

**Plug-in Signal Conditioners M-UNIT**

<b>STRAIN GAUGE TRANSMITTER</b> (remote sensing, super-high speed, 10V/120mA excitation)	MODEL <b>LCF</b>
---	------------------

**MODEL & SUFFIX CODE SELECTION**

MODEL \_\_\_\_\_ LCF-□□□□

**INPUT STRAIN GAUGE**

1 : 1mV/V  
 12: 1.25mV/V  
 15: 1.5mV/V  
 2 : 2mV/V  
 3 : 3mV/V  
 4 : 4mV/V  
 5 : 5mV/V  
 6 : 10mV/V  
 7 : 20mV/V  
 0 : Specify (strain gauge and excitation)

**OUTPUT**

<b>Current</b>	<b>Voltage</b>
A : 4 – 20mA DC	1 : 0 – 10mV DC
B : 2 – 10mA DC	2 : 0 – 100mV DC
C : 1 – 5mA DC	3 : 0 – 1V DC
D : 0 – 20mA DC	4 : 0 – 10V DC
E : 0 – 16mA DC	5 : 0 – 5V DC
F : 0 – 10mA DC	6 : 1 – 5V DC
G : 0 – 1mA DC	4W : -10 – +10V DC
Z : Specify current	5W : -5 – +5V DC
	0 : Specify voltage

**POWER INPUT**

B : 100V AC	G : 200V AC
C : 110V AC	H : 220V AC
F : 120V AC	J : 240V AC

**OPTIONS**

/E : Front-mounted LCD meter

**ORDERING INFORMATION**

Specify code number and variables.

- **Code number** (e.g. LCF-2A-B/E)
- **Special output range** (For codes Z & 0)

**GENERAL SPECIFICATIONS**

**Construction:** Plug-in  
**Connection:** M3 screw terminals (torque ≤0.8 N·m)  
**Housing material:** Flame-resistant resin (black)  
**Isolation:** Input to output to power  
**LCD meter:** Indicating input; 0.1% increments  
**Overrange output:** approx. -10 – +120% at 1 – 5V  
**Excitation:** Adjustable from 2 to 10V (front); limited to ≤15V when the remote sensing terminals are open.  
**Zero/span adjustments:** 0 – 80%\* for zero (tare); 100 – 20%\* for span (front)

\*May not applicable when the excitation voltage is changed after shipment.

**ISOLATION**

**Functions & Features**

- Provides a DC output signal compatible with a bridge type strain gauge utilized in load cells, pressure transducers
- Response time 300 μsec.
- Six-wire remote sensing compensates for lead resistance variations
- Excitation adjustable from 2V to 10V, max. 120mA
- Wide-range adjustment: 0 – 80% for zero, 100 – 20% for span
- Three-way isolation
- High-density mounting

**Typical Applications**

- Weighing system for tanks, hoppers, silos
- Weighing system using cranes
- Float level meter utilizing strain gauges

**INPUT & OUTPUT**

