

Q625A Remote Setpoint

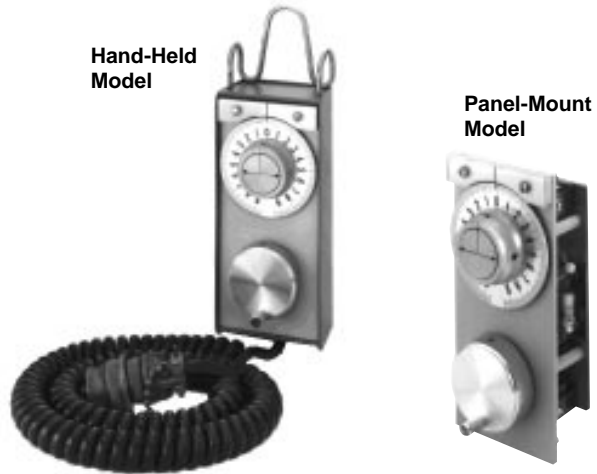
BLN-95-8914-4

Issued: February 1992

DESCRIPTION

The Q625A Remote Setpoint is designed for use with the W894A Proportional Level Controller or the R7232A Proportional Indicating Controller. When connected to either controller, the slope setpoint is adjustable to $\pm 9.5\%$ slope.

Two models of the Q625A are available. The hand-held version has a coiled cord and MS connector for hook up. A panel-mount version mounts in a panel and provides a terminal strip for hook-up. Both Q625A models are available with a slope roll-off circuit, which functions as a filter to reduce gain at frequencies above 3 Hz, for use on equipment with high vibration and shock levels.



FEATURES

- Spring-Loaded Hanger — Hand-held model easily clips to railing, pipes, bars, etc., to permit extensive freedom of movement for the operator about the machine.
- Adjustable Dial — Clutch in the dial permits adjustment of the dial with respect to the potentiometer. With this feature, the zero can be used as a reference for any off level condition.
- Optional Slope Roll-Off Circuit — High mechanical vibration and shock levels of the machine are effectively shunted by the roll-off circuit to prevent system reaction initiated by the highly sensitive slope sensor.
- Slip Clutch — Prevents damage to the potentiometer when the end of travel is reached.
- Rugged Aluminum Housing — Shock and vibration resistant. Mounts in any orientation without affecting operation. Resists corrosion, moisture, and other damaging environmental effects.
- Easy To Install — MS connector on hand-held model plugs in and screws tight. Four connections to terminal strip on panel-mount model; mounts on a flat surface 3 by 6 inches or larger.
- High Resolution — Gear train provides a reduction between the setpoint crank and the read-out dial. One complete turn of the crank changes the setpoint by 0.1% slope.

ORDERING INFORMATION

ACCESSORIES

Part number KW01001 Cable Assembly provides all necessary wiring connections between the panel-mount Q625A and the R7232A Proportional Indicating Controller with MS connectors or the W894A Proportional Level Controller. It comes completely assembled with MS connector on one end; spade lugs on the other end.

