

## Final Control Elements

### ANALOG BACKUP STATION

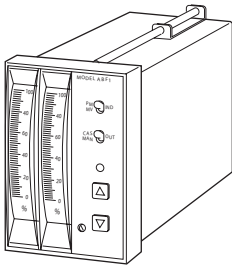
(with dual indicator)

#### Functions & Features

- Holding and manipulating control signals in case of computer or DCS failure
- Indicating PV/CAS (selectable) and MV
- Smooth transition from MAN to CAS mode
- External contact closure for switching operation modes
- Cascade control signals can be bypassed the ABF1 with current output even when the power is removed

#### Typical Applications

- Computer and DCS backup applications
- Used as manual-auto controller



### MODEL: ABF1-[1][2]A-R

#### ORDERING INFORMATION

- Code number: ABF1-[1][2]A-R  
Specify a code from below for each [1], [2].  
(e.g. ABF1-AAA-R)
- For an optional scale range:
- Scale (e.g. 0 - 5 m)

#### [1] PV INPUT

##### Current

A: 4 - 20 mA DC (Input resistance 30  $\Omega$ )

##### Voltage

6: 1 - 5 V DC (Input resistance 1 M $\Omega$  min.)

#### [2] CAS INPUT

##### Current

A: 4 - 20 mA DC (non-isolated) (Input resistance 50  $\Omega$ )

##### Voltage

6: 1 - 5 V DC (isolated) (Input resistance 1 M $\Omega$  min.)

### MV OUTPUT

A: 4 - 20 mA DC

(Refer to the output specifications for Load Resistance)

### POWER INPUT

#### DC Power

R: 24 V DC

(Operational voltage range 24 V  $\pm$ 10 %, ripple 10 %p-p max.)

#### GENERAL SPECIFICATIONS

**Construction:** Panel flush mounting

**Connection:** M3.5 screw terminals (torque 0.8 N·m)

**Screw terminal:** Nickel-plated steel

**Housing material:** Steel plate

**Coating:** Gray; black front section

**Manual status contact:** Turns on when manual operation is available

**Manual operation ramp rate:** Approx. 5 - 30 sec./100 % adjustable (front)

**Isolation:** PV input to CAS input to MAN status contact to MV output to remote output switching or power; CAS input - MV output non isolated with 4 - 20 mA CAS input

**Indicator:** Moving coil type

**Scale:** 0 - 100 % standard, engineering unit optional

**Scaleplate:** Aluminium; white scale and characters on black (black on white when optional scale is chosen)

**Scale length:** 66 mm

**Number of divisions:** 50

**PV - CAS indicator:** Switched by PV (process variable) - CAS (cascade) selector

**MV indicator:** Indicating manipulated output

**Manual output switching:** by CAS (cascade) - MAN (manual) selector

**Remote output switching:** External contact closure switches the ABF1 to manual mode regardless of the CAS-MAN selector position

**Manual status indicator:** Red LED turns on in manual

#### INPUT SPECIFICATIONS

•Remote Output Switching Contact

**Sensing:** 24 V DC @ 40 mA

**ON/OFF level:**  $\geq$  100 k $\Omega$  for OFF;  $\leq$  100  $\Omega$  for ON

#### OUTPUT SPECIFICATIONS

•MV Output: 4 - 20 mA DC

**Operational range:** Approx. -10 - +110 %

**Load resistance**

**MAN mode:** 750 $\Omega$  max.

**CAS mode:** [input load capacity - 50  $\Omega$ ] for 4 - 20 mA; 750  $\Omega$



max. for 1 - 5 V

• **Manual Status Contact:** 110 V AC or 30 V DC @ 1 A  
(resistive load)

## INSTALLATION

**Power consumption:** approx. 140 mA

**Operating temperature:** -5 to +55°C (23 to 131°F)

**Operating humidity:** 30 to 90 %RH (non-condensing)

**Mounting:** Panel flush mounting (high-density mounting in horizontal direction)

**Weight:** 800 g (1.76 lbs)

## PERFORMANCE in percentage of span

**Indicator accuracy:**  $\pm 2\%$

**Output conversion accuracy at 1 - 5 V input:**  $\pm 0.5\%$

**CAS to MAN switching accuracy:**  $\pm 0.5\%$

**Temp. coefficient:**  $\pm 0.025\%/^{\circ}\text{C}$  ( $\pm 0.014\%/^{\circ}\text{F}$ )

**Manual output resolution:** Approx. 0.1 %

**Response time at 1 - 5 V input:**  $\leq 0.5$  sec. (0 - 90 %)

**Output memory time at power OFF:** Approx. 10 min.

**Line voltage effect:**  $\pm 0.25\%$  over voltage range

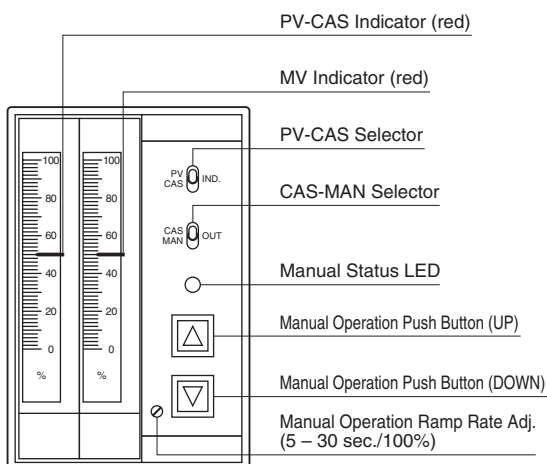
**Insulation resistance:**  $\geq 100\text{ M}\Omega$  with 500 V DC

