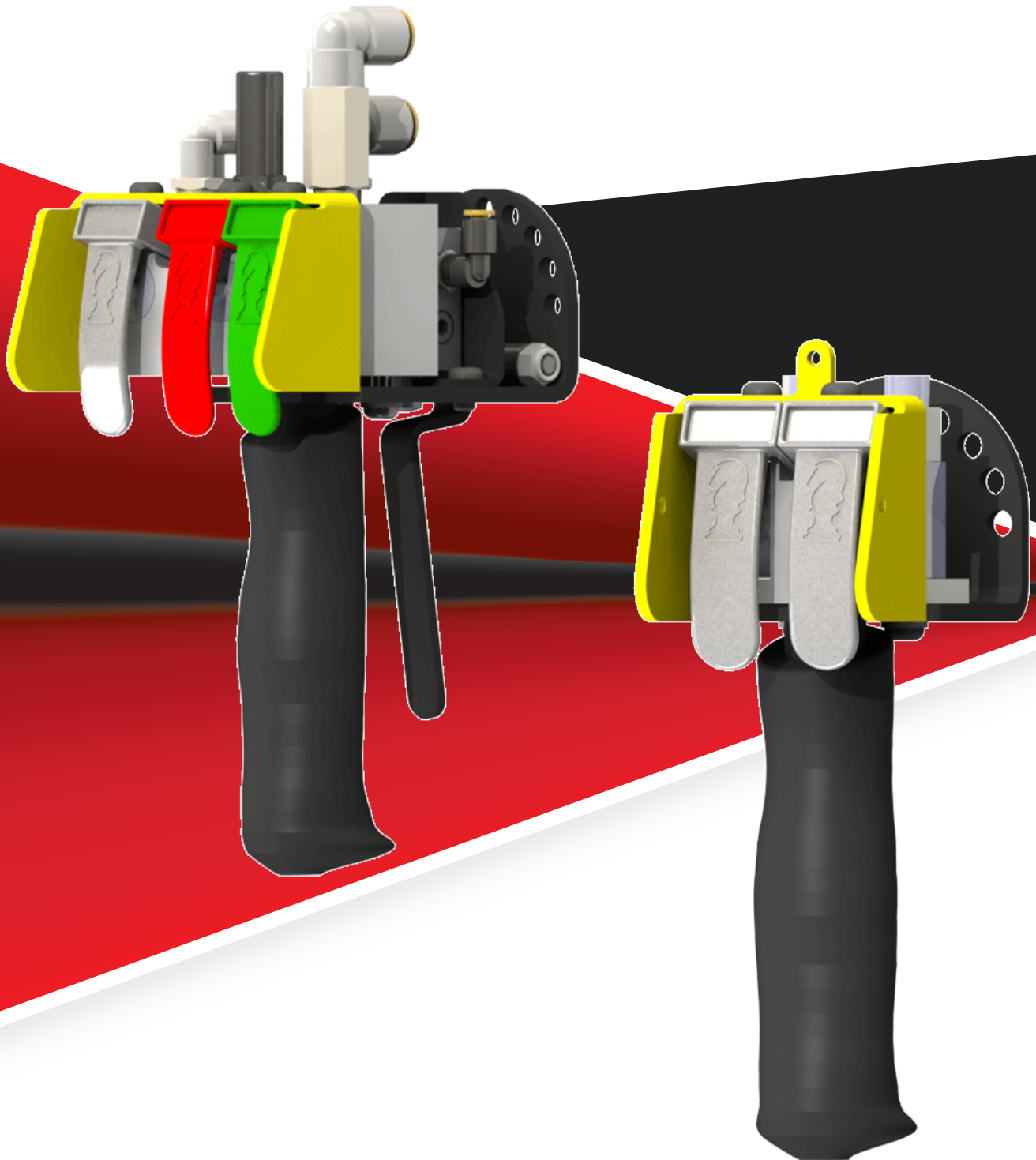




# KNIGHT

GLOBAL



## Pneumatic and Electric Control Handles

rev. 20230606

## Introduction

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## Knight Global | Warranty Information

Knight warrants that its products and parts shall meet all applicable specifications, performance requirements, and be free from defects in material and workmanship for one year, (Servo Systems for two years, Pneumatic Lift Tables for 5 years), from the date of invoice, unless otherwise noted. One exclusion would include any purchased components not manufactured by Knight and their specific individual warranties. Paint defects, scratches and marring from shipping are also excluded.

