

Specific Sensors

IVA Inductive Valve Position Sensor

Task

The task of the inductive IVA valve position sensor is to convert the position of the manually operated actuator at one- or multi-position servo valves into an analogous end signal by interrogation of the tappet.

The inductive principle used shall be applicable to different tappet dimensions and stroke paths. The single-sided actuation out of an idle position has to be realisable as well as a double-sided actuation out of a central position.

The admissible ambient temperature range shall cover the range from - 40 °C up to + 105 ° C (optionally + 125 °C).

With an operating voltage of + 12 ... 24 ... 30 V DC the output voltage u via stroke path w shall range from 0 V via 5 V (central position) up to 10 V with a double-sided actuation, from 0 V (initial position) up to 10 V with a single-faced actuation.

The sensor shall be inexpensive and easy to be installed.

Principal Mode of Function

By its outer appearance the valve position sensor looks like a normal inductive sensor, but due to the design of the actuator and a specific circuit it is especially adapted to its task.

The tappet as actuator consists of three sections: A steel section, an air gap and a section of non-ferrous metal, e.g. aluminium.

These three different sections of the actuator generate an S-shaped output voltage signal over the stroke path. Its gradient can be modified by the formation of the width of the air gap, as shown in the charts on the right page.

The air gap width can be varied. If it exceeds a certain degree, a low gradient develops in the central position. Thus an adaptation to the stroke path required can be realised. A further adaptation can be achieved by deforming the faces of the metallic sections on either side up to the air gap, e. g. by chamfering the faces by 45 °.

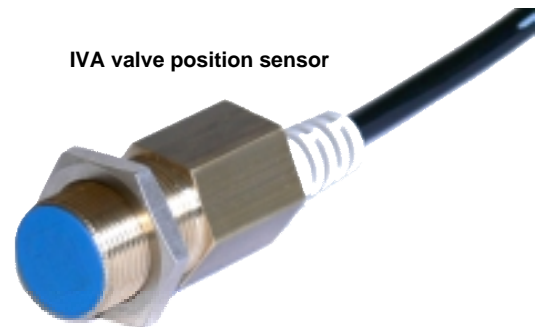
The output signal $u = 0 \dots 10$ V DC, which is analogous to the stroke path, can be processed via an analogous input in a programmable controller, which we gladly supply on request.

The supply voltage of the sensor is 12 ... 24 ... 30 V DC.

Application

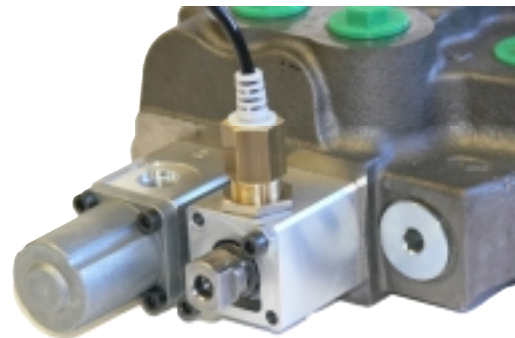
The IVA sensor is mainly used as valve position sensor for manually actuated sensor valves, but can also be used as actual value sensor at actuating elements of any type. Examples are:

- Handling facilities
- Lifting tables
- Doors
- Combinations break - coupling
- Pedal positions

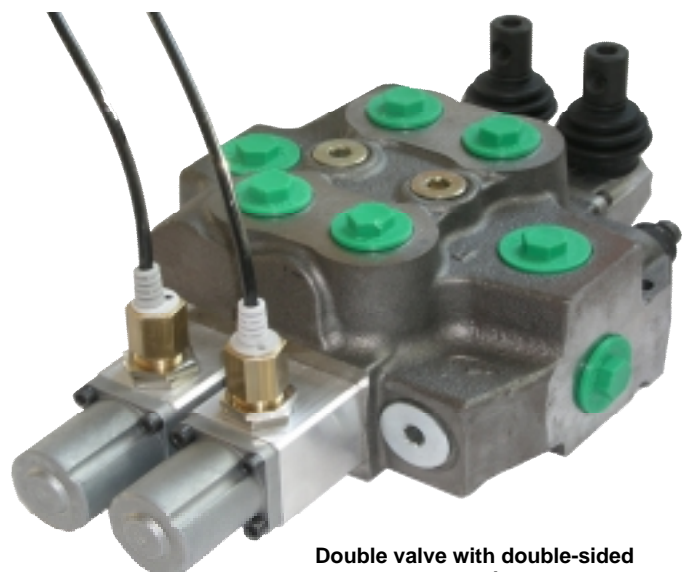
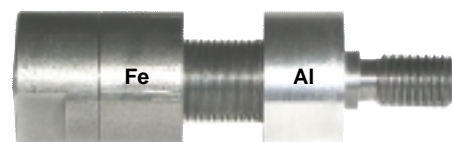


IVA valve position sensor

Valve position sensor installed (test)



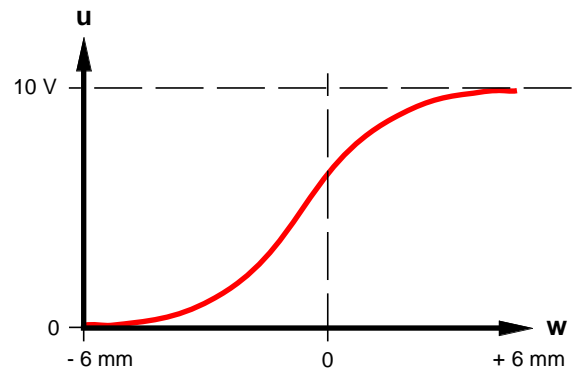
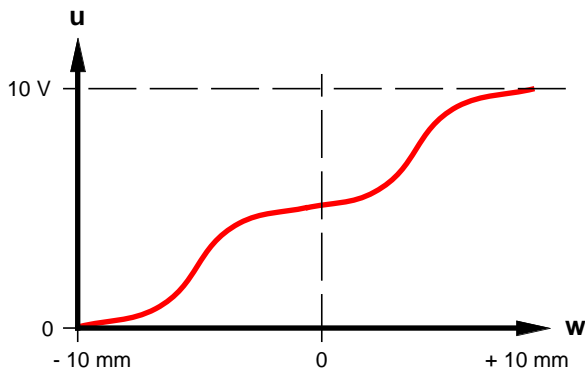
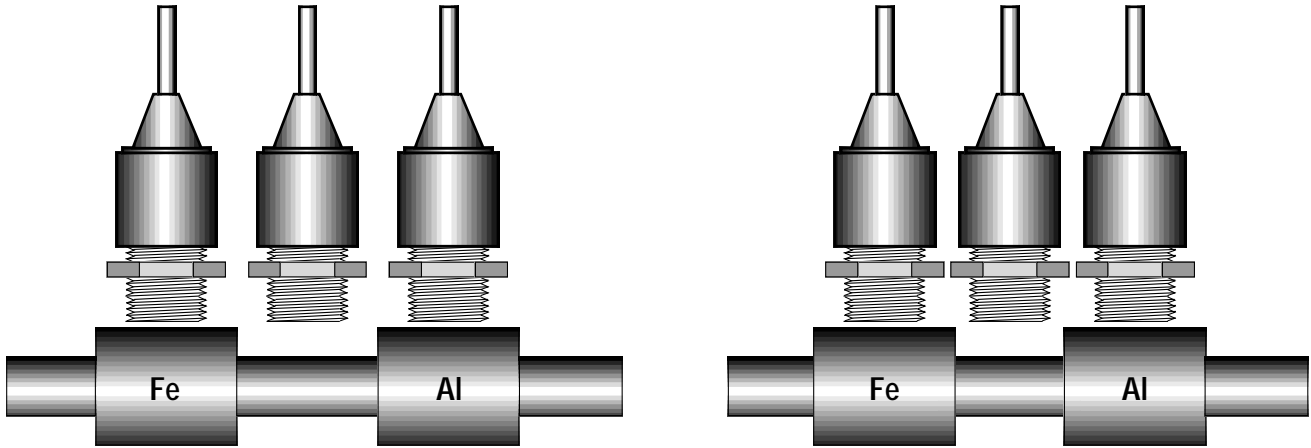
Tappet



Double valve with double-sided actuation

IVA Sensor for Position Detection for Valves with Double-Sided Action

Principal signal trace



IVA Valve Position Sensor

Type	Ref. No.	Series	Travel range in mm	Mounting	Ø Sensing face in mm
IVA-18ms41b±6-1Pkc1/1	13.31-01	valve position	± 6 ... ± 10	flush	16.5