

# Air Run-Up Kit

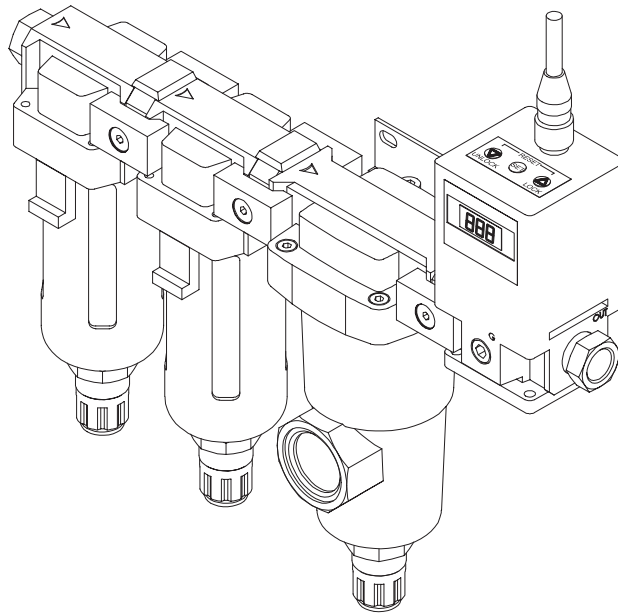


**WARNING:** Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others, and damage to the equipment.

## Introduction

The air run-up assembly automatically increases or decreases the pattern air pressure for a spray application based on the speed of the production line by converting an electronic line-speed reference signal from a parent machine to a corresponding output air pressure. Two air run-up assembly kits are available: one for a 0-10 VDC signal and one for a 4-20 mA signal. The assembly may be used with either pressure-fed or metering applicators.

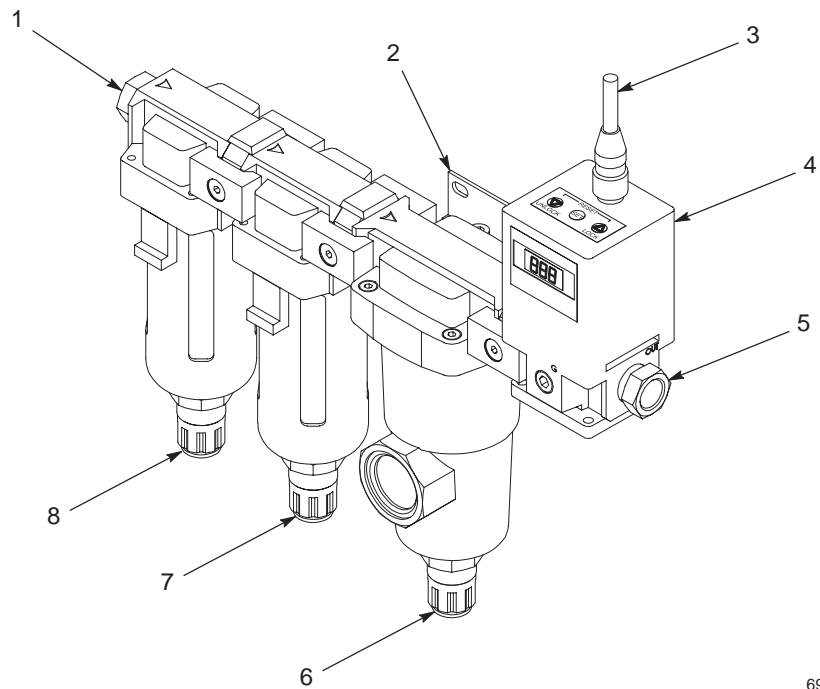
The air run-up assembly is composed of three filters and a micro-processor controlled electro-pneumatic regulator. The filters remove oil, water, and particulates from the pattern air before it is supplied to the applicator. Figure 2 shows the key parts of the air run-up assembly. This instruction sheet provides installation, maintenance, troubleshooting, and parts information for the assembly.



