

# SPECIFICATIONS

Dynamic strain amplifier

**DSA-631**

Spec. No. EN361631-D

1/5

## 1. General

DSA-631 is an strain amplifier that features new functions such as cable length compensation and bridge checking, realizing higher-accuracy and higher quality measurement and a reduction in measurement preparation time. DSA-631 also includes an LED monitor and the auto-balancing function, thereby improving their operability.

## 2. Specifications

- Number of channels 1 channel / unit
- Bridge resistance 60 ohm to 1 k-ohm
- Gage factor 2.00
- Bridge power voltage supply AC2 Vrms 5 kHz sine wave (Changeable to AC0.5 Vrms),  
Sync input / output signal AC2.5 Vrms
- Balance adjusting range (Auto-balance)
  - Deviation of resistive value :  $\pm 2\%$  ( $\pm 10\,000 \times 10^{-6}$  in strain)
  - Capacitive imbalance : Approx. 2 000 pF
  - Balance adjusting accuracy : within  $\pm 0.4 \times 10^{-6}$  in strain (RANGE=200, without FINE, BV=2 V)
- Maximum input range  $\pm 200\,000 \times 10^{-6}$  in strain (RANGE=20 k, FINE= $\times 2.5$ , BV=0.5 V)
- Voltage sensitivity  $\pm 10$  V within  $\pm 200 \times 10^{-6}$  in strain  
(RANGE=200, without FINE, BV=2 V)
- Measurement range change 200, 500, 1k, 2k, 5k, 10k, 20k ( $\times 10^{-6}$  in strain  $\times 2$  / BV in value), OFF  
Fine adjustment Continuously changeable in FINE RANGE,  
2 step changing amount can be selected
- Non-linearity 0.1 %F.S.
- Internal calibrator Set value :  $\pm 1$  to  $9\,999 \times 10^{-6}$  in strain  
Accuracy  $\pm 0.5\%$  rdg  $+0.5 \times 10^{-6}$  in strain
- Frequency response DC to 2 kHz  $\pm 10\%$
- High-pass filter 0.5 Hz, 2-pole Butterworth type  
Filter descent response  $-12$  dB/oct
- Low-pass filter 10, 30, 100, 300, 500 Hz, 4-pole Butterworth type  
Filter descent response  $-24$  dB/oct
- Stability
  - Effect in temperature change
  - Zero drift within  $\pm 0.1 \times 10^{-6}$  in strain /  $^{\circ}\text{C}$
  - Sensitivity within  $\pm 0.05\%$  /  $^{\circ}\text{C}$
  - Effect in time passage
  - Zero drift within  $\pm 0.5 \times 10^{-6}$  in strain / 24 h
  - Sensitivity within  $\pm 0.2\%$  / 24 h
- Noise level  $2.0 \times 10^{-6}$  in strain p-p RTI  
(W/B, RANGE=200, without FINE, BV=2 V, 120 ohm in bridge)  
 $0.6 \times 10^{-6}$  in strain p-p RTI  
(DC to 100 Hz, RANGE=200, without FINE, BV=2 V, 120 ohm in bridge)