This warranty shall not cover the failure or defective operation caused by inadequate training provided by customer regarding the operation and / or maintenance of the tool, misuse, negligence, misadjustment, or any alteration not approved by Knight. Knight's obligation is limited to the replacement or repair of Knight's products at a location designated by Knight. Buyer is responsible for all associated internal removal and reinstallation costs as well as freight charges to and from Knight Industries. Knight's maximum liability shall not in any case exceed the contract price for the products claimed to be defective.

Any field modification made to Knight Products or Systems without the written authorization by Knight Global shall void Knight's warranty obligation.

Knight warrants the Servo Hoist, Arms, and Tractors to be free from defects in material or workmanship for a period of two years or 6000 hours use from the date of shipment.

Knight Distributors/ Agents are not authorized to circumvent or change any of these terms and or conditions of this warranty unless prior approval is received in writing by Knight Global Management. Verbal statements made by Knight Distributors/ Agents do not constitute warranties.

On a design and build job, the customer is the owner of the equipment once they authorize shipment. The purchased equipment can not be returned for reimbursement or credit.

DISCLAIMERS: OTHER THAN AS SET FORTH HEREIN, NO OTHER EXPRESSED WARRANTIES, AND NO IMPLIED WARRANTIES, ORAL AND WRITTEN, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE BY KNIGHT GLOBAL WITH RESPECT TO ITS PRODUCTS AND ALL SUCH WARRANTIES ARE HEREBY SPECIFICALLY DISCLAIMED.

KNIGHT GLOBAL SHALL NOT BE LIABLE UNDER ANY CIRCUMSTANCES FOR ANY INCIDENTAL, SPECIAL AND/OR CONSEQUENTIAL DAMAGES WHATSOEVER, WHETHER OR NOT FORESEEABLE, INCLUDING BUT NOT LIMITED TO DAMAGES FOR LOST PROFITS AND ALL SUCH INCIDENTAL, SPECIAL AND/OR CONSEQUENTIAL DAMAGES ARE HEREBY ALSO SPECIFICALLY DISCLAIMED.

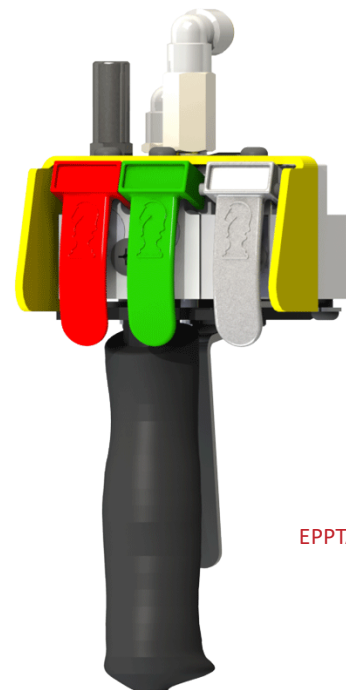
KNIGHT GLOBAL WILL NOT BE LIABLE FOR ANY LOSS, INJURY OR DAMAGE TO PERSONS OR PROPERTY, NOR FOR DAMAGES OF ANY KIND RESULTING FROM FAILURE OR DEFECTIVE OPERATION OF ANY MATERIALS OR EQUIPMENT FURNISHED HEREUNDER.

We are committed to  
**Total Customer Satisfaction**  
 through  
 QUALITY, RELIABILITY and  
 EMPLOYEE INVOLVEMENT.

# Overview

## Knight Control Handles

Knight's Control Handles are designed to ensure an ergonomically correct position for the operator while staying within ergonomic window specifications for height, width, weight and low thumb lever push force. Knight controls come in either pneumatic, electric or a combination of both which can be customized to fit your application needs. Their horizontal and vertical adjustment capabilities along with the comfortable ergonomic grip make them an excellent replacement for existing, non-ergonomic, control handles. Trigger levers can be mounted on the back of the handle for optimum ergonomics or as a fifth lever button.



