The Humphrey Series 555, 565 and 575 Electro-pneumatic Valve and Sensor Systems are complete valve/wiring/plumbing solutions designed exclusively for pneumatically actuated accumulation-type conveyors. Use with common photo-electric sensors to electrically operate pneumatic actuators controlling drive belts and carrier rollers. The 555, 565 and 575 replace sensor rollers and mechanically operated pneumatic systems with electronic control and intelligence.

The Humphrey Series 555, 565 and 575 Electro-pneumatic Valve and Sensor Systems offer your choice of ready-to-mount Valve Modules, Slug Modules, Slug Terminators, and Extension Cables. Options include various cable lengths, choice of modular or industry standard 12mm “micro” electrical connectors, pneumatic fitting choices, and optional low power/lower flow valve.

- **Built-in module electronics** allows you to change from singulation mode to slug mode using the available “556” slug module.

- Photo-electric sensing means no minimum weight restrictions providing you the flexibility of controlling various carton sizes and loads simultaneously.

- **Greater reliability and noise reduction.** Incorporating the field-proven HK5 diaphragm poppet valve with electronics eliminates sensor rollers, mechanically actuated valves, and other wear points.

- **Reduce assembly time and labor costs.** The modular design comes complete with electrical quick connects, several cabling length options, pneumatic fitting connections, and simple mounting.

- **Easy trouble shooting and maintenance.** Manual overrides and indicator lights are standard.

- **Complete mounting with a single tool** with mounting pin option and one mounting fastener.

- **Customized to match your needs.** Consult factory for other valve configuration(s) and logic functions.
SLUG START CONTROL CONNECTION

SLUG MODULE

VALVE AND SENSOR POWER CABLE

PHOTO-ELECTRIC SENSOR INPUT

#8 SCREW MOUNTING

HK5 MOUNTED VALVE MODULE

L.E.D. DISPLAY

COMMON AIR SUPPLY LINE

DELIVERY PORT TO AIR ACTUATOR

EXHAUST OUTLET

SERIES 555 / 565 / 575
FEATURES & BENEFITS

MAXIMUM NUMBER OF MODULES VS. LENGTH OF CABLE

EXAMPLE

If you have a length of conveyor that requires 30 valves, with 3 ft. of cable between them, you need a total of 90 ft. of cable (see stars at left). At that length, you can use either 0.8 w valves/20 mA sensors, 0.8 w valves/40 mA sensors, or 1.5 w valves/20 mA sensors. You can not use 30 of the 1.5 w valves with 40 mA sensors.

* Chart shows number of modules with power supply connected at one end of conveyor section. Number of modules can be doubled if power supply is connected in the middle.
The Humphrey 555 is designed to work on accumulation conveyors that use “pucks”, clutches, or other pneumatic actuators to provide power to the conveyor rollers when the air signal is supplied. The 555 is designed to work in singulation mode where each valve is controlled by a single downstream sensor as shown in the table below.

### Function of 555

<table>
<thead>
<tr>
<th>Slug</th>
<th>On</th>
<th>Off</th>
<th>Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor</td>
<td>Blocked</td>
<td>Clear</td>
<td>N/A</td>
</tr>
<tr>
<td>Valve</td>
<td>Off</td>
<td>On</td>
<td>On</td>
</tr>
<tr>
<td>Roller</td>
<td>No Power</td>
<td>Powered</td>
<td>Powered</td>
</tr>
</tbody>
</table>

### Power Connectors

- **Male**: +24VAC (White), Slug Start (Green), GND (Black)
- **Female**: 24VDC (White), Slug Start (Green), GND (Black)

*Switch slug start wire to ground to initiate the slug start function*
The Humphrey 565 and 575 are designed to work in a “dual zone sensing” (And Function) mode where each valve is controlled by two sensors. The sensor connected directly to the Valve Module is located in the same zone as the valve. The signal from the sensor connected to the downstream Valve Module is transmitted through the power cable.

The Humphrey 565 is designed to work on accumulation conveyors that use “pucks”, clutches, or other pneumatic actuators to provide power to the conveyor rollers when the air signal is applied. The Humphrey 575 is designed to work with conveyors that use an air signal to apply brakes to stop the rollers.