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Figure 1 Air run-up assembly

## Key Parts



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Figure 2 Key parts of the air run-up assembly

- |                           |                         |
|---------------------------|-------------------------|
| 1. Air inlet (1/4 NPT)    | 5. Air outlet (1/4 NPT) |
| 2. Mounting bracket       | 6. Water filter         |
| 3. Reference signal cable | 7. Oil filter           |
| 4. Regulator              | 8. Particulate filter   |

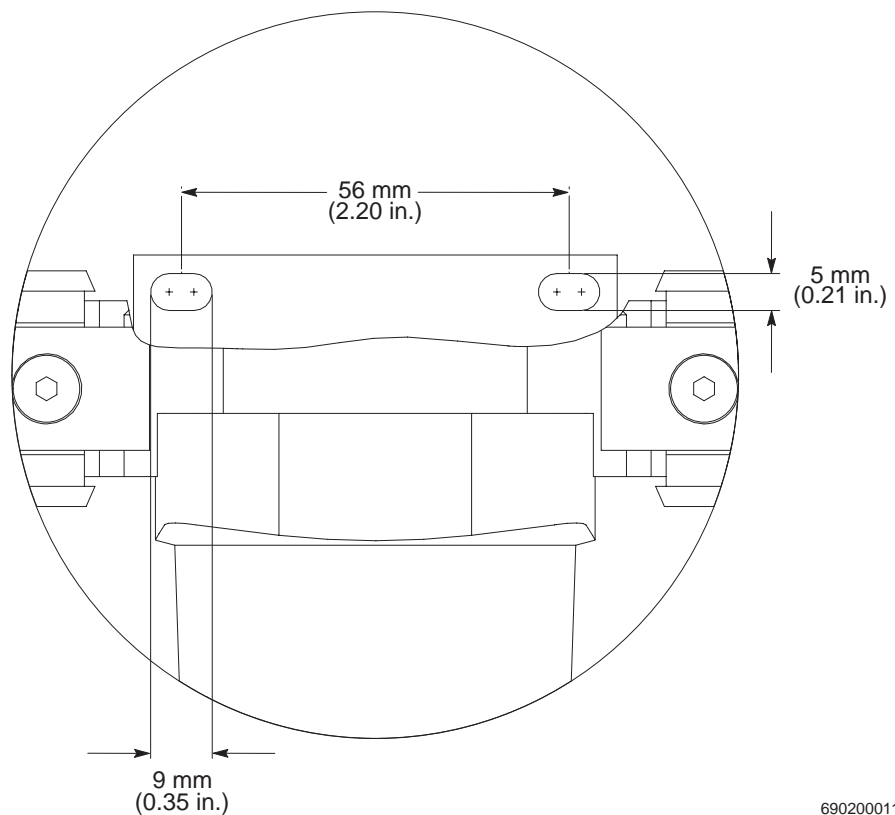
## Installation

1. See Figure 3. Mount the air run-up assembly using the mounting bracket. For the dimensions of the assembly, refer to *Dimensions* under *Technical Data* at the end of this instruction sheet.



**WARNING:** Improper wiring will damage the internal circuitry. Allow only qualified personnel to connect wiring.

2. Connect the reference signal cable to the parent machine. Refer to *Wiring Diagrams* under *Technical Data* at the end of this instruction sheet.
3. Connect the pattern air supply line to the air inlet and outlet on the assembly. See Figure 2 for the location of the outlets.
4. Continue to the next procedure to program the regulator.



