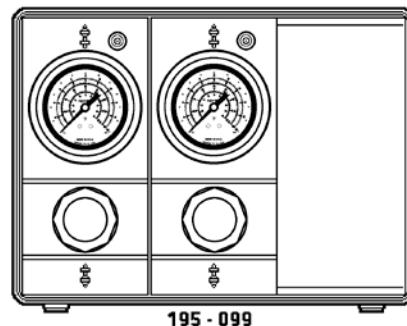


POWERS CONTROL®

RC 195 Simulator



Description

The RC 195 Simulator is designed to simplify the calibration and setup of RC 195 and RC 185 Receiver-Controllers. The simulator is capable of simulating two transmitters (one-pipe). It has a gauge and switch for indication and adjustment of each transmitter signal to be simulated.

Product Number

Table 1.

Product Number	Number of Gauges	Number of Switches	Number of Hoses	Weight lb (kg)
195-099	2	2	2	2.8 (1.3)

Specifications

Positioning Switch Range 3 to 15 psig (21 to 103 kPa)

Minimum Pressure Change 0.1 psig (0.7 kPa)

Operating

Receiver Gauge Range 3 to 15 psig (21 to 103 kPa)



Physical

Enclosure size 7-1/4 inch x 10-inch x 3-7/8 inch
(184 mm x 254 mm x 98 mm)

Receiver Gauge 2-1/2 inch (64 mm)

Rubber Hose 36-inch x 3/16-inch ID
(915 mm x 4.7 mm)

Warning/Caution Notations

WARNING:		Personal injury or loss of life may occur if you do not perform a procedure as specified.
CAUTION:		Equipment damage may occur if you do not perform a procedure as specified.

Operation

The positioning switch knob varies the simulator output pressure. Turning the adjusting knob approximately three turns will gradually change the output pressure from 3 to 15 psi (21 to 103 kPa). Rotating the knob clockwise increases the output pressure.

RC 195 Receiver - Controller with Simulator

1. Stand the simulator on its rubber feet. The gauges must be vertical. See Figure 1.
2. Fold the cover back out of the way. The cover cannot be removed.

Connections

3. Attach the 3/16-inch (4.8 mm) ID simulator hoses to the barbed connectors on the simulator. Attach short pieces of 1/4-inch (6.4 mm) OD plastic tubing to the other end of the rubber hoses to adapt to the barbed terminal(s) of the input connector which is supplied with the simulator. See Figure 1.

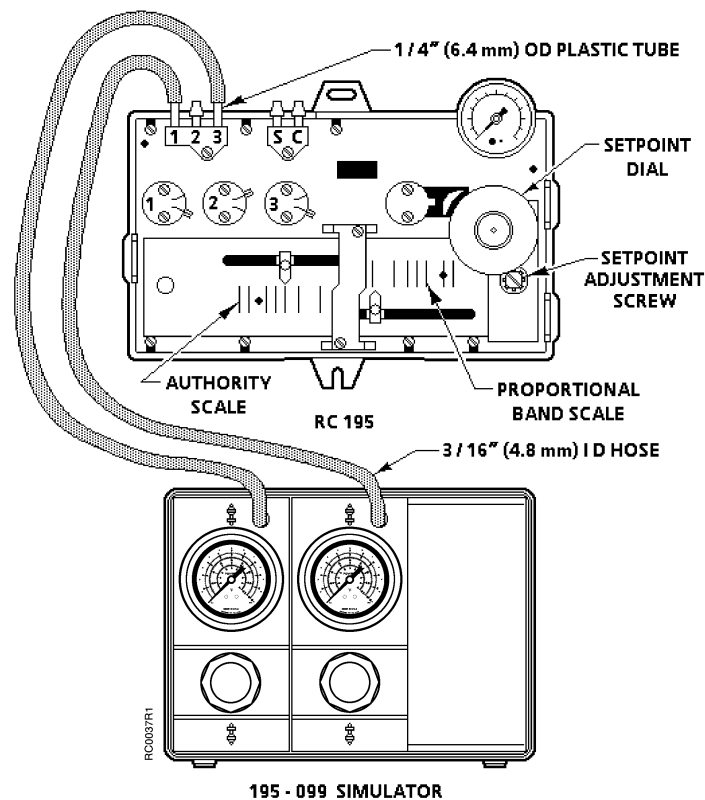


Figure 1. RC 195 Receiver-Controller with Simulator.