EPPTA9340

## Features

- Steel Construction Handles.
- Ergonomic **Soft-Grip Handle**.
- Standard **Lever Guards** prevent inadvertently depressing the lever buttons.
- **Color Coded** Thumb Levers.
- Operation Labeled Thumb Levers (**Multiple Languages Available**).
- Rebuildable.
- Mounts to a fixed surface or can be hung as a separate pendant.
- Hole Pattern allows for multiple **360° rotational** fixed mounting positions.



Levers can be customized with Stamped Call-outs/ Pilot Signals for identification and ease of use. Custom Colors can be applied according to customer specification. UP (**Green**) and DOWN (**Red**) levers are standard colors unless specified differently by the customer.

Angled levers are available and provide optimum ergonomics for the operator.

## Benefits and Options

- Electric, Pneumatic and Electric-Pneumatic combination handles available.
- Optional **Trigger Lever Series**.
  - Commonly used to engage or release a brake or clutch.
  - Easier to pull-n-hold, than push-n-hold standard levers.
- Accommodates up to (4) Thumb levers and (1) Trigger lever.

## Common Control Handle Pilot Signal Configurations

- |                       |             |
|-----------------------|-------------|
| • Up and Down         | • Rotate    |
| • Retract and Extend  | • Brake     |
| • Tilt                | • Common    |
| • Low                 | • Push Off  |
| • Forward and Reverse | • High      |
| • Part and No Part    | • Track Dog |
| • Tilt Up and Down    | • Start     |
| • VAC On and Off      |             |
| • Clamp and Un-Clamp  |             |

# Controls Series

## Pneumatic Control Handles



**One (1) Button**  
Model# BPA9400 (Shown)



**Two (2) Button**  
Model# BPA9100 (Shown)



**Three (3) Button**  
Model# BPA9430 (Shown)



**Four (4) Button**  
Model# BPA9310 (Shown)

## Electric Control Handles



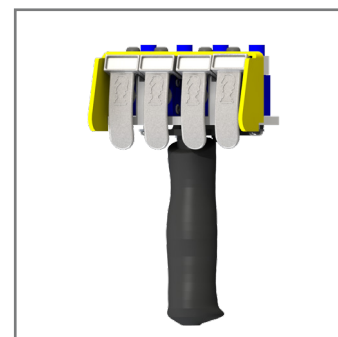
**One (1) Button**  
Model# EPA9500 (Shown)



**Two (2) Button**  
Model# EPA9600 (Shown)



**Three (3) Button**  
Model# EPA9650 (Shown)



**Four (4) Button**  
Model# EPA9660 (Shown)

## Electric/ Pneumatic Control Handles



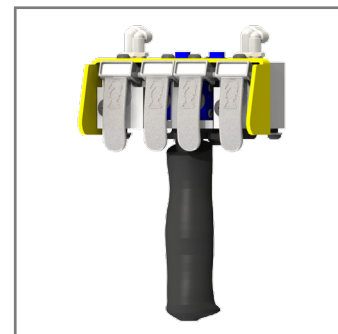
**Three (3) Button**  
Model# EPPA9150 (Shown)



**Three (3) Button**  
Model# EPPA9460 (Shown)



**Four (4) Button**  
Model# EPPA9160 (Shown)



**Four (4) Button**  
Model# EPPA9464 (Shown)

# Servo Controls



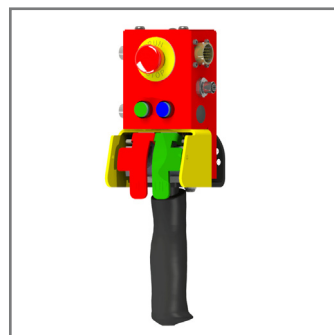
**EPDA9600** Two-Speed Control Handle

- May be mounted remotely from the end effector.
- Custom lever markings, specify when ordering.
- Different Call-out Languages Available.