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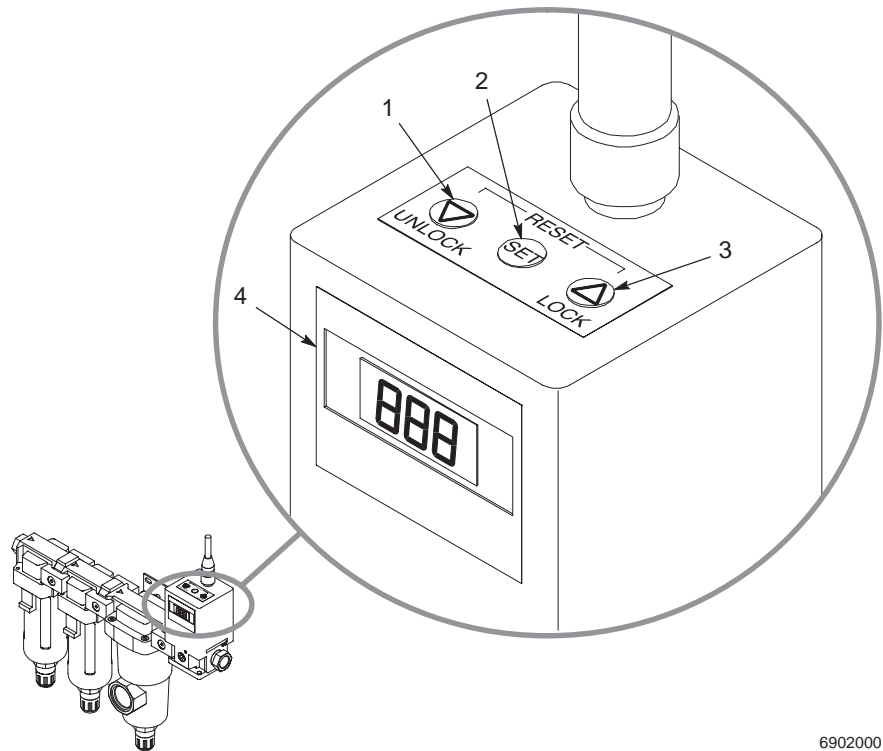
Figure 3 Mounting bracket dimensions

## Regulator Setup

This section includes the following procedures:

- *Unlocking/Locking the Keys*
- *Programming Minimum and Maximum Pressures*

Use these procedures to program the regulator for your application. Figure 4 shows the location of the regulator keys and display.



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Figure 4 Location of the regulator keys and display

- |                            |                        |
|----------------------------|------------------------|
| 1. UNLOCK (down arrow) key | 3. LOCK (up arrow key) |
| 2. SET key                 | 4. Display             |

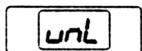
## Unlocking/Locking the Keys

To prevent unauthorized changes, the regulator has a key lock feature that allows you to disable the programming keys. By default, the keys are locked when the power is turned on. The keys must be unlocked to change any settings. The display will show *Loc* if a key is pressed while the keys are locked.

See Figure 4 for the location of the keys on the regulator.



Locked



Unlocked

### To Unlock

1. Press and hold the UNLOCK (down arrow) key for 2 seconds or longer. The display will blink *Loc*.
2. Press the SET key to **unlock** the keys, or press the LOCK (up arrow) key to cancel.

### To Lock

1. Press and hold the LOCK (up arrow) key for 2 seconds or longer. The display will blink *UnL*.
2. Press the SET key to **lock** the keys, or press the UNLOCK (down arrow) key to cancel.

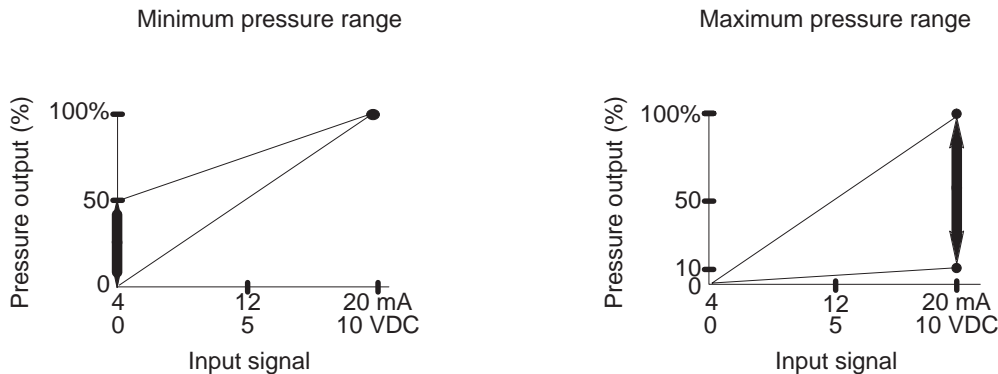
## Programming Minimum and Maximum Pressures

For the air run-up assembly to automatically increase or decrease the pattern air pressure based on the line speed, you must program the regulator to set the minimum and maximum air pressure values that will work for your application.

