Position Transmitters & Positioners

Position of the valve can be determined accurately and precisely using either contact type or non-contact type position transmitters. Contact type position transmitters includes Potentiometer and Electronic Position Transmitters (RWG 1001 / RWG 2002 / RWG 2002 DG) whereas non-contact type position transmitters include Inductive Position Transmitters (IWG 1002 / IWG 1003).

Potentiometer

A potentiometer is used as sensor for actuator. Single turn wire wound potentiometer with 4.7 kOhm with linearity ±0.5% is available for this purpose. It is available in single or tandem version.

Technical Data - Potentiometer	
Resistance	4.7 kOhm ±0.5%
Power Rating	3 Watt at 40°C
Angle of Rotation	275° ± 5°
Linearity	±0.5%

Electronic Position Transmitter RWG1001

This device is a signal converter for the transformation of resistance value into proportionate current signal. It can also be placed in the actuator where the position determined by the potentiometer is converted into 4 -20 mA current signal.

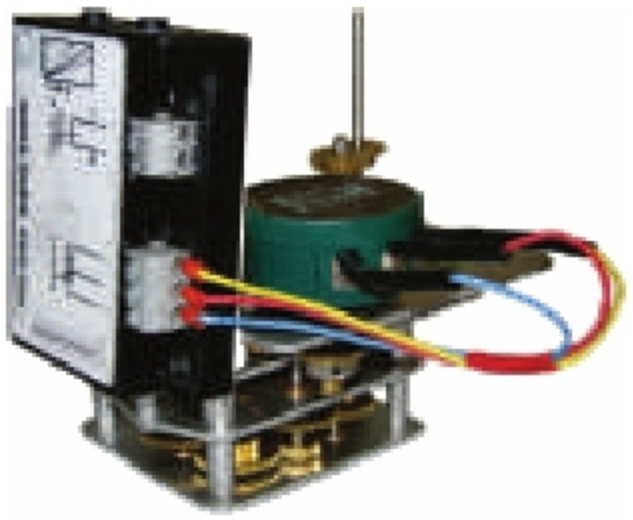
As position transmitter, preferably a potentiometer of 4.7 kOhm should be used so that the reference voltage source is not overloaded. This device requires 24 V DC power supply regulated within ±15%. Auma power supply unit PS 01 is recommended for this purpose. RWG 1001 is a 3 wire system and is having linearity of 0.05%.

Technical Data - RWG 1001	
Configuration	3 Wire
Supply Voltage	24 V DC Min. 18, Max. 33 V
Output Current	0 / 4 - 20 mA
Input Resistance	150 kOhms
Displacement of zero position, Max.	±25%
Displacement of end position, Max.	from 50 to 100%
Influence of supply voltage variation	Max. 0.2%
Temp. Drift	0.2% 10°C
Linearity not considering potentiometer	0.05%

Electronic Position Transmitter RWG 2002

This is basically same as RWG 1001, however with 2 wire system. The linearity is less than 1%.

RWG 1001

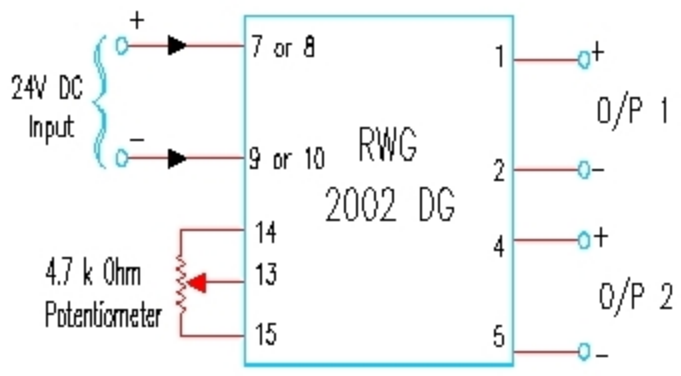


RWG 2002

Technical Data - RWG 2002	
Configuration	2 Wire
Supply Voltage	24 V DC Min. 18, Max. 33 V
Ouput Current	4 - 20 mA
Input Resistance	150 kOhms
Displacement of Zero Position, Max.	±25%
Displacement of End Position, Max.	From 60 to 100%
Influence of supply voltage variation	Max. 0.15%
Linearity not considering potentiometer	< 1%

Dual Output Position Transmitter RWG 2002 DG

It is a signal converter device for the transformation of resistance value into proportionate galvanically isolated two current outputs. This device requires 24 V DC power supply regulated within ±10%. Auma power supply unit PS 01 is recommended for this purpose.