RC 195 Receiver - Controller with Simulator, Continued

4. Unplug the transmitter input connector on the RC 195 and plug in the connector attached to the simulator hose(s).
5. If the transmitters are supplied with external restrictors, turn the appropriate internal restrictors on the RC 195 from the "out" to the "in" position. These restrictors must be returned to the "out" position when *Setup and Calibration* have been completed.

Setup and Calibration

1. Proportional Band. Move the pointer to desired setting on the proportional band scale.
2. Authority. When input three is used, move the pointer to the desired setting on the authority scale.
3. Simulate Setpoint Conditions. Adjust the knobs on the simulator so that all the pneumatic inputs are at their setpoint condition.
4. Setpoint. Turn the setpoint adjustment screw to obtain the desired control pressure. Pull the setpoint dial up, turn it to agree with the control schematic and then release it.
5. Check Operation. Pneumatic inputs corresponding to both ends of a reset schedule can be simulated in order to ensure that the Receiver-Controller is in calibration throughout its entire range. Minor variations of 2 to 3 psi (14 to 21 kPa) in the control pressure are normal.



CAUTION:

Keep the receiver gauge vertical. An unacceptable error of 0.2 psig (1.38 kPa) occurred in laboratory testing when calibrating a Receiver-Controller with the RC 195 Simulator not in a vertical position.

RC 185 Receiver-Controller with Simulator

Connections

1. Stand the simulator on its rubber feet. The gauges must be vertical. See Figure 2.

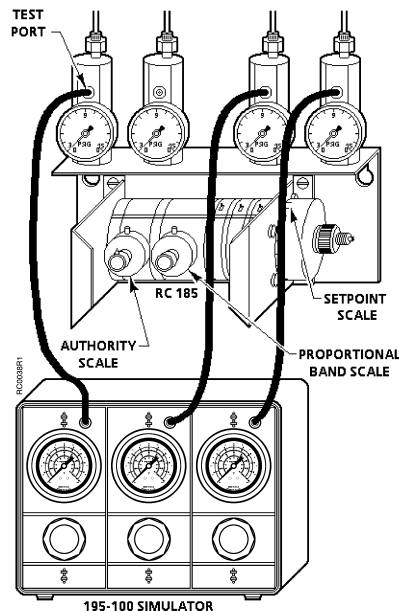


Figure 2. RC 185 Receiver-Controller with Simulator (195-100 Three-Transmitter, Obsolete).

RC 185 Receiver-Controller with Simulator, Continued

2. Fold the cover back out of the way. The cover cannot be removed.
3. If any pneumatic input has remote air supply, replace the undrilled cartridge (silver color) and install a restrictor (brass color) during calibration. After the Receiver-Controller is calibrated, reinstall all undrilled cartridges.
4. Insert the hex key through the hole in the test port and turn clockwise until the test screw seats, closing off the airflow to the transmitter. The airflow from the restricted air supply within the Receiver-Controller is now directed out through the test port. Repeat this step for all pneumatic inputs.
5. Connect the rubber hose from the simulator to the transmitter input test port. Repeat this step for all pneumatic inputs.

Setup and Calibration

1. Authority. For the Receiver-Controller with stage 3 or 4 only.
 - For authorities between 0 and 40%, set the authority using the calibrated scale on authority valve.
 - For authorities above 40%, see Figure 3 to determine TPP3 or TPP4 for desired authority.

