Models:
IVC4701: Direct Acting Voltage Controller
IVC4801: Reverse Acting Voltage Controller

IVC4701 & IVC4801
Single Term Voltage Controllers

Specifications

Power Supply
- Voltage: 24VAC ±10% @ 50/60Hz
- Power Consumption: 2VA max

Transmitter Supply
- 24VDC @ 25mA positive supply

Inputs
- 0-10VDC from Transmitter
- Reset (0-10VDC)

Outputs
- Transmitter Out (0-10VDC = 0-100%)
- Set Point Out (0-10VDC = 0-100%)
- One 0-10VDC control output

Terminal Identification

1	+24VDC supply for detector
2	Transmitter input
3	% of Input Range i.e. 5VDC = 50%
4	Reset input (0-10VDC)
5	12VDC auxiliary supply
6	Set Point Out as % of range
7	0-10VDC Direct Acting output - IVC4701 only
8	0-10VDC Reverse Acting output - IVC4801 only
9	Common and 0VAC supply
10	24VAC supply

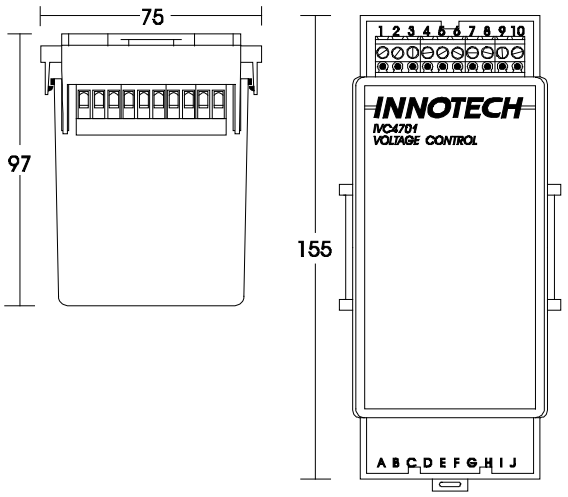
Temperature Ratings
- Storage: 0-50°C non-condensing
- Operating: 0-40°C non-condensing

Enclosure
The IVC4701 and IVC4801 are housed in a rectangular case suitable for DIN Rail mounting. The housing is moulded from flame retardant plastics recognised by UL as UL 94-V0.

Colour: Grey
Dimensions (max): 75 mm(w) x 155 mm(h) x 97 mm(d)

Installation
1. Mount controller in a dry and reasonably clean location free of excessive vibration.
2. Fit to DIN rail.
3. Wire in accordance with INNOTECH connection diagrams and local bylaws or refer to your local distributor.

Wiring
1. Earth one side of the 24VAC at the transformer.
2. Connect the EARTHED side of 24VAC to terminal 9.
3. DO NOT connect 24VAC to terminals 1 through 8.



Applications
The Innotech IVC4701 and IVC4801 voltage controllers are designed for use with any transmitter which has a 0 to 10VDC output to produce a single 0 to 10VDC control signal output. The IVC4701 produces a Direct Acting output and the IVC4801 produces a Reverse Acting output.

The controller's output can be coupled to auxiliary units such as humidifiers, chilled water valves, damper motors, staging relays and signal selectors which require a 0 to 10VDC control signal.

Features
- Interface to Building Automation Systems
- Time integrated proportional control action for optimum system performance
- 0-10VDC Direct Acting control signal output on IVC4701
- 0-10VDC Reverse Acting control signal output on IVC4801
- Proportional band adjustment from 1 to 11%
- Transmitter input value easily read at controller
- Set Point easily read at controller
- Factory set for most applications resulting in reduced commissioning time
- The Innotech enclosure saves space and reduces installation time
- Wide range of applications
- Internal tamper proof Set Point adjustment

Approvals
The IVC4701 and IVC4801 conform to:
- Requirements according to standards EN55014 (CISPR14) for RCM Labelling

Set Point
The Set Point is adjustable over a range of 0 to 100% via the Set Point pot.

Proportional Band (PB)
The Proportional Band (PB) is adjustable over two ranges:
- Narrow 0.2 to 2.0% PB WIDE Link Open
- Wide 1.0 to 11% PB WIDE Link Closed (factory setting)

Ramp Up and Ramp Down
The Ramp UP and Ramp DOWN rates are separately adjustable. The Ramp UP time can be adjusted over a range of 90 seconds to 12 minutes. This is the time taken for the output voltage to rise from 0 to 10VDC. The ramp DOWN time can be adjusted over a range of 20 seconds to 90 seconds. This is the time taken for the output voltage to fall from 10 to 0VDC with the difference between the Set Point and Temperature Out no greater than the PB setting.

Reset
The Set Point can be reset UP or DOWN by a maximum of 10% by a 10VDC external signal applied to terminal 4. The effect of the Reset input is adjustable from 0 to 10% by varying the RESET pot.

The amount of Reset can be determined by measuring terminal 6 as the RESET pot is adjusted.

This function requires a factory link change to be enabled.

Dead Zone and Output Kill
The Dead Zone pot adjusts the point where the Output Kill feature is activated.

The range of adjustment is from:
- 0 to 5% *below* the Set Point (IVC4701)
- 0 to 3% *above* the Set Point (IVC4801)

While the voltage measured at Transmitter Out is within the Dead Zone setting, the output at terminal 7 (IVC4701) or 8 (IVC4801) is allowed to ramp down at the rate set by the Down Ramp. When the voltage falls below (IVC4701) or rises above (IVC4801) the Dead Zone setting, the output is rapidly reduced to zero.