Technical Data - RWG 2002 DG	
Supply Voltage	24 V DC ±10% regulated
Output 1 (Isolated) Output 2 (Isolated)	0 / 4 - 20 mA 0 / 4 - 20 mA
Current Drawn	100 mA
Adjustability of Span	±50%
Adjustability of Zero	±25%
Change in Output due to Input Supply Variation	< 0.2%
Linearity Error for both Outputs	< 1%

Inductive Position Transmitter IWG 1002

When using Auma actuators for regulating duty with demand of high accuracy, an inductive position transmitter can be fitted to give precise read out of position.

The output signal is used as feedback to electronic positioner or for position indicator. The system consists of two parts, a linear variable differential transformer (LVDT) and an electronic unit. The smallest change of magnetic core in the measuring coil is transformed into proportional signal. The transmitter has no moving contacts. This device requires 24 V DC power supply regulated within ±15%. Auma power supply unit PS 01 is recommended for this purpose. The linearity of the unit is less than 0.3%.

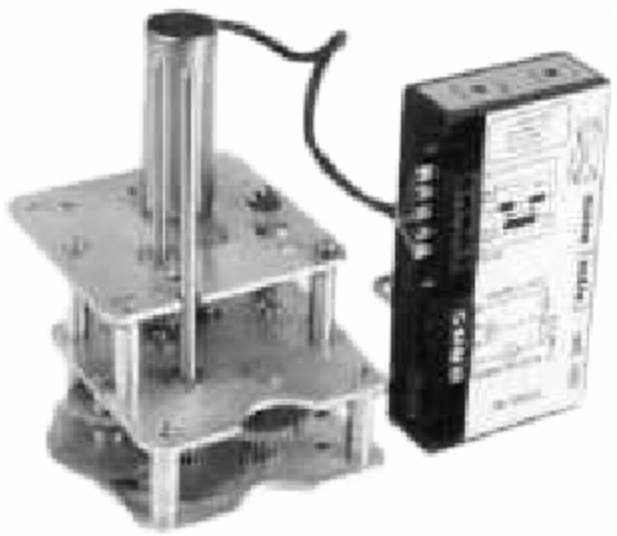
IWG 1002

Technical Data - IWG 1002	
Configuration	2 Wire
Supply Voltage	24 V DC ±15% regulated
Output Current	4 - 20 mA
Resistance Max.	600 Ohms
Displacement of zero position, Max.	±25%
Displacement of end position, max.	60 to 100%
Temp. drift	0.4% / 10°C
Linearity (not considering LVDT)	< 0.3%

Position Transmitters & Positioners

Inductive Position Transmitter IWG 1003

IWG 1003 is similar to IWG 1002 however with 3 wire system.



IWG 1003

Technical Data - IWG 1003	
Configuration	3 Wire
Supply Voltage	24 V DC ±15% regulated
Output Current	0 / 4 - 20 mA
Resistance Max.	600 Ohms
Displacement of zero position, Max.	±25%
Displacement of end position, max.	60 to 100%
Temp. drift	0.4% / 10°C
Linearity (not considering LVDT)	< 0.3%

Electronic Positioner CU 01

The electronic positioner CU 01 is designed as a three level positioner for regulating of actuator. By comparing two input signals (reference signal W & regulating signal X), the positioner determines the difference. In case this exceeds a certain value, the actuator is switched on by relays. The direction of rotation (opening or closing) depends upon the plus or minus sign of the deviation. Thus, the regulating signal generated by potentiometer or LVDT changes & when the regulating signal & reference signal become equal, the actuator stops as long as no new correction is required.

CU 01

Technical Data - CU 01	
Input W_{e1} X_{E1}	0 - 20 mA (4 - 20 mA) 0 - 20 mA (4 - 20 mA) or 0 - Uref
Time delay	1 - 20 sec.
Adjustment of zero point	0 - 20%
Adjustment of end position	60 to 100%
Sensitivity (dead band)	1% - 10%
Relay output (max. resistive load)	230 V, 10 A

* Positioner with Pulse Width Modulation are available for critical applications.

Signal Isolator

Auma signal isolator are available in various versions:
Power supply conditions:
230 V AC, 110 V AC or 24 V DC
Various input signals:
4 - 20 mA or 1 - 5 V

Signal Isolator

Various output signals:
4 - 20 mA single or dual or 4 - 20 mA & 1 - 5 V.