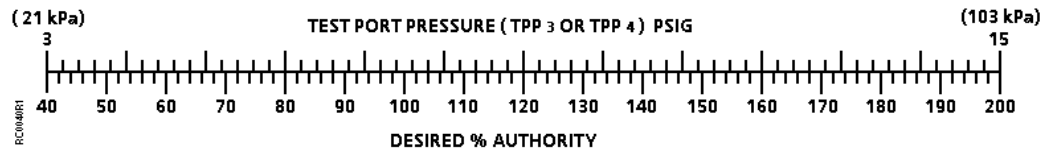


Figure 3. RC 185 Desired Percent Authority.

- a. Loosen the screw in the authority test port. Connect the hose from the simulator to the test port.
 - b. Adjust the pneumatic input P3 or P4 to 15.0 psi (105 kPa).
 - c. Adjust the authority knob until the simulator gauge reads the required TPP₃ or TPP₄.
 - d. Remove the hose and tighten the set screw in the authority test port.
2. Proportional Band. Adjust the proportional band adjustment to the required value.
 3. Simulate Setpoint Conditions. Adjust the knobs on the simulator so that all pneumatic inputs are at their setpoint condition. See Figure 4.

RC 185 Receiver-Controller with Simulator, Continued

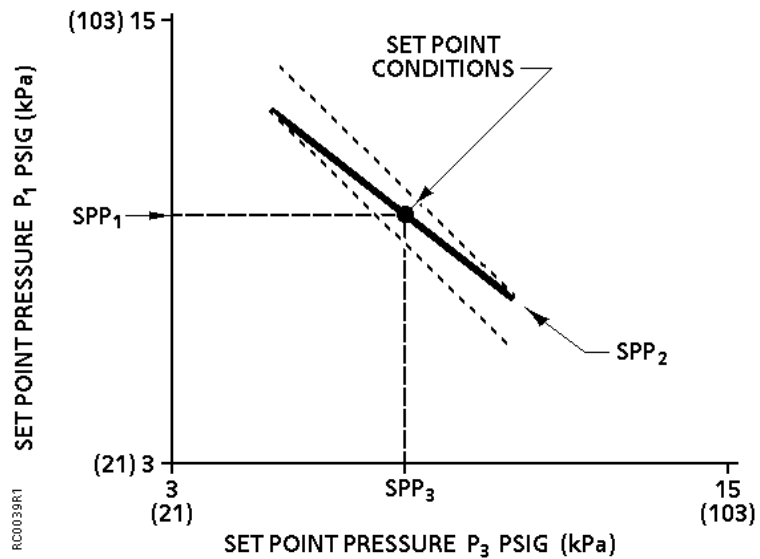


Figure 4. Setpoint.

4. Setpoint. Adjust the setpoint scale to the required setpoint.
5. Calibration Adjustment. Loosen the calibration lock screw and knob. Adjust calibration screw, (clockwise to increase control pressure) until the control pressure is 8 ± 1 psi (55 ± 7 kPa). Lock the knob and tighten the calibration lock screw.
6. Check Operation. Pneumatic inputs corresponding to both ends of a reset schedule can be simulated in order to insure that the Receiver-Controller is in calibration throughout its entire range. Minor variations of 2 or 3 psi (14 to 21 kPa) in the control pressure are normal. Correct larger errors by repeating Steps 1 through 5, making the necessary minor adjustments.

Simulator Maintenance

The bleed type positioning switches used in the simulators do not require maintenance. Periodically check the 3 to 15 psi (21 to 103 kPa) pressure gauge for accuracy. Recalibrate or replace as necessary.

Information in this publication is based on current specifications. The company reserves the right to make changes in specifications and models as design improvements are introduced. POWERS CONTROL is a registered trademark of Siemens Industry, Inc. Other product or company names mentioned herein may be the trademarks of their respective owners. © 2015 Siemens Industry, Inc.