Set the minimum pressure (zero point) at 0% of the input (line-speed reference) signal and set the maximum pressure (span) at 100% of the input signal. The minimum pressure can be set as low as 0% and as high as 50% of the full span. The maximum pressure can be set as low as 10% and as high as 100% of the full span.

For example, the regulator could be set to output 2.4 bar (35 psi) at 0% input signal and 3.0 bar (43 psi) at 100% input signal. There must be at least 0.6 bar (8 psi) separation. Similarly, the regulator could be set to output 0 bar (0 psi) at 0% input signal and 0.6 bar (8 psi) at 100% input signal.

Figure 5 shows how the pressure changes based on the input signal.



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Figure 5 Pressure changes based on line-speed reference signal

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## Programming Minimum and Maximum Pressures (contd)



**CAUTION:** Risk of equipment damage or personal injury. When you change the minimum and maximum pressure values, the new values take effect as soon as the SET key is pressed.

See Figure 4 for the location of the keys on the regulator.

### ***To Unlock the Keys***

1. Press and hold the UNLOCK (down arrow) key for 2 seconds or longer. The display will blink *Loc*.
2. Press the SET key to unlock the keys.
3. Press the SET key to continue to the next step.

### ***To Set the Minimum Pressure (F\_1)***

1. Press the up and down arrow keys until the display shows the desired minimum pressure.
2. Press and release the SET key to continue to the next step.

### ***To Set the Maximum Pressure (F\_2)***

1. Press the up and down arrow keys until the display shows the desired maximum pressure.
2. Press and release the SET key to continue to the next step.

## Maintenance

Replace all filter elements as follows:

- Whenever there is a drop in pressure or air flow
- Every 3-6 months, as appropriate for your operation

## Troubleshooting

Use the following table to troubleshoot the air run-up assembly based on the error code shown on the regulator display.

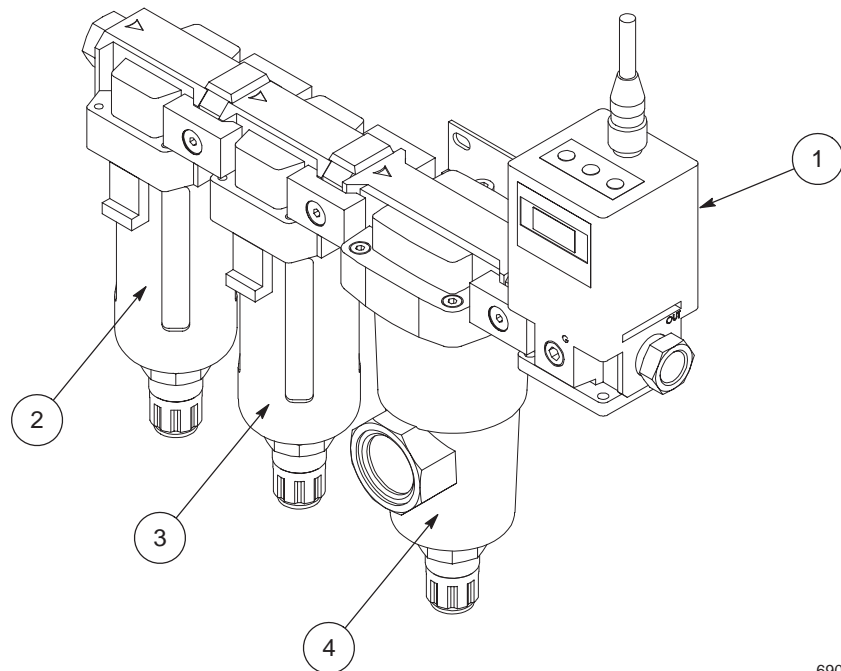
See Figure 4 for the location of the display on the regulator.