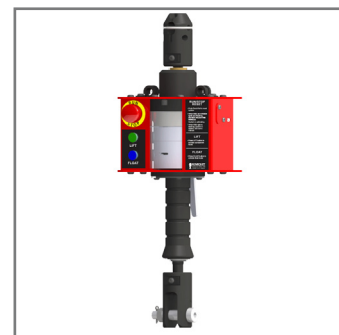
**EPDTA9600** Two-Speed Control Handle w/ Trigger

- Various Mounting Options.
- UL Listed, CE Approved.
- Optional Color-Coded Thumb Levers.



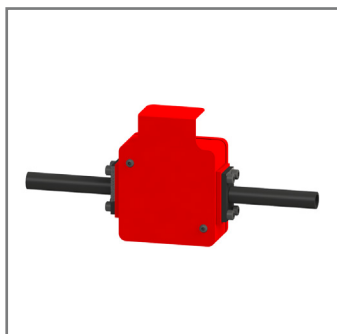
**KCA1033** Two-Speed Control Handle w/ Operator Control Interface

- Allows for 2-Speed Operation.
- Operator Control Interface
- Safety Run-Stop Button.
- Illuminated (Blue/Green) Float and Lift



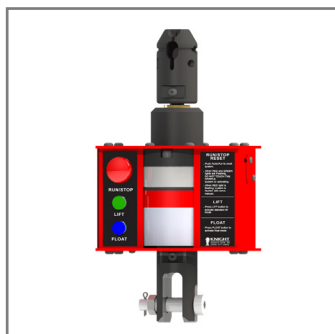
**KLCA1000** Inline Control Handle w/ Trigger

- (LMM) Load Monitoring Module.
- Illuminated Blue/ Green Push Buttons.
- Illuminated Red Run-Stop Button.



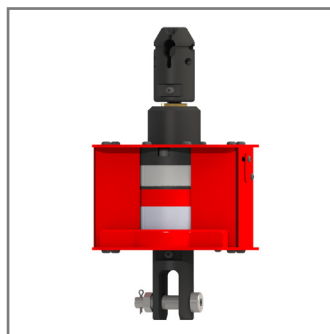
**KCA1071** Load Cell Fixture Handle

- Attaches directly to fixture.
- Load Responsive Handling.
- Handle Force Response: Less than 1.5 lbs. [0.68kg].



**KLCA1002** Load Monitoring Module w/ Operator Controlled Interface

- Used in conjunction with the Dual Speed Handle Pendant or Fixture Handle.
- (1) 6-Pin M12 Receptacle for Fixture Handle.
- (1) 19-Pin M23 Receptacle.
- (1) Up to (3) 4-Pin M12 Female Receptacles for I/O.



**KLCA1004** Load Monitoring Module w/ Pass Through

- Programmable module with a programmable port and I/O port.
- Used in conjunction with the Dual Speed Handle Pendant, Fixture Handle or remote OCI module.



**KCA1004/1005/1006** Wireless Remote

- Wireless Signal: Up to 900 ft. [300m].
- Ultra-Durable Nylon and Fiberglass Composite Enclosures.
- Up to (8) Eight Function/ Operation Buttons.

# Trigger Controls Series

## Control Handles w/ Triggers

Knight's Control Handles with Triggers are designed to be ergonomic and comfortable for the operator. Their horizontal and vertical adjustment capabilities and ergonomic grip make it an excellent replacement for existing, non-ergonomic, control handles.



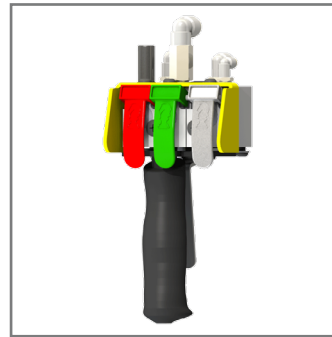
## Pneumatic w/ Pneumatic Trigger Control Handles



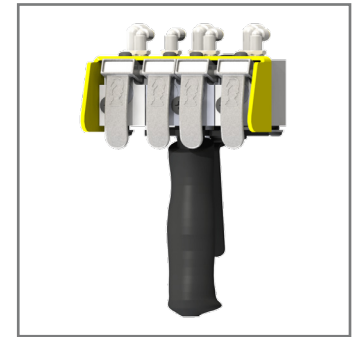
**One (1) Button**  
Model# BPTA9400 (Shown)