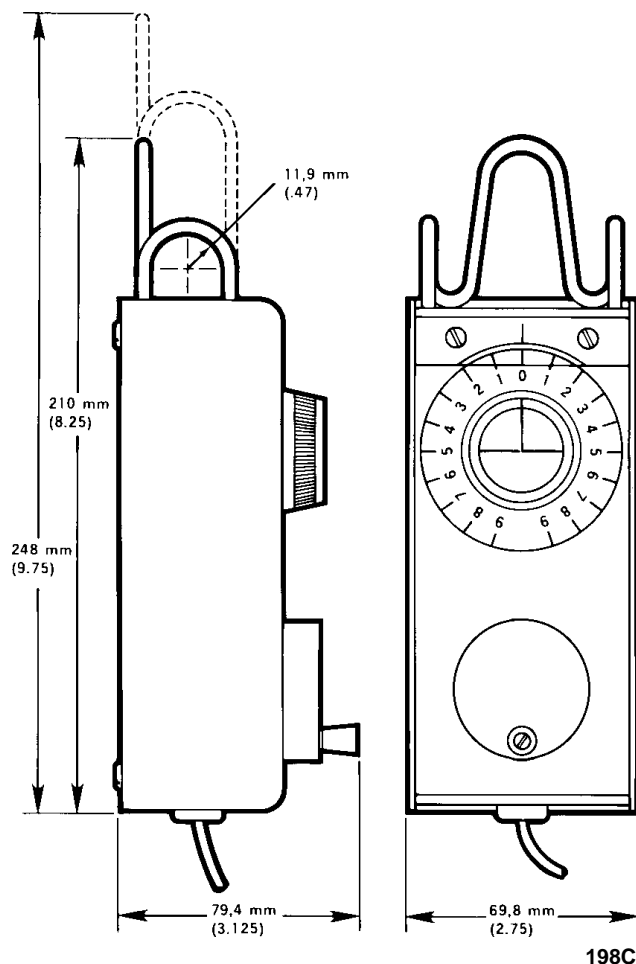
REPLACEMENT PARTS

1. K04034 Cable with mating MS connector (hand-held model).

SPECIFY

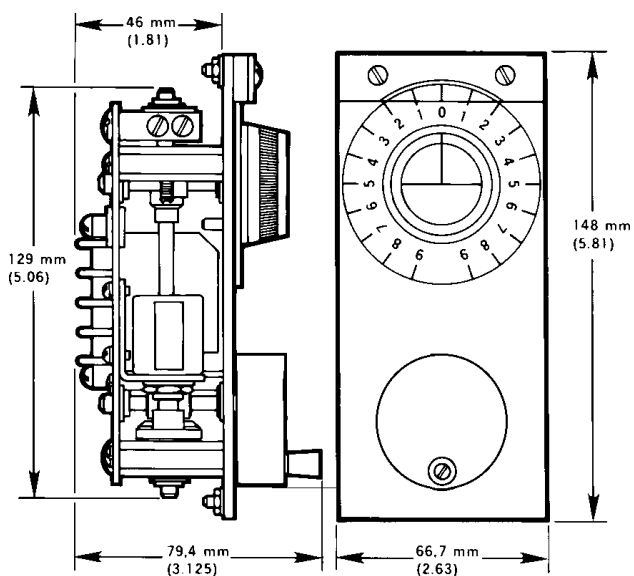
1. Model number (Q625A).
2. Panel-mount or hand-held.
3. Slope roll-off (optional).
4. KW01001 Cable, if necessary (panel-mount model).

DIMENSIONS, HAND HELD MODEL



Dimensions of the Hand-Held Q625A in Millimeters (Inches).

DIMENSIONS, PANEL MOUNT MODEL



199C

Dimensions of the Panel-Mount Q625A in Millimeters (Inches).

PERFORMANCE

SETPOINT RANGE

Adjustable to $\pm 9.5\%$ slope. One revolution of the crank changes the setpoint 0.1% slope.

RESISTANCE

2500 ± 5 ohms between A and C of the connector or terminal strip. Resistance between A and B increases when the hand crank is rotated clockwise. See the Resistance Vs. Dial Position drawing.

SLOPE ROLL-OFF CIRCUIT EFFECTS

The slope roll-off circuit acts as a filter to reduce slope system gain by 14 db at mechanical vibration frequencies above 3 Hz.

CENTERING ACCURACY

Potentiometer centering to dial zero position will be accurate to within $\pm 0.10\%$.

HYSTERESIS

The hand crank to dial hysteresis including back-lash will be less than 0.08% slope.

SLOPE ACCURACY

After adjusting the zero dial setting to coincide with the electrical midpoint of the device, the accuracy at any dial setting within $\pm 5\%$ slope shall be within $\pm 0.14\%$ of absolute slope. Accuracy outside of $\pm 5\%$ slope will be within $\pm 0.20\%$ of absolute slope.