**Function of 565**

<table>
<thead>
<tr>
<th>Slug</th>
<th>Off</th>
<th>Off</th>
<th>Off</th>
<th>Off</th>
<th>On</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor @ Zone</td>
<td>Clear</td>
<td>Clear</td>
<td>Blocked</td>
<td>Blocked</td>
<td>N/A</td>
</tr>
<tr>
<td>Sensor Downstream</td>
<td>Clear</td>
<td>Blocked</td>
<td>Clear</td>
<td>Blocked</td>
<td>N/A</td>
</tr>
<tr>
<td>Valve @ Zone</td>
<td>Off</td>
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<td>Off</td>
<td>On</td>
<td>Off</td>
</tr>
<tr>
<td>Roller</td>
<td>Powered</td>
<td>Powered</td>
<td>Powered</td>
<td>No Power</td>
<td>Powered</td>
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</table>

**Function of 575**

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<tr>
<th>Slug</th>
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<tbody>
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<td>Roller</td>
<td>Powered</td>
<td>Powered</td>
<td>Powered</td>
<td>No Power</td>
<td>Powered</td>
</tr>
</tbody>
</table>

**Power Connectors**

- **Male**
  - +24VDC (White)
  - Slug Start (Green)
  - GND (Black)

- **Female**
  - Signal from downstream sensor
  - Signal to upstream module

*Switch slug start wire to ground to initiate the slug start function*
### Conveyor Valve Module

<table>
<thead>
<tr>
<th>SERIES</th>
<th>VALVE</th>
<th>CABLE</th>
<th>PORTING</th>
<th>CONNECTOR</th>
<th>OPTIONS</th>
<th>VOLTAGE</th>
<th>MOUNTING OPTIONS</th>
<th>SENSOR CONNECTOR</th>
<th>DELIVERY PORT</th>
<th>CABLE LENGTH BETWEEN MODULES</th>
</tr>
</thead>
<tbody>
<tr>
<td>555</td>
<td>L</td>
<td>N</td>
<td>02</td>
<td>B</td>
<td>P</td>
<td>24VDC</td>
<td>P Mounting Pin</td>
<td>1 12mm Micro Connector</td>
<td>B Molded Barb Fitting (1/8 inch ID tubing)</td>
<td>00 Micro Connector, No Cable</td>
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<td>B1 Molded Barb Fitting (5/32 inch ID tubing)</td>
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<td>B2 Molded Barb Fitting with 10-32 threaded exhaust (1/8 inch ID tubing)</td>
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<td>B3 Molded Barb Fitting with 10-32 threaded exhaust (5/32 inch ID tubing)</td>
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<td>10 10 ft. cable</td>
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</tbody>
</table>

#### Manual Override
- O Non-Locking Override
- N No Override

#### Power Consumption/Flow
- L Low Power (0.8 watt coil/Low Flow)
- H High Power (1.5 watt coil/High Flow)

### Conveyor Slug Module

<table>
<thead>
<tr>
<th>SERIES</th>
<th>CABLE</th>
<th>CONNECTOR</th>
<th>OPTIONS</th>
<th>VOLTAGE</th>
<th>MOUNTING OPTIONS</th>
<th>SENSOR CONNECTOR</th>
<th>CABLE LENGTH BETWEEN MODULES</th>
</tr>
</thead>
<tbody>
<tr>
<td>556</td>
<td>02</td>
<td>2</td>
<td>P</td>
<td>24VDC</td>
<td>P Mounting Pin</td>
<td>1 12mm Micro Connector</td>
<td>00 Micro Connector, No Cable</td>
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<td>07 7 ft. cable</td>
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<td>10 10 ft. cable</td>
</tr>
</tbody>
</table>

### Exhaust Muffler Option

Order Code: TAC 150-30A
10/32 Threaded Muffler

### Extension Cables

<table>
<thead>
<tr>
<th>OVERALL CABLE LENGTH</th>
<th>MALE-TO-FEMALE TERMINATION PART NUMBER</th>
<th>MALE-TO-MALE TERMINATION PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Foot:</td>
<td>38136</td>
<td>38139</td>
</tr>
<tr>
<td>3 Feet:</td>
<td>38137</td>
<td>38140</td>
</tr>
<tr>
<td>6 Feet:</td>
<td>38138</td>
<td>38141</td>
</tr>
</tbody>
</table>
**556 Slug Module** - The slug module is used to initiate a slug or block withdrawal from a section of conveyor. When the slug module is initiated via its sensor connector, it forces all of the valve modules connected to it to drive product. In the case of the 555 and 565, all valves will be forced on during a slug. In the case of the 575, all valves will be forced off. See the diagram “Examples of Slug Module Usage” above for connection examples. The 556 uses the same power and sensor connections as the 555.