**Two (2) Button**  
Model# BPTA9100 (Shown)



**Three (3) Button**  
Model# BPTA9340 (Shown)



**Four (4) Button**  
Model# BPTA9414 (Shown)

## Electric w/ Electric Trigger Control Handles



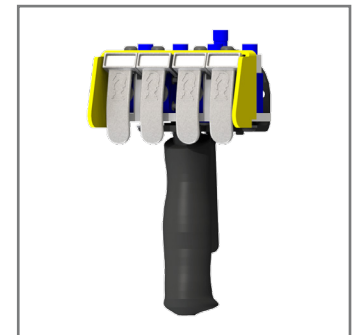
**One (1) Button**  
Model# EPTA9500 (Shown)



**Two (2) Button**  
Model# EPTA9600 (Shown)



**Three (3) Button**  
Model# EPTA9560 (Shown)



**Four (4) Button**  
Model# EPTA9660 (Shown)

## Other Options:

- Pneumatic-Electric w/ Pneumatic Trigger (EPPTA)
- Electric-Pneumatic w/ Electric Trigger (EPETA)

# Balancer Controls

Knight Global Air Balancers Pendant Control Series are designed for precision handling of variable weight loads and allows the operator to adjust the handle for an ergonomically comfortable position. Up/ down movement is achieved through the use of customer specified color coded thumb levers or by movement of the control handle (Feather-Touch). Air Balancer Pendant Controls are available in a straight or coiled hose configuration with standard hose lengths of up to 10 ft. [3m].

BCS3017 & BCS3320 Up/ Down Pendant	BCS2326 & BCS3330 Tandem Up/ Down Pendant
 <ul style="list-style-type: none"><li>• BPA9300 Pneumatic Control Handle.</li><li>• Two Button Configuration.</li><li>• 2-way valves used for a single acting air balancer or lift assist that is used for up/ down movement.</li></ul>	 <ul style="list-style-type: none"><li>• BPA9300 Pneumatic Control Handle.</li><li>• Two Button Configuration.</li><li>• 2-way valves used for a single acting air balancer or lift assist that is used for up/ down movement.</li></ul>
BCS2090 & BCS2322 High Relieving Single Balancer	BCS2018 Single Balancer Control
 <ul style="list-style-type: none"><li>• Does not allow for variances in weights.</li><li>• Assists in increasing the air volume.</li><li>• Ideal for weights exceeding 150 lbs. [68kg] at 80 psi (End Effector and Part).</li></ul>	 <ul style="list-style-type: none"><li>• Supports a constant weight at zero gravity.</li><li>• Ideal for balancing fastening tools.</li><li>• Ideal for weights not to exceed 150 lbs. [68kg] (End Effector and Part).</li></ul>

# Balancer Controls

BCS2215 & BCS2323  
Dual Balancer Control



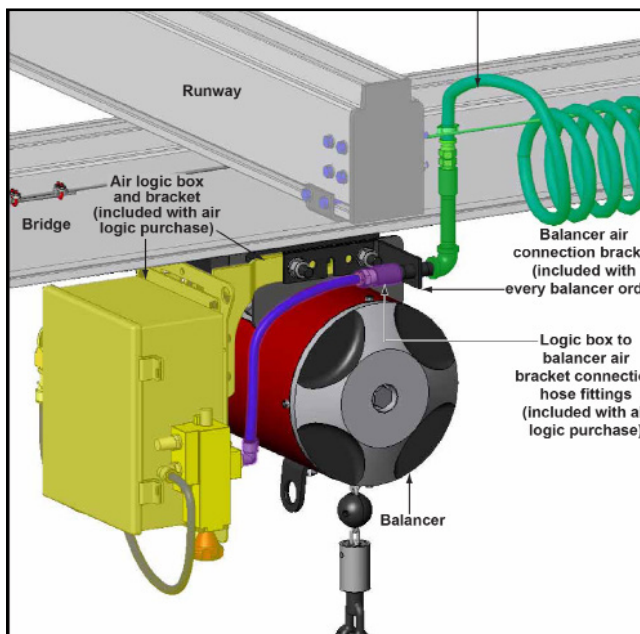
- Controls (2) different weights at zero gravity.
- Primarily used in hands free applications.
- Dual balance creates a zero gravity for the end effector with or without a part.