DIAL TORQUE

15 + 5-9 in. - oz. (0.1059 + 0.035-0.063 Nm)

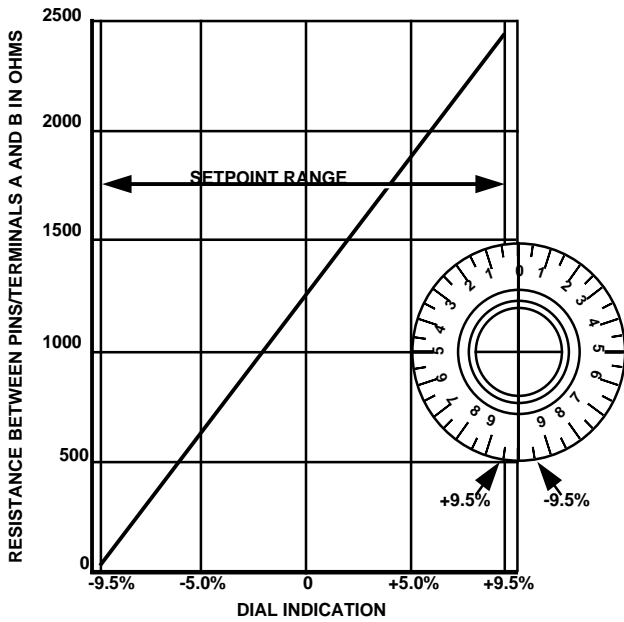
CRANK TORQUE

8 \pm 6 in. - oz. (0.056 \pm 0.042 Nm)

DIMENSIONS

See the Dimension drawings.

RESISTANCE VS. DIAL POSITION



197

Resistance Vs. Dial Position of the Q625A.

ENVIRONMENTAL

VIBRATION

Withstands a vibration test designed for mobile equipment controls consisting of two parts:

1. Cycling from 5 to 2000 Hz in each of the three axes.
2. Resonance dwell for one million cycles in each of the three axes. Run from ± 1.5 g's to ± 3.0 g's. Acceleration level varies with frequency.

SHOCK

50 g's for 11 milliseconds. Three shocks in both directions of the three mutually perpendicular axes for a total of 18 shocks.

OPERATING TEMPERATURE

-18° to 60° C (0° to 140° F)

STORAGE TEMPERATURE

-40° to 77° C (-40° to 170° F)

WEIGHT

Hand-held model: 2.18 pounds (0.98 kg)

Panel-mount model: 1.125 pounds (0.51 kg)

INSTALLATION

MOUNTING

Hand-held models have a spring-return hanger designed for suspending the remote setpoint in any convenient location. No mounting is required.

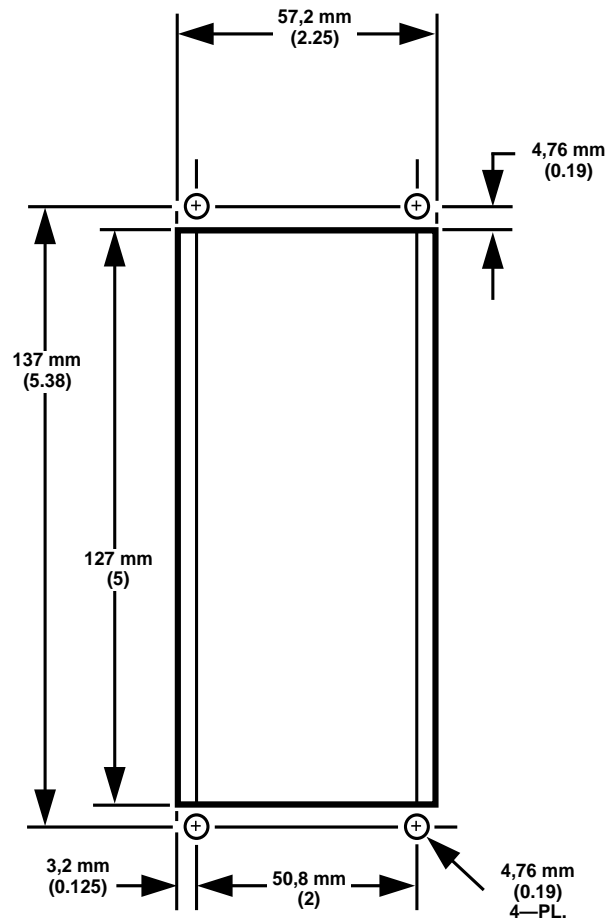
Panel-mount versions require a cut-out of the size shown in the Mounting Dimensions drawing. At least two inches of clearance should be provided behind the panel for the device. Drill $\frac{3}{16}$ inch clearance holes in the location shown in the Mounting Dimensions drawing. Remove the nuts from the threaded studs at the back of the front plate, insert the studs through the clearance holes, and replace the nuts from the back of the panel.

