MODEL : DN-AM100
DYNAMIC STRAIN AMPLIFIER

User's Manual

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Prefix

This Amplifier is Dynamic Strain Measure meter of DC Voltage type.
(Option : 4~20mA)

Multistage Filter construction & Filter-enable, disable function
Zero adjustment by Volume.

- Multistage Filter construction & Filter-enable, disable function
- Zero adjustment by Volume.
- Adjustment by Dip-S/W

Specification

- Measurement marks : 1CH / EA
- Measuring method : Deflection Method
- Working Gauge : 350Ω,120Ω(B.V=5V,30KΩ CAL RESISTER)
- Gauge rate : 2.00
- Bridge Voltage : DC 5V, DC 10V
- measuring **range**
  5V - 0~2000μ-Strain
  10V - 0~4000μ-Strain
- Zero adjustment range : ±10%
- Gain adjustment range : ±10%
- Sensitivity : 10μ-Strain
- Output : 0 ~ ±10V (option : 4~20mA)
- Non-linearity : 0.02%
- sensitivity adjustment rate : 1.6, 1.5, 1.4, 1.3, 1.2, 1.1, 1(X1000), 0.9, 0.8, 0.7, 0.6, 0.5, 0.4, 0.3, 0.2, 0.1(X100), 0.001(X1)
- S/N rate : 51dB
- Response frequency characteristic : DC ~ 20kHz(-3dB)
- Low Pass Filter : 10Hz, 100Hz, 1kHz, PASS
- Working temperature : -10 ~ 60C
- Power : AC 110V (60Hz), * AC 230V (60Hz)

CALIBRATION

- Gauge 350Ω internal CAL Resister 87KΩ(1%) – 2000μStrain(1mV/V) *
- Gauge 120Ω internal CAL Resister 30KΩ(1%) – 2000μStrain(1mV/V)

$$\text{Volt} = \frac{\text{Sensitivity (mV/V)} * \text{B.V(V)} * \text{Gain}}{\text{FULL scale (4000μStrain)/CAL scale(2000μStrain)}}$$

(ex1) Gain = 500, CAL = ON, B.V=10V -> OUTPUT = 5V
(ex2) Gain = 800, CAL = ON, B.V=10V -> OUTPUT = 8V
(ex2) Gain = 1000, CAL = ON, B.V=10V -> OUTPUT = 10V

Direction

- Filter adjustment

	10Hz	100Hz	1kHz	Pass		
SW1	on	off	off	off		
SW2	off	on	off	off		
SW3	off	off	on	off		

SW 1 : Filter 10Hz
SW 2 : Filter 100Hz
SW 3 : Filter 1kHz

- **Using Filter**

Input filter : This is Analog Low Pass Filter to reduce noise mixed from the sensor.
Pass Band ranges from 10Hz to 1kHz, operating by Dip switch

Low Pass filter band	10Hz	100Hz	1kHz
Against Noise quality	stable ◄——► sensible		
Response Speed	slow ◄——► fast		
Switch on, off(SW1~SW3)	SW1 on only	SW2 on only	SW3 on only

- Bridge voltage adjustment

	10V	5V				
SW4	off	on				

SW 4 : EXC Voltage Selection SW. When it is on, it is 5V and when off, it is 10V.

● Amplitude(Binary code 1,100~1600) adjustment.

	× 1	× 100	× 200	× 300	× 400	× 500
SW5	off	on	off	on	off	on
SW6	off	off	on	on	off	off
SW7	off	off	off	off	on	on
SW8	off	off	off	off	off	off

	× 600	× 700	× 800	× 900	× 1000	× 1100
SW5	off	on	off	on	off	on
SW6	on	on	off	off	on	on
SW7	on	on	off	off	off	off
SW8	off	off	on	on	on	on

	× 1200	× 1300	× 1400	× 1500		
SW5	off	on	off	on		
SW6	off	off	on	on		
SW7	on	on	on	on		
SW8	on	on	on	on		

SW 5 : Gain Selection 100
SW 6 : Gain Selection 200 times
SW 7 : Gain Selection 400 times
SW 8 : Gain Selection 800 times

♣Gain setting Table (off = 0, on = 1), EXC: 10V, MAX amplification:10V.

The rated output of Load cell (mV/V)	PASS	10.00	5.00	3.33	2.50	2.00	1.67	1.42
SW5 (G100)	0	1	0	1	0	1	0	1
SW6 (G200)	0	0	1	1	0	0	1	1
SW7 (G400)	0	0	0	0	1	1	1	1
SW8 (G800)	0	0	0	0	0	0	0	0

The rated output of Load cell (mV/V)	1.25	1.11	1.00	0.91	0.83	0.77	0.71	0.66
SW5 (G100)	0	1	0	1	0	1	0	1
SW6 (G200)	0	0	1	1	0	0	1	1
SW7 (G400)	0	0	0	0	1	1	1	1
SW8 (G800)	1	1	1	1	1	1	1	1

◀Caution

1. Turn it off when wiring (main power supply)
2. Please use thick cable for GN to prevent it from having impulse voltage and trouble resulting from surge.
3. Make sure the function of terminal belows and connect required contact input and output.
4. Always connect to more than 200Ω load during analog output.
   Do not connect induced load.
5. AC terminal is optional, and of AC 110V and 220V, 220V is fixed when manufactured. Connection of internal jumper makes possible for conversion (Do not operate at one's discretion).