## SPECIFICATIONS

### DSA-631

Spec. No. EN361631-D

2/5

- Output  
 OUTPUT1  $\pm 10\text{ V} \pm 5\text{ mA}$ , Load resistance 2 k-ohm  
 OUTPUT2  $\pm 10\text{ V} \pm 10\text{ mA}$ , Load resistance 1 k-ohm  
 Output impedance 0.5 ohm or less, Capacitive load : Operable up to  $0.1\text{ }\mu\text{ F}$
- Output adjustment  
 OUTPUT2 ADJ  
 (Can be independently varied continuously from 1 to 1/10)
- Output monitor display  
 17-dot LED display (OUTPUT1 monitor)  
 Green LED at center blinks when voltage is within approx.  $\pm 100\text{ mV}$
- Digital display  
 4 1/2 digital display (OUTPUT2 monitor)  
 Accuracy :  $\pm 0.05\text{ \%rdg} \pm 1\text{ count}$   
 Scaling display available with OUTPUT2 ADJ  
 Displaying location of decimal point can be changed by using the bottom setting SW.
- Key lock function  
 Turning the key lock ON / OFF by pressing the key lock button approx. for one second. (Except CAL switch and BV selection switch)
- Setting value saving  
 Saving the value in flash memory. (Can be held without back-up battery)  
 (Automatic saving when the power is turned off.  
 Capable frequency of setting preservation : Approx. 1 000 000 times)
- Disconnection check function  
 Detecting disconnection and short of input bridge circuit  
 (bridge impedance of 120 ohm or larger) and displaying checked result by LED.)  
 Function ON / OFF is available by using the bottom setting SW.
- Cable length adjusting function  
 Automatic adjusting of bridge power voltage drop according to a change of cable length up to bridge circuit (bridge impedance of 120 ohm or larger)  
 Function ON / OFF is available by using the bottom setting SW.

## SPECIFICATIONS

**DSA-631**

Spec. No. EN361631-D

3/5

### 3. General specification

- Operating environmental condition
  - Temperature                       $-10\text{ }^{\circ}\text{C}$  to  $50\text{ }^{\circ}\text{C}$
  - Humidity                              20 to 85 %RH (without condensation)
- Power supply
  - Power supply voltage
  - AC power supply                      AC85 V to AC132 V/AC180 V to AC264 V  
(Internal switch must be changed.), 9 VA or less
  - DC power supply                      DC10 V to DC30 V    6 VA or less
  - ※When this unit is used in Japan-domestic, the voltage that exceeds the power supply voltage of 125 V cannot be supplied from the limitation of "Electric safety low".
  - ※When power supply voltage AC110V or more is used, special power cord (0311-5112) is separately needed.
  - ※When DC power supply is used, code (AS16-401) only for DC power supply is separately needed. DC.
- Withstand voltage
  - Between each input terminal (A, B, C, D, E), output and housing case  
AC1 kV, 1 minute
  - Between AC power input and input, output or housing case  
AC1.5 kV, 1 minute (includes surge resistor)
  - Between DC power input and input  
AC1 kV, 1 minute
  - Between DC power input and output or housing case  
AC500 V, 1 minute
- Resistance to vibration               $29.4\text{ m/s}^2$  {3 G}, (50 Hz, X, Y, Z 10 minutes for each)  
conforming to MIL-STD-810F 514.5C-1
- Storage temperature range            $-20\text{ }^{\circ}\text{C}$  to  $+70\text{ }^{\circ}\text{C}$ , within 10 to 90 %RH
- Outline dimension(W×H×D)          W :  $49.5 (\pm 0.5)$  × H :  $143 (\pm 1.0)$  × D :  $253 (\pm 2.0)$  mm  
(Excluding protrusion)
- Weight                                      Approx. 1.4 kg

### 4. Accessories

- Output cable                              1 piece
- Time lag fuse
  - 0.1 A fuse for AC power supply      1 piece
  - 0.5 A fuse for DC power supply      1 piece
- Driver for adjustment                   1 piece
- Power cable                                1 piece
- Thumb Screws for mounting pannel   2 pieces
- Instruction manual                        1 piece

# SPECIFICATIONS

## DSA-631

Spec. No. EN361631-D

4/5

### 5. Options

#### 5-1. Current output

- P/No. DSA631-P07
- Output DC4 mA to DC20 mA  
Load resistance 500 ohm or less  
Output resistance 5 M-ohm or more  
Converting accuracy from voltage to current : within  $\pm 0.1$  %

#### 5-2. Case

- Function : Setting of  $\pm$ CAL, BAL, KEY, LOCK, ON/OFF of all power supply is available.  
It is possible to synchronise with another case.
- Kind and number of channels

AS16-104	4CH with bench top case
AS16-105	6CH with bench top case
AS16-106	8CH with bench top case
AS16-107	8CH Rack mount case

