

# AV Position Transmitter Field-Replacement Kit



Pneumatic and electro-pneumatic positioners built on proven performance for demanding process conditions

**Measurement made easy**

—  
Characterizable  
analog positioners

## For more information

The Operating Instruction and Data Sheet for the AV1 and AV2 characterizable pneumatic positioners are available for free download from:

[www.abb.com/measurement](http://www.abb.com/measurement)

or by scanning this code:



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Data Sheet

[DS/AV12-EN](#)

Operating Instruction

[OI/AV12](#)

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## Contents

1.0 Introduction .....	2
2.0 Kit Parts .....	3
3.0 Kit Installation .....	4
3.1 General .....	4
3.2 Instructions .....	4

## List of Figures

Figure 1. Position Transmitter (Exploded View)

Figure 2. Additional Parts Locations

## List of Tables

Table 1. Position Transmitter Kit Parts List

Table 2. Position Transmitter Wiring to Terminal Block

## 1.0 Introduction

A field-replacement kit has been made available to replace or retrofit a 4-20 mA Position Transmitter into a Type AV1/AV2 Positioner. The AV Positioner Transmitter Kit part number is 258670A1.

Contents of the kit and an exploded-view drawing of the parts and their locations are shown in Section 2.0 KIT PARTS. A Terminal Block (P/N 6639559A1) and Nylon Cable Clip (P/N 1943187A1) are included in the kit but are only required if working with a Model AV1 Positioner. If working with a Model AV2 Positioner, which already contains these components, the Terminal Block, Nylon Clip, Ground Washer and 4 extra 197893A1 Mounting Screws contained in the kit may be discarded.

Section 3.0 INSTALLATION of this document describes the procedure required for replacing or retrofitting a 4-20 mA Position Transmitter into an Type AV1/AV2 Positioner in the field.

## Contacting the Factory

Should assistance be required with any of the company's products, contact the following:

Telephone: 1-800-HELP-365

E-Mail: [automationsupport@us.abb.com](mailto:automationsupport@us.abb.com)

## Warnings

The warnings in these instructions are structured as follows:

### DANGER

The signal word '**DANGER**' indicates an imminent danger. Failure to observe this information will result in death or severe injury.

### WARNING

The signal word '**WARNING**' indicates an imminent danger. Failure to observe this information may result in death or severe injury.

### CAUTION

The signal word '**CAUTION**' indicates an imminent danger. Failure to observe this information may result in minor or moderate injury.

### NOTICE

The signal word '**NOTICE**' indicates potential material damage.

**Note** - '**Note**' indicates useful or important information about the product.

### WARNING

Do not install, maintain or operate this equipment without reading, understanding and following the proper factory-supplied instructions and manuals, otherwise injury or damage may result.

### WARNING

#### POSSIBLE PROCESS UPSETS.

Maintenance must be performed only by qualified personnel and only after securing equipment controlled by this product. Adjusting or removing this product while it is in the system may upset the process being controlled. Some process upsets may cause injury or damage.

## Return of Equipment

All equipment being returned to the factory for repair must be free of any hazardous materials (acids, alkalis, solvents, etc.). A Material Safety Data Sheet (MSDS) for all process liquids must accompany returned equipment. Contact the factory for authorization prior to returning equipment.

## 2.0 Kit Parts

The Position Transmitter Kit for the AV1/AV2 Positioner consists of several parts detailed below. To perform the repair/retrofit, the old parts must be removed (if present) and replaced with the new parts.

Table 1. Position Transmitter Kit Parts List

Item No.	Part No.	Qty	Description
21	6639540A1	1	Potentiometer Assembly
27	193243B1	1	Large Position-Transmitter Gear
31	19734A45	1	Washer
58, 92	197893A1	8 *	Thread-Forming Screw
60	5400317A1	1	Gear Adapter
91	6639479A1	1	4 to 20 mA Position Transmitter Assembly
95	5400268B2	1	Potentiometer Mounting Bracket
96	193242A1	1	Small Position-Transmitter Gear
N/A	NKJHA13004	1	Set Screw (See Figure 1)
100	NTMHA13000	1	Ground Washer (See Figure 2)
59	6639559A1	1	Terminal Block (See Figure 1)
72	1943187A1	1	Cable Clip, Nylon (See Figure 2)
86	FORMMP409-393	1	Wiring & Term. Numbering Labels (See Fig. 2)
N/A	PN25070	1	Installation Instructions (this document)

\* Includes 4 screws to mount Terminal Block TB1 and associated components, if required.