| Error Code                                                                                                             | Problem                                              | Corrective Action                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Er1                                                                                                                    | Line-speed reference signal exceeds the signal range | Check your programmed settings for minimum and maximum pressure. Refer to <i>Programming Minimum and Maximum Pressures</i> . |
| Er2                                                                                                                    | EPROM read/write error                               | Reset the regulator (see Note).                                                                                              |
| Er3                                                                                                                    | Memory read/write error                              | Reset the regulator (see Note).                                                                                              |
| Er3                                                                                                                    | Internal solenoid valve malfunction                  | Replace the regulator.                                                                                                       |
| Er0                                                                                                                    | Other                                                | Contact your Nordson representative.                                                                                         |
| <b>NOTE:</b> To reset the regulator, simultaneously press and hold the up and down arrow keys for 3 seconds or longer. |                                                      |                                                                                                                              |

# Parts

See Figure 6.

| Item          | Part    | Description                               | Quantity | Note |
|---------------|---------|-------------------------------------------|----------|------|
| —             | 1036518 | Kit, air run-up, 4-20 mA, 0-5 bar         | —        |      |
| —             | 1036520 | Kit, air run-up, 0-10 VDC, 0-5 bar        | —        |      |
| 1             | 1044431 | • Regulator, 0-10 VDC, 0-5 bar, 3 m cable | 1        |      |
|               | 1044432 | • Regulator, 4-20 mA, 0-5 bar, 3 m cable  | 1        |      |
| 2             | 1044033 | • Filter element, particulate             | 1        |      |
| 3             | 1044036 | • Filter element, oil                     | 1        |      |
| 4             | 1044036 | • Filter element, water                   | 1        |      |
| NS            | 1044037 | • O-ring, filter bowl                     | 1        |      |
| NS: Not Shown |         |                                           |          |      |



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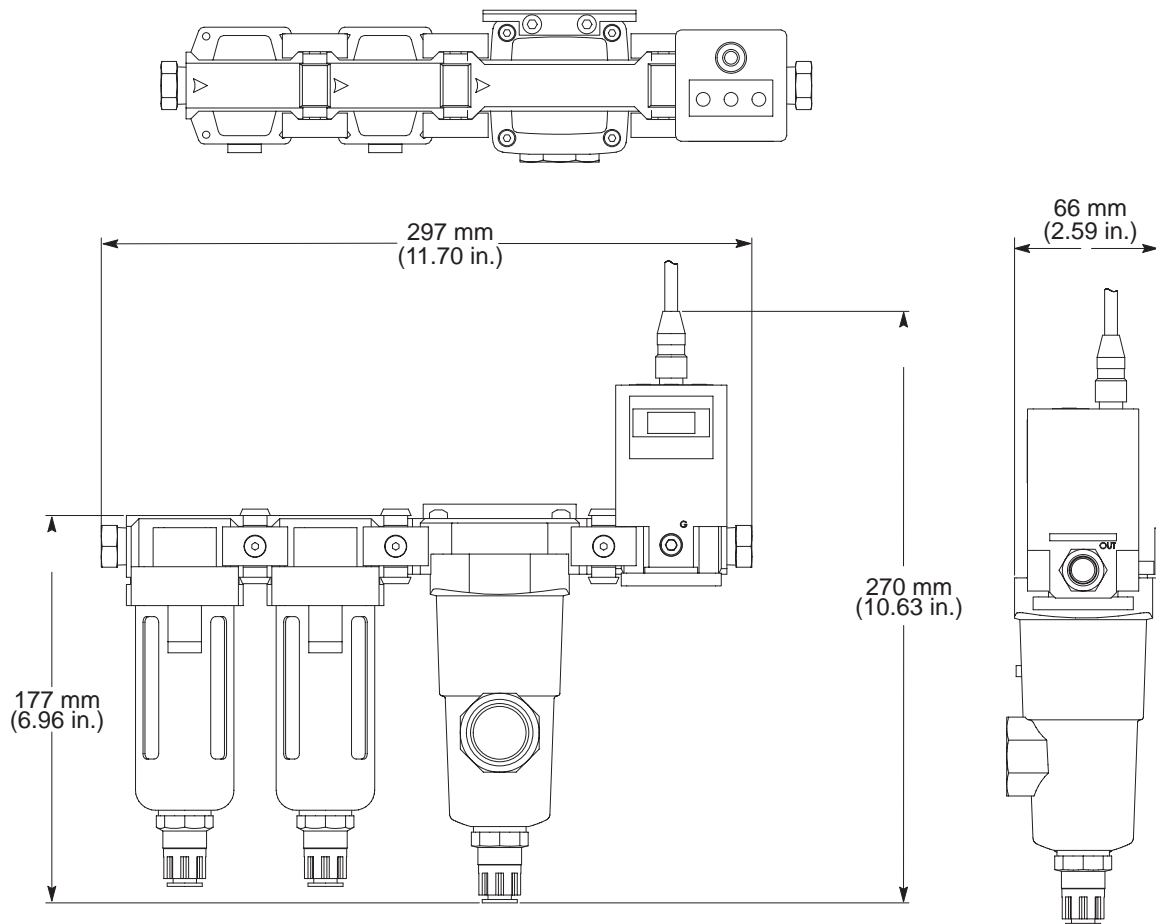
Figure 6 Air run-up assembly parts