WIRING

All hand-held models have an integral coiled cord (2 foot contracted) with an MS connector that plugs directly into the R7232A Proportional Indicating Controller or W894A Proportional Level Controller. If an R7232A with terminal strips is to be used in conjunction with the hand-held Q625A, mount a Bendix type MS3102A-16S-8P (Sauer-Danfoss Part Number K03992) receptacle on a panel and wire the receptacle to the corresponding letters on the R7232A terminal strip. See the Wiring diagram.

Wiring for the panel-mount Q625A is shown in the Wiring diagram. The panel-mount Q625A has terminal strips for wiring connections. If an R7232A Proportional Indicating Controller with MS connectors or W894A Proportional Level Controller is to be used in conjunction with the panel-mount Q625A, order part number KW01001 Cable Assembly. The cable assembly includes spade lugs at one end and an MS connector at the other end to provide all wiring for the Q625A panel-mount model.

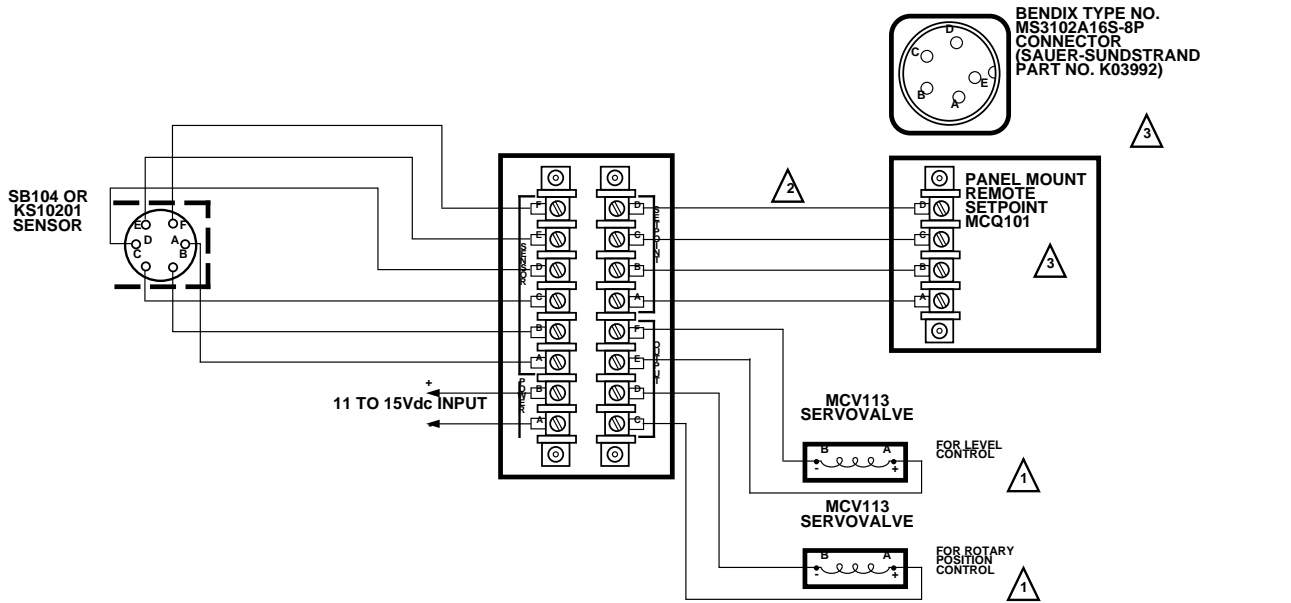
MOUNTING DIMENSIONS



200A

Mounting Dimensions for the Panel-Mount Q625A in Millimeters (Inches).

WIRING DIAGRAM



1 THE R7232 WILL OPERATE ONE MCV113 SERVOVALVE FOR EITHER ROTARY POSITION OR LEVEL CONTROL, BUT NOT BOTH AT THE SAME TIME.

3 IF A HAND-HELD REMOTE SETPOINT MCQ101 IS USED, CONNECT THE AMPLIFIER TO A BENDIX TYPE NO. MS3102A16S 8P, A, B, C, D, TO A, B, C, D RESPECTIVELY AND MOUNT ON THE PANEL.