◀ using procedure

① Turn it off, and then connect sensor to external input, external output, power supply, etc.

② Set Dip-SW as a output value of sensor and a resistance value of gage.

· If gage is 350Ω, Off 10V SW4. If gage is 120Ω, On 5V SW4.

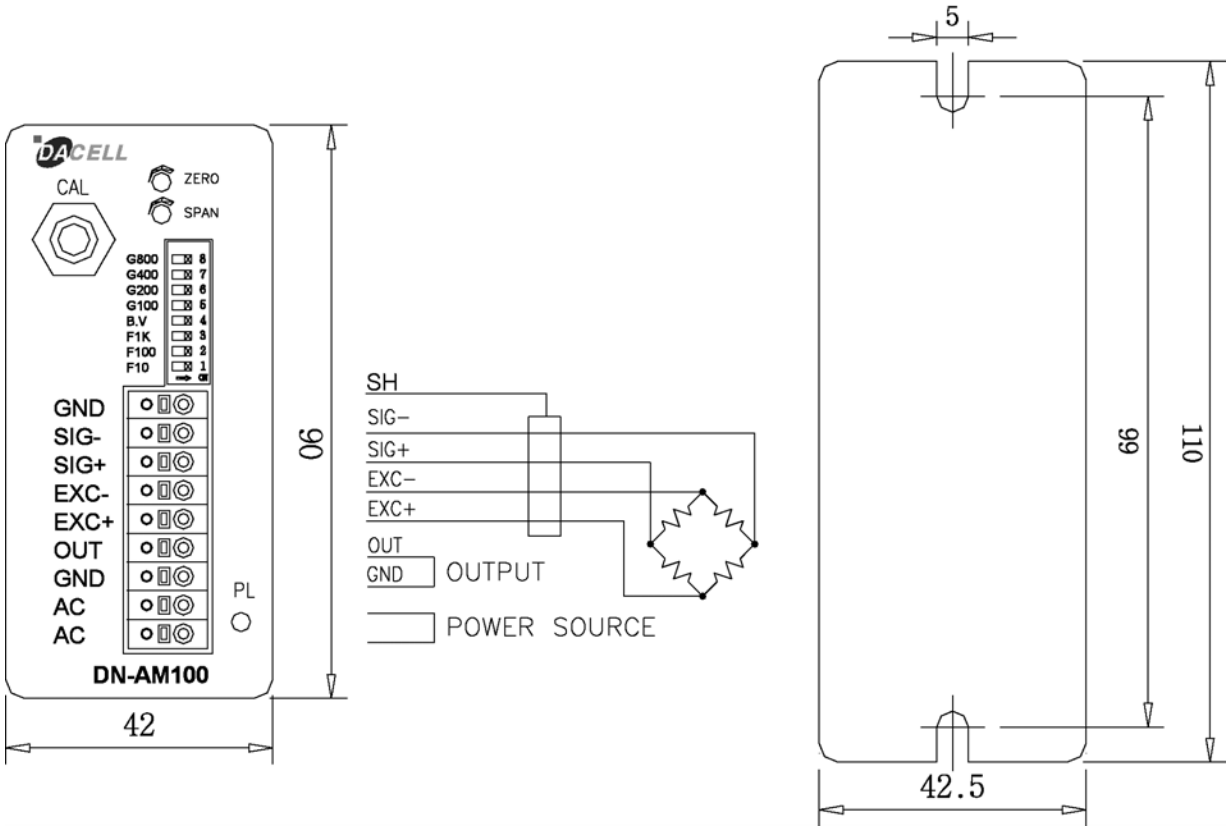
· Gain = Vout / (external supply voltage x sensor output)
  For example, when gage is 350Ω and sensor output is 1.3024mV/V,
  10V / (10V x 1.3024mV) = 767.813
  Here, if it outputs over 10V, over flow is occurred. In this case, Gain must be set 700.

③ Link the sensor and do calibration.

· For calibration with real-weight, set Zero when free-load, and then enter the known load and span value to set SPAN.
  It uses over 50% of total capacity as a SPAN value as possible to get correct value. It is possible to do calibration by using less 50% of total capacity.

④ When it finishes calibration, press CAL S/W on the back and take note of displaying value at the moment. Because of this memo there is no need to repeat the complex process of calibration. For example, if it values 7.852 when CAL S/W is on, change the calibration mode to real-weight calibration mode, set ZERO when free-load, and On the CAL S/W and enter 7.852 as a SPAN value, then set up SPAN.

Dimension


DACELL
CAL
ZERO
SPAN
G800
G400
G200
G100
B.V
F1K
F100
F10
GND
SIG-
SIG+
EXC-
EXC+
OUT
GND
AC
AC
PL
DN-AM100
90
42
SH
SIG−
SIG+
EXC−
EXC+
OUT
GND
OUTPUT
POWER SOURCE
5
66
110
42.5