BCS2213 & BCS2214  
Feather-Touch Balancer Control



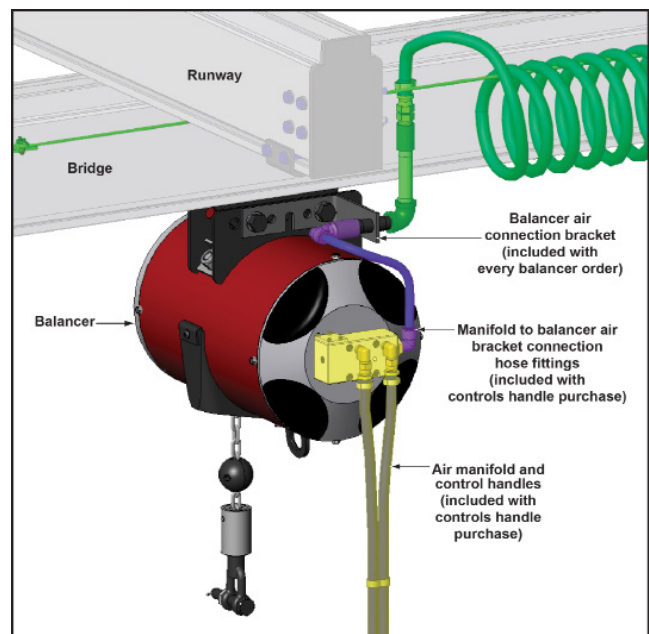
- Eliminates the need for a separate pendant.
- Allows the operator to control the up and down movements close to the part.
- Ideal for weights not to exceed 150 lbs. [68kg] (End Effector and Part).

Air Connection with Balancer Logic Box



- Includes:
  - Logic Box to Balancer Air Bracket Connection Hose and Fittings.

Air Connection with Balancer Manifold

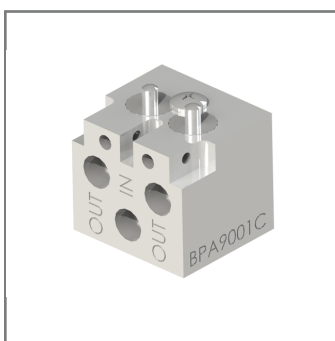


- Includes:
  - Manifold to Balancer Air Bracket Connection Hose and Fittings.

# Control Options

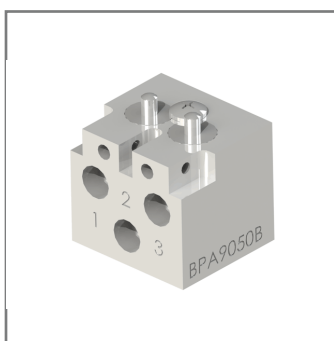
## Diverse Control Options

Knight Global Control Handles are designed for precision handling of variable loads through a variety of possibilities. Up/ down movements are controlled by utilizing either a Pneumatic Handle Valve Block Assembly or a Electric Handle 4-Pin Micro Single Pole Limit Switch.



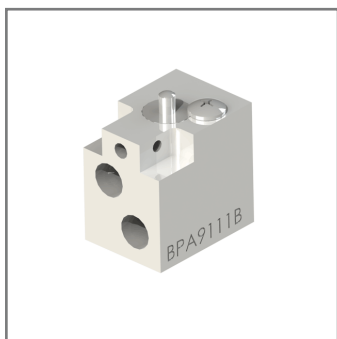
**BPA9001**

Knight's BPA9001 Pneumatic Valve Block Assembly has 3-Way valves used for sending common pilot signals.



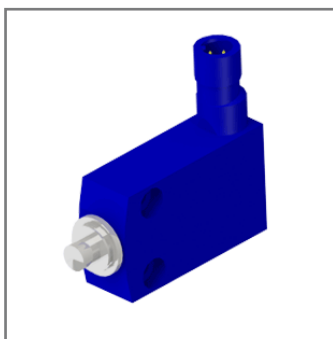
**BPA9050**

Knight's BPA9050 Pneumatic Valve Block Assembly has 2-Way valves used for only a single acting air balancer or lift assist used for UP/ DOWN movement.