Isolation is provided between input and output and also between two outputs.

Technical Data - Signal Isolator	
Power Supply	230 V AC ± 15% 110 V AC ± 15% 24 V DC ± 1 V
Input Signal	4 - 20 mA 1 - 5 V
Output Signal	4 - 20 mA single 4 - 20 mA dual 4 - 20 mA & 1 - 5 V
Accuracy	±0.1% of output sapn
Zero & span adjustment	±2% min. at zero ±10% min. at span

Power Supply Unit PS 01

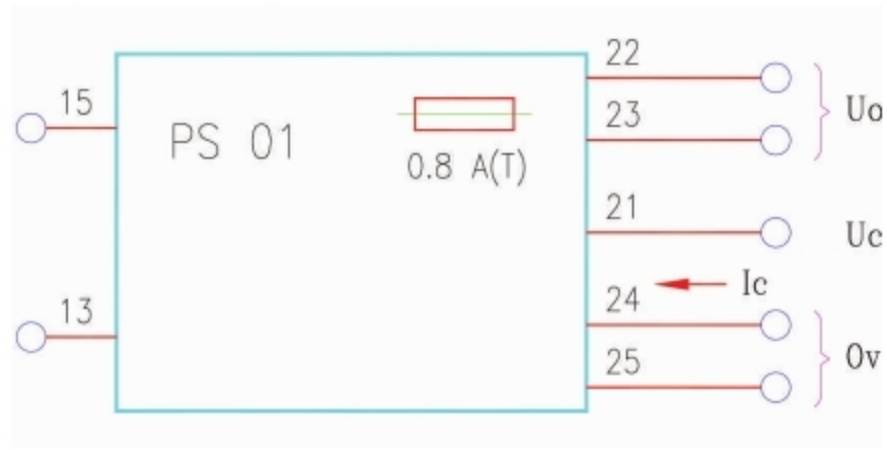
This unit gives 24 V DC power supply for electronic positioner CU 01 and electronic position transmitter, in case 24 V DC is not available at site.
There are two versions available:

Version I : For regulating application with CU 01:

The output voltage Uo & Uc require no trimming potentiometer. The voltage Uc is diverted from voltage Uo, thus Uc can serve as common reference potential for whole regulating system.

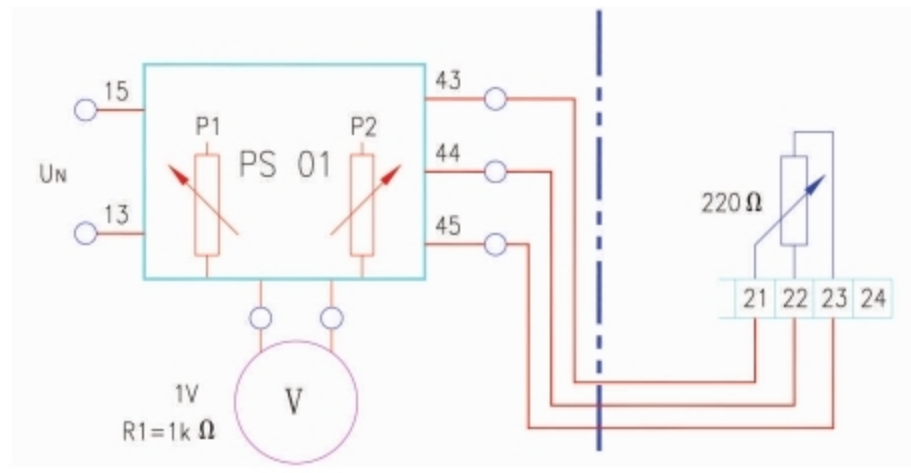
Supply voltage to PS 01 is 220 V or 110 V ±15%, 50 Hz

The maximum output voltage is
Uo = 24 V ± 1 V DC
Uc = 5.5 V ± 0.5 V DC



Version I

Version II : For remote position indication with potentiometer 220 Ohms as position transmitter. In this, two additional potentiometers P1 and P2 are provided for positions zero and maximum. A voltmeter of 1 V, calibrated in % is used for visual indication of valve travel. This voltmeter is connected to the PS 01 (Version II) as shown below:



Version II

Technical Data - PS 01	
Supply voltage and frequency	220 V or 115 V (±15%) 50 Hz or60 Hz
Power drawn	9 VA
Output voltage max.	24 V ± 1 V DC
Amounting	Snap on type for DIN rail 46277