**557 Slug Terminator** - The slug terminator is a short 5” male-female cable. The slug terminator is designed to break the slug signal and separate a section of conveyor that uses slug withdrawal from a section of conveyor that does not use the slug function or is controlled by a different slug module. The 557 Slug Terminator is connected between the power cables of the Valve Modules as shown in the “Examples of Slug Module Usage” diagram above. The 557 Slug Terminator is colored black to be easily distinguished from the Valve Module cabling.
**Valve Specifications**

**Valve Module**
- **Type:** Normally closed, 3-way
- **Nominal Voltage:** 24 VDC
- **Min. Operating Voltage:** 21.5 VDC
- **Current:**
  - 0.8 w Coil @ 24 VDC: 69.5 mA / 1.5 w
  - 1.5 w Coil @ 24 VDC: 40.0 mA / 0.8 w
- **Maximum # of Modules:** See chart below
- **Media:** Compressed air, filtered to 40 micron
- **Weight (less cable):** 3.49 ounces (98.9 grams)
- **Wetted Materials:** Stainless Steel
  - Xenoy® - GE®
  - 6/6 Glass-filled Nylon
  - NBR Seals
  - Thermoset Epoxy
  - Radel R® - Amoco®
- **Enclosure Protection:** NEMA Type 2

**Valve Module**
- **Type:** Normally closed, 3-way
- **Nominal Voltage:** 24 VDC
- **Min. Operating Voltage:** 21.5 VDC
- **Current:**
  - 0.8 w Coil @ 24 VDC: 69.5 mA / 1.5 w
  - 1.5 w Coil @ 24 VDC: 40.0 mA / 0.8 w
- **Maximum # of Modules:** See chart below
- **Media:** Compressed air, filtered to 40 micron
- **Weight (less cable):** 3.49 ounces (98.9 grams)
- **Wetted Materials:** Stainless Steel
  - Xenoy® - GE®
  - 6/6 Glass-filled Nylon
  - NBR Seals
  - Thermoset Epoxy
  - Radel R® - Amoco®
- **Enclosure Protection:** NEMA Type 2

**Sensor**
- **Type:** (Retro-reflective and Thru-beam) NPN, Light On (Normally Open)
  - (Diffuse) NPN, Dark On (Normally Closed)
- **Nominal Voltage:** 24 VDC
- **Min. Operating Voltage:** 20 VDC
- **Switching Capacity:** >80 mA
- **Voltage Drop:** <1 VDC

**Cable**
- **Type:**
  - 3 Conductor (555, 556 Slug Module)
  - 4 Conductor (565, 575 Slug Module)
- **Wire Gauge:** 20 AWG
- **Resistance:** 10.128 Ω / 1000 ft.
- **Wire Colors:**
  - + 24 VDC: White
  - Slug Start: Green
  - GND: Black
  - Downstream Sensor: Red

**Slug Module**
- **Nominal Voltage:** 24 VDC
- **Min. Operating Voltage:** 21.5 VDC
- **Current:** 20 mA
- **Switching Time:** 10 ms
- **Switching Capacity:** 5 A
- **Weight (less cable):** 2.15 ounces (61.0 grams)
- **Materials:** Xenoy® - GE®
  - 6/6 Glass-filled Nylon
- **Enclosure Protection:** NEMA Type 2

**Sensor Connectors**
- Female Modular Sensor Connector
  - Option Code: 2
- Female Micro Sensor Connector
  - Option Code: 1

*Voltage at module including all cable voltage drops

---

**Contact us for more information on these other material handling related products:**

- **300-400 Series Direct Acting Solenoid Valves**
- **HSGDA Series used for Conveyor Stops**

---

**Humphrey**

Build on Our Experience

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10/03

Documents Provided by Coast Pneumatics