Table 2. Position Transmitter Wiring to Terminal Block TB1

Terminal	Description
1	Red wire from Transmitter
2	Black wire from Transmitter

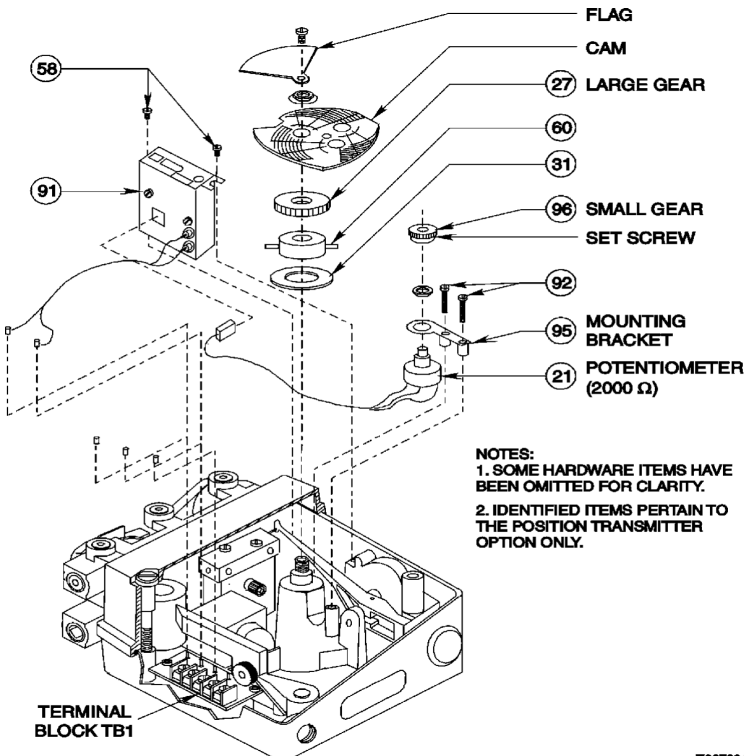


Figure 1. Position Transmitter (Exploded View)

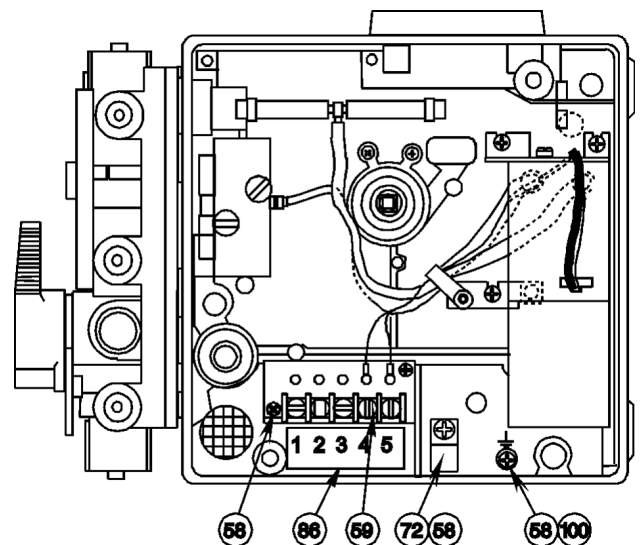


Figure 2. Additional Parts Location

T00780A

## 3.0 Kit Installation Instructions

### 3.1 General

The following procedure describes steps necessary to replace or retrofit a 4-20 mA Position Transmitter into a Type AV1/AV2 Positioner. Observe any warning or cautionary notices to avoid potential personal injury or damage to the equipment.

### 3.2 Instructions

The square boxes preceding each step of the procedure may be used to check-off the step as it is completed. Perform the following procedure to install the position transmitter into an AV Positioner:

- Secure the actuator and turn off the air supply.
- Remove the cover from the AV positioner.
- Refer to Figure 1 which shows an exploded view of the position transmitter assembly.
- Remove the flag and the cam.
- Remove the pilot block, stem and spring clip by removing the two screws through the pilot block. Be careful not to lose the three small o-rings on the back of the pilot block.
- Install the 4-20ma transmitter electronics (Item 91) using the two screws provided (Item 58) as shown in figure 1. A Torx T15 screwdriver will be required.
- Skip this step for Model AV2 Positioners. For Model AV1 Positioners, perform the following:
  - Install Terminal Block TB1 (P/N 6639559A1) in the position shown in Figure 1 using 2 of the mounting screws (P/N 197893A1) supplied in the kit.
  - Install the Nylon Cable Clip (P/N 1943187A1) in the location shown in Figure 2 using 1 mounting screw (P/N 197893A1).
  - Install Ground Screw (P/N 197893A1) and Ground Washer (NTMHA13000) in the location shown in Figure 2.
  - Remove Terminal Block numbering label from its backing and install in location shown in Figure 2.
  - Remove Wiring Label from its backing and install it inside the top cover for reference.
- Connect the wires coming from the transmitter electronics to the posts on terminal block TB1. Red(+) wire to terminal 1 and Black (-) wire to terminal 2.
- Install washer (Item 31), gear adapter (Item 60) and large gear (Item 27) onto the cam shaft. Tighten the set screws in the gear adapter (Item 60).
- Mount potentiometer (Item 21) to it's mounting bracket (Item 95) using the nut and washer on the potentiometer.
- Mount the small gear onto the potentiometer shaft but do not tighten the set screw in the small gear yet.
- Mount the potentiometer mounting bracket to the two mounting bosses on the housing so that the two gears are fully engaged and tighten the mounting screws and the small gear set-screw.
- Plug the connector on the potentiometer into the socket on the transmitter electronics assembly as shown in Figure 1.
- The installation is now complete. Proceed with the calibration instructions in the AV1/AV2 Operating Instruction Manual OI/AV12 Section 4 - Calibration.



## WARNING

### POSSIBLE PROCESS UPSETS.

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