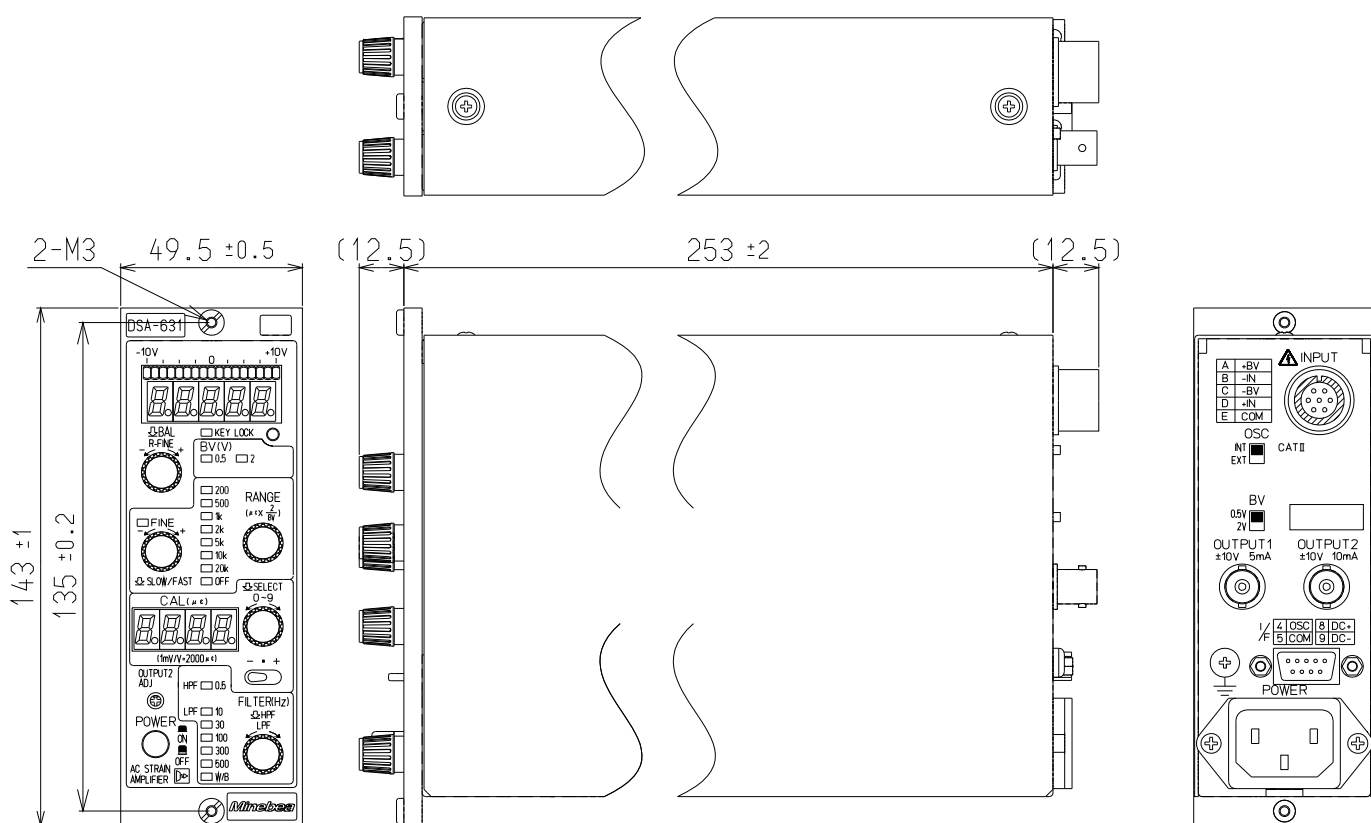
## SPECIFICATIONS

**DSA-631**

Spec. No. EN361631-D

5/5

### 6. Outline drawing



Unit:mm

※Specifications and outline dimensions and so on which have printed may subject to change for the purpose of improvement without notice.