Output Voltage Range
The controlled range is from 0 to 10VDC but to ensure proper operation of units connected to the outputs, the output voltage goes 0.3VDC negative to ensure the OFF condition and 10.5VDC to ensure the ON condition.

Din Rail Mounted Enclosure
The Innotech enclosure is designed to provide tight positive locking to varying thicknesses of DIN rail. When fitting to thick DIN rail, it may be necessary to remove the packing tabs on the back of the base.

Lugs on each side of the base ensure that correct spacing is maintained between units on the same DIN rail.

Time Integrated Proportional Output
The IVC4701 and IVC4801 single term voltage controllers are proportional controllers with their outputs time integrated. The rate of change of the output voltage is derived from the difference between the measured value and the Set Point.

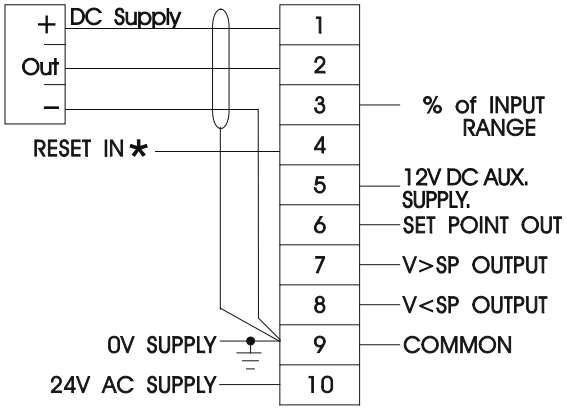
The steady state voltage of the 0-10VDC output is proportional to the difference between the measured value and the Set Point. When a disturbance occurs in the system, time integration causes the 0-10VDC output to change at a rate proportional to the difference between the measured value and the Set Point. Thus a large disturbance will cause the output voltage to change at a faster rate than a small disturbance.

As the system recovers from a disturbance, the difference between the measured value and Set Point will decrease and thus reduce the rate of change of the output voltage. This occurs when the difference between the measured value and Set Point is half of the PB setting.

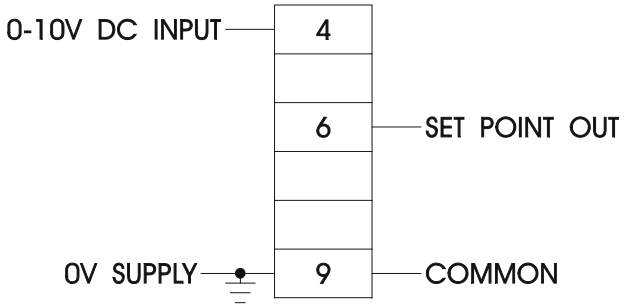
STANDARD CONNECTION

0-10V DC Device

IVC4701 & IVC4801



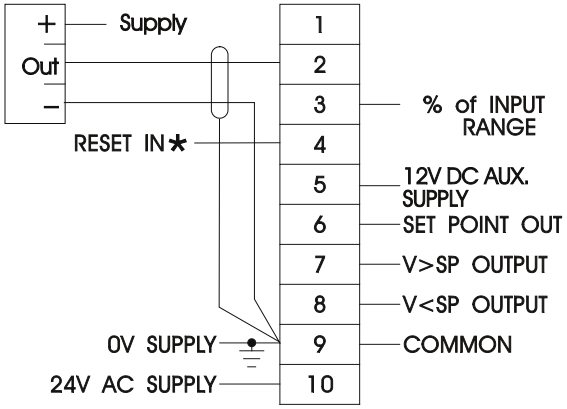
* RESET



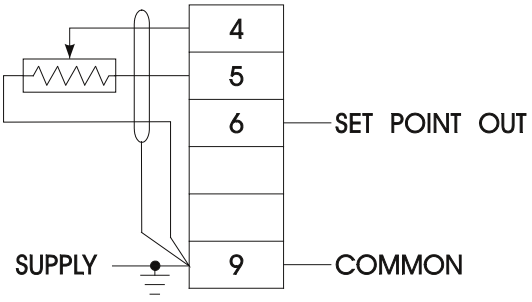
SEPARATE SUPPLY CONNECTION

0-10V DC Device

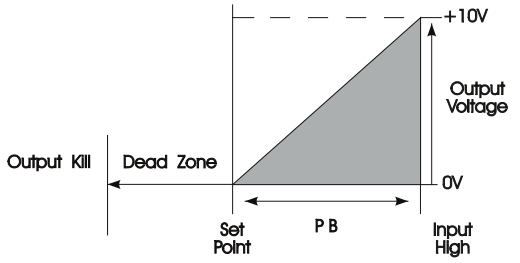
IVC4701 & IVC4801



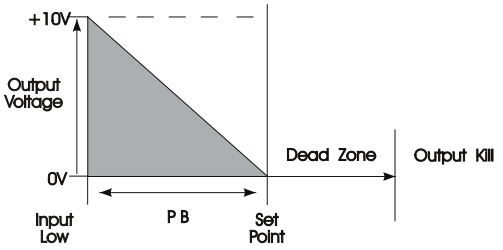
* RESET FROM INTERNAL SUPPLY



Screened Cable should be used to reduce EMI.



Operation & Control Function for the IVC4701



Operation & Control Function for the IVC4801

* Requires link changes before this option is used

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