2 WIRING FROM D TO D IS NEEDED ONLY WHERE THE REMOTE SETPOINT IS EQUIPPED WITH A ROLL-OFF CIRCUIT

999D

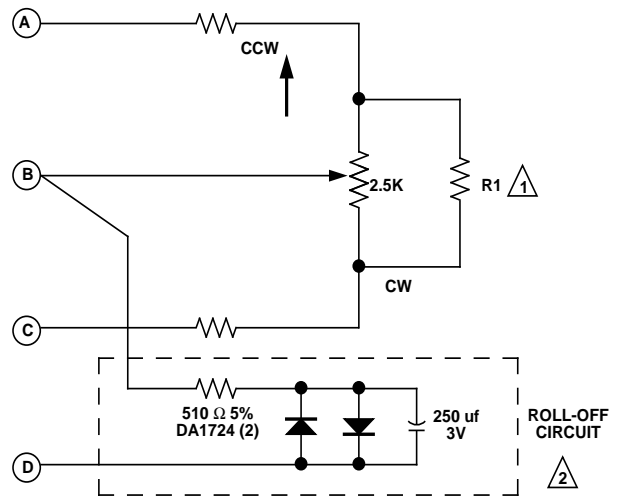
Typical System Wiring to an R7232A Proportional Indicating Controller With Terminal Strips.

TROUBLESHOOTING

The Q625A Remote Setpoint will provide extended, trouble-free operation and should not need servicing under normal operating conditions. Be sure the Q625A is malfunctioning before replacing it.

1. Check wiring. Connector or spade lugs may have been disconnected. Check all wires looking for cuts or evidence of pinching.
2. Check continuity. See the Resistance Vs. Dial Position drawing and the Internal Workings Schematic. If a VOM is available, check resistance between Pins/Terminals A and C for 2500 ohms or 9400 ohms, depending on model. Check continuity between Pins/Terminals A and B, and B and C while rotating the hand crank. Resistance should approximate the values shown in the Resistance Vs. Dial Position drawing.
3. Slope roll-off. If the Q625A has a slope roll-off circuit and the equipment or machine control appears to be unstable or oscillates, the roll-off circuit may be at fault. But first, try reducing sensitivity or gain of the controller to eliminate oscillation.

INTERNAL WORKINGS SCHEMATIC



1 RESISTOR R1 IS A HIGH RESISTANCE VALUE SELECTED TO INCREASE THE ACCURACY OF THE POTENTIOMETER

2 ROLL-OFF IS OPTIONAL

201B

TROUBLESHOOTING *(continued)*

3. *Continued.*

If a VOM is available, a check of the slope roll-off circuit can be made. See the Internal Workings Schematic.

- a. Place the output leads of the VOM across Pins/Terminals B and D of the MS connector or terminal strip. A reading of 1500 ohms should be found on the R x 100 scale. If the capacitor is shorted the VOM will read 500 ohms.

- b. Switch the VOM to the R x 10,000 scale. Reverse polarity on the VOM. Charging of the capacitor should be seen on the meter.

4. If another Q625A is available, connect it in place of the existing one. Change the slope setpoint and observe operation. If the replacement Q625A corrects the malfunction, replace the original unit.
5. Check operation of the servovalve, controller and sensor.

CUSTOMER SERVICE

NORTH AMERICA

ORDER FROM

Sauer-Danfoss (US) Company
Customer Service Department
3500 Annapolis Lane North
Minneapolis, Minnesota 55447
Phone: (763) 509-2084
Fax: (763) 559-0108

DEVICE REPAIR

For devices in need of repair or evaluation, include a description of the problem and what work you believe needs to be done, along with your name, address and telephone number.

RETURN TO

Sauer-Danfoss (US) Company
Return Goods Department
3500 Annapolis Lane North
Minneapolis, Minnesota 55447

EUROPE

ORDER FROM

Sauer-Danfoss (Neumünster) GmbH & Co.
Order Entry Department
Krokamp 35
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D-24531 Neumünster
Germany
Phone: 49-4321-8710
Fax: 49-4321-871-184