**Dielectric strength:** 500 V AC @ 1 minute

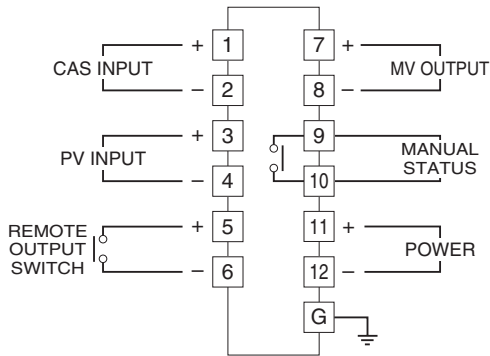
(PV input to CAS input to MV output to MAN status contact to remote output switching or power)

1500 V AC @ 1 minute (PV input or CAS input or MV output or MAN status contact or remote output switching or power to ground)

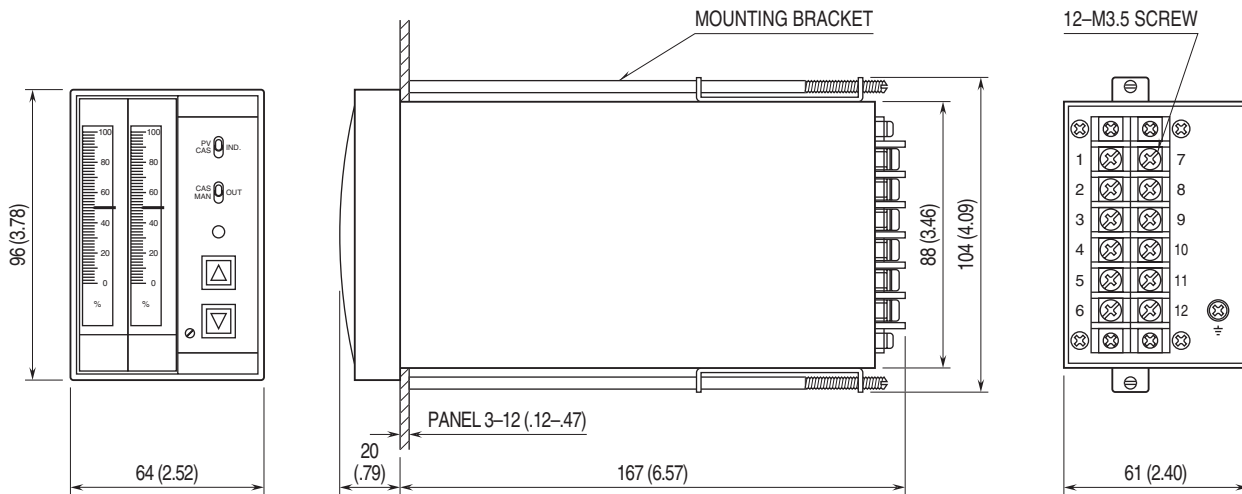
## EXTERNAL VIEW



## CONNECTION DIAGRAM

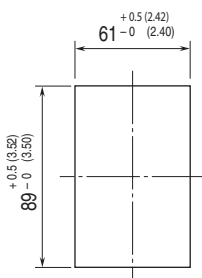


## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)

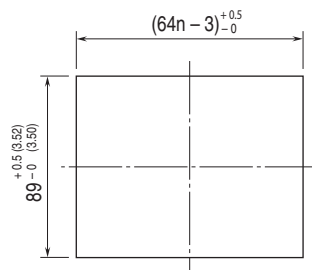


## PANEL CUTOUT unit: mm (inch)

### ■ SINGLE MOUNTING



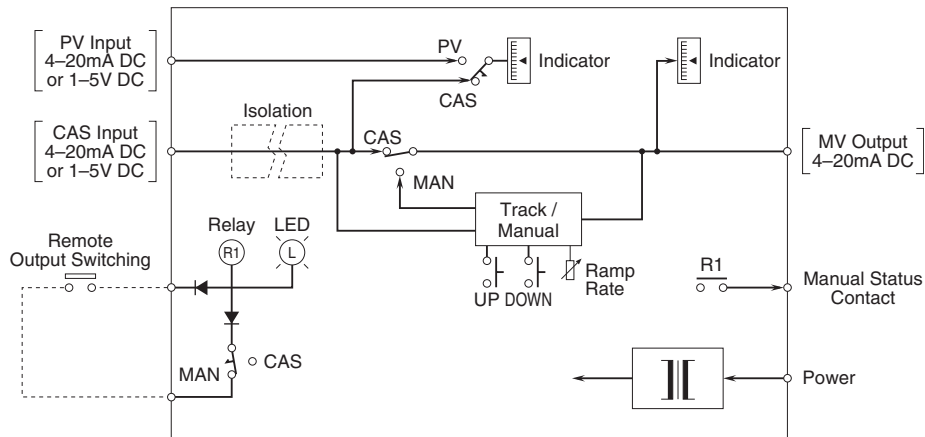
### ■ CLUSTERED MOUNTING



n: number of units

Panel thickness: 3 - 12 mm (0.12" - 0.47")

**SCHEMATIC CIRCUITRY**



Specifications are subject to change without notice.