# Technical Data

## Specifications

| Item            | Specification                                         |
|-----------------|-------------------------------------------------------|
| Supply Pressure | [set pressure + 1 bar (14.5 psi)] to 10 bar (145 psi) |
| Output Pressure | 0-5 bar (0.7-72.5 psi)                                |
| Maximum Flow    | 52.5 scfm                                             |
| Supply Voltage  | 24 VDC $\pm$ 10%                                      |
| Input Signal    | 0-10 VDC<br>or<br>4-20 mA DC                          |
| Linearity       | $\pm$ 1% full span                                    |
| Hysteresis      | 0.5% full span                                        |
| Repeatability   | $\pm$ 0.5% full span                                  |

## Dimensions

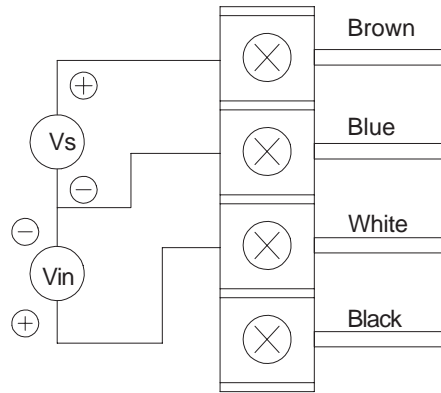


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Figure 7 Air run-up assembly dimensions

## Wiring Diagrams

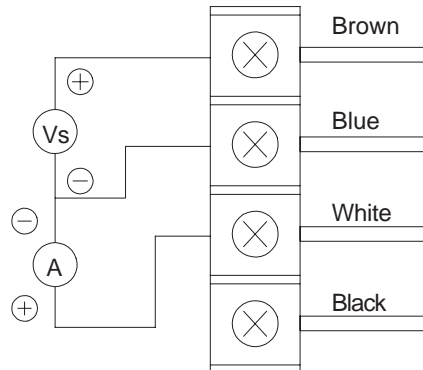
### 0-10 VDC Air Run-up Assembly



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Figure 8 Wiring diagram for 0-10 VDC signal

### 4-20 mA Air Run-up Assembly



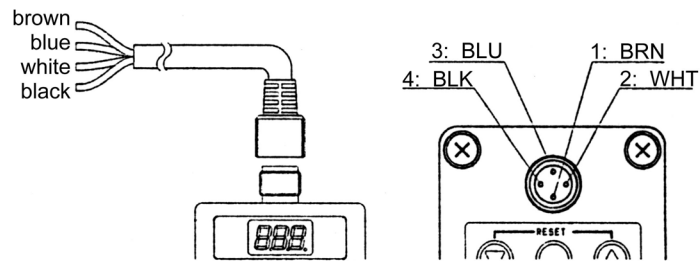
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Figure 9 Wiring diagram for 4-20 mA signal

### Reference Signal Cable Pin Positions

Table 1 Reference Signal Cable Pin Positions

| Pin | Wire Color | Description    |
|-----|------------|----------------|
| 1   | Brown      | Supply voltage |
| 2   | White      | Input signal   |
| 3   | Blue       | Ground         |
| 4   | Black      | Monitor output |



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Figure 10 Reference signal cable pin positions

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