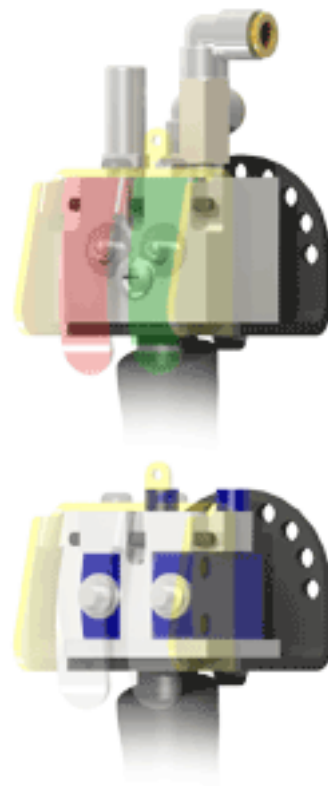
**BPA9111**

Knight's BPA9111 Pneumatic Valve Block Assembly has 3-Way valves used for sending common pilot signals.



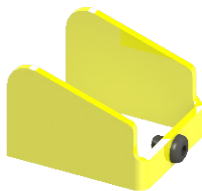
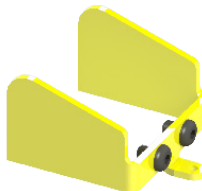
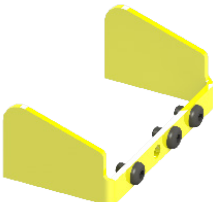


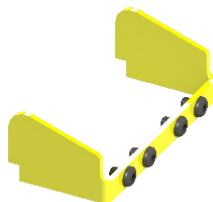
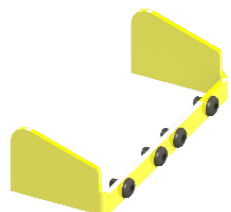

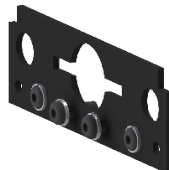

**4-Pin Micro Single Pole Limit Switch**


Knight's Electric 4-Pin Micro Single Pole Limit Switch has 1-N/O (Normally/ Open) and 1- N/C (Normally/ Closed) contacts.






# Control Handle Accessories



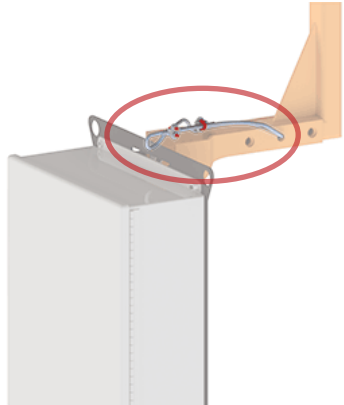
BPD1115 Long Right Curved Lever	BPD1135 Long Left Curved Lever	BPA1116 Single Button Guard	BPA1117 Two Button Guard	BPA1128 Three Button Guard
				
<ul style="list-style-type: none"> <li>Used on Control Handles with (4) four lever buttons.</li> <li>Reduces Operator's thumb reach on the outer thumb lever button.</li> </ul>	<ul style="list-style-type: none"> <li>Used on Control Handles with (4) four lever buttons.</li> <li>Reduces Operator's thumb reach on the outer thumb lever button.</li> </ul>	<ul style="list-style-type: none"> <li>Protects the operator from inadvertently depressing the lever buttons when the control handle is clutched or set down.</li> <li>Mounts to (1) Single button Valve Block.</li> </ul>	<ul style="list-style-type: none"> <li>Protects the operator from inadvertently depressing the lever buttons when the control handle is clutched or set down.</li> <li>Mounts to (1) Two button Valve Block.</li> </ul>	<ul style="list-style-type: none"> <li>Protects the operator from inadvertently depressing the lever buttons when the control handle is clutched or set down.</li> <li>Mounts to (1) Single button Valve Block and (1) Two button valve block.</li> </ul>

BPA1129 Four Button Guard	BPA1130 Four Button Guard	BPA1112 Three Button Adapter Plate	BPA1111 Four Button Adapter Plate	BPD1144 Straight Grip
				
<ul style="list-style-type: none"> <li>Protects the operator from inadvertently depressing the lever buttons when the control handle is clutched or set down.</li> <li>Mounts to (2) Two Button Valve Blocks.</li> </ul>	<ul style="list-style-type: none"> <li>Protects the operator from inadvertently depressing the lever buttons when the control handle is clutched or set down.</li> <li>Mounts to (1) Two Button Valve Block, and (2) Single Button Valve Blocks.</li> </ul>	<ul style="list-style-type: none"> <li>Allows for easily mounting an additional (1) single button pneumatic valve block to an existing two lever control handle.</li> <li>Can be mounted for left or right hand positions.</li> </ul>	<ul style="list-style-type: none"> <li>Allows for easily mounting an additional (2) single button or (1) two button and (1) single button pneumatic valve blocks to an existing two lever control handle.</li> <li>Can be mounted for left or right hand positions.</li> </ul>	<ul style="list-style-type: none"> <li>Can be used as an auxiliary handle grip.</li> <li>Tapered surface design.</li> <li>Easy Slide-on Installation.</li> </ul>

BPD1125 Ergo Grip	BPD1100 Standard Handle Bracket	BPA9000 - (0-4) Standard Handle Bracket w/ Ergo Grip	BPA1119, 1120, 1121 Standard Collar Mounts	Part # CALL Custom Lever Options
				
<ul style="list-style-type: none"> <li>Can be used as an auxiliary handle grip.</li> <li>Shaped to the form of your hand.</li> <li>Easy Slide-on Installation.</li> </ul>	<ul style="list-style-type: none"> <li>The base platform for Knight Control Handles.</li> <li>Rear Hole Pattern attaches to Standard Collar Mounts.</li> <li>Allows for a rotational position of the handle around a vertical axis.</li> </ul>	<ul style="list-style-type: none"> <li>Combines the BPA1100 Standard Handle Bracket and BPD1125 Ergonomic Grip.</li> <li>Comes in 3 sizes to accommodate 3 different size standard collar mounts.</li> </ul>	<ul style="list-style-type: none"> <li>Mounts to backside of Control Handle.</li> <li>Allows Control handle to be mounted in a fixed position.</li> <li>Hole Pattern allows for multiple 360° rotational mounting positions.</li> </ul>	<ul style="list-style-type: none"> <li>Labeled Callouts.</li> <li>Custom Color Choices.</li> <li>Angled Levers.</li> <li>Different Languages.</li> </ul>

# Control Handle Accessories

KSAA1001 / KSAA1002 Quick Connect / Disconnect	Part # CALL 4-Pin Micro-Switch Cables	Part # CALL 8-Pin Micro-Switch Cables
 <ul style="list-style-type: none"> <li>• Allows for fast connections and disconnections.</li> <li>• Quickly connects to the servo handle.</li> <li>• Max load capacity: Up to 2000 lbs. [907 kg].</li> </ul>	 <ul style="list-style-type: none"> <li>• Comes in various lengths.</li> <li>• Available with Straight or Right Angle Connector Ends.</li> </ul>	 <ul style="list-style-type: none"> <li>• Comes in various lengths.</li> <li>• Available with Straight or Right Angle Connector Ends.</li> </ul>

KCA1041 Electrical Straight Cable	KCA1040 Electrical Coil Cable	BPA1133 Controls Enclosure Safety Cable Kit
 <ul style="list-style-type: none"> <li>• Connects a separate control handle pendant to Servo Hoists.</li> <li>• Made exclusively for Knight.</li> <li>• Available in various lengths.</li> </ul>	 <ul style="list-style-type: none"> <li>• Connects the In-Line Control Handle or (LMM) Load Monitoring Module to a Servo Hoist by wrapping around the Servo Hoist Chain.</li> <li>• Made exclusively for Knight.</li> <li>• Available in various lengths.</li> </ul>	 <ul style="list-style-type: none"> <li>• Prevents the enclosure from separating or falling in the event of an accident.</li> <li>• Runs through the enclosure mounting bracket and overhead carriage of the fixture.</li> </ul>