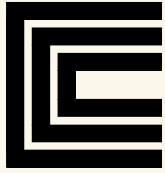


CONTINENTAL  
CONTROLS  
CORPORATION



# ALV 10 Liquid Fuel Control Valve

ISO 9001 Certified

For Use with PLC or Analog Controls on Gas Turbines

## THE CONTINENTAL CONTROLS SOLUTION

The ALV10 is an intelligent electronic Liquid Fuel Valve designed to meet the needs of all gas turbine applications. Its speed and stability allow it to be used for either power generation or mechanical drive applications that range in size from 250KW to 35MW.

The ALV 10 is a unique design with an on-board computer and internal flow meter. The valve will meter diesel, kerosene or other similar liquid fuels to a gas turbine engine. It is a closed loop servo valve.

The ALV10 measures fuel flow, and can control the acceleration of the turbine based on Pcd. It is the ideal complement to either the AGV 10 or AGV 50 for dual fuel applications.



Model  
ALV 10

**BUILT-IN TURBINE  
FLOW METER  
(REPORTS FUEL  
CONSUMPTION)**

**ALL ELECTRIC**

**RS-232 SERIAL PORT/  
MODBUS -COMPATIBLE**

**FAIL SAFE CLOSED**

**IDEAL FOR POWER GEN  
OR MECHANICAL DRIVE**

**FAST RESPONSE < 50ms**

**SIMPLE INSTALLATION**

# DESIGN FEATURES

## ANALOG FLOW CONTROL

The 4-20ma Fuel Demand (0-50ma or 0-200ma options) input signal controls the fuel flow through the valve. The fuel flow is a linear function of the fuel demand signal and can be calibrated for various turbines.

## ELIMINATES OTHER COMPONENTS

The ALV 10 Liquid Fuel Metering Valve eliminates the need for other equipment including acceleration limiters, governor valves, associated actuators and their hydraulic power supplies.

## EMBEDDED ACCELERATION CONTROL

The ALV 10 can control the acceleration of the turbine by scheduling fuel flow vs. compressor discharge pressure (Pcd). This control provides for the optimum acceleration and deceleration of the turbine. It also off-loads overhead from the PLC which can allow for the use of a less powerful, less expensive PLC.

## TURN DOWN RATIO

Greater than 100/1 turn-down allows for excellent flow control for starting or for maximum acceleration or load transients. It also allows the ALV 10 to work with a wide range of turbines.

## COMPUTER INTERFACE

The RS-232 serial port provides data in a Modbus-compatible format to the PLC control system. Software is also available to provide diagnostics for the valve to a laptop computer.

## I/O

### Inputs:

4-20ma Compressor Discharge (Pcd)  
4-20ma Fuel Demand  
(0-50ma or 0-200ma optional fuel demand)

### Outputs:

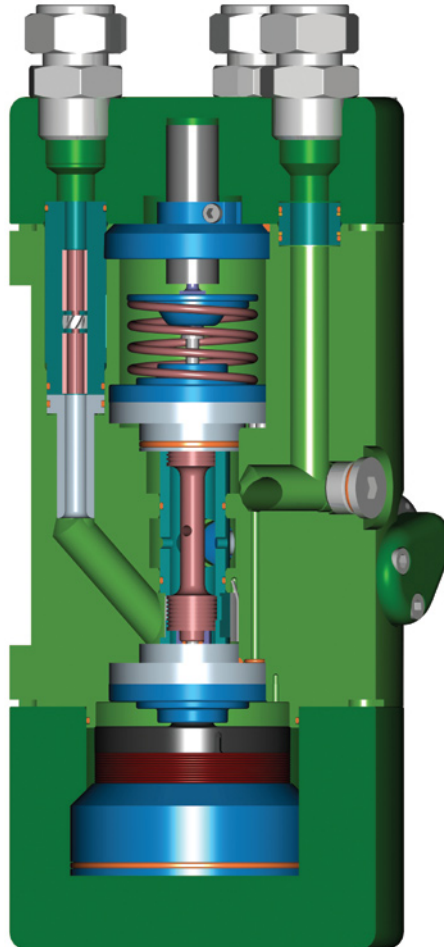
4-20ma Position  
4-20ma Fuel Flow  
1 Discrete Digital Output  
RS-232

## VERY FAST RESPONSE

The valve will transition from open to closed or closed to open in less than 50ms. The cycle time for the on-board computer is less than 5ms.

## FAIL SAFE

The valve is spring-loaded closed. If for any reason the valve loses power or experiences an electronic failure, the valve will close.



## CLOSED LOOP ON FLOW

The ALV 10 is an electronic servo valve consisting of a throttling orifice in series with a turbine flow meter. An internal microprocessor compares the measured fuel flow with the fuel demand signal and adjusts the area of the throttling valve as necessary to make the flow through the valve match the demand.

## STEP RESPONSE

10% to 90% of max flow 40ms  
90% to 10% 40ms

## WEIGHT

30lbs.

## RELIABLE STARTS

The ALV 10 eliminates start problems associated with inaccurate metering of fuel. All CCC valves are ideally suited for use with PLCs and other computer control systems for gas turbine engines.

The ALV 10 is outstanding for use with turbine-driven generator units. The valve's fast response enhances the generator's capability to respond to step changes in load.

## FUEL LINE CONNECTIONS

12 O-ring Boss Ports  
(per SAE J1926 & MS16142)

## POWER

24 VDC Supply  
19-32 VDC Nominal Operating  
5 Amp Max Peak Power  
2 Amp Average

## MATERIALS

Anodized 6061 T6 Aluminum Alloy  
440C Stainless Steel

## FUEL PRESSURE

Maximum 1500 psig

## FUEL FLOW

35 lbs./hr. to 10,000 lbs./hr.

## REPEATABILITY

2% of Full Scale

## CERTIFICATIONS: PENDING

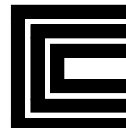
CSA : Dual  
Class 1 Div. 1 or  
Class 1 Div. 2

Atex

## OPERATING TEMPERATURE

-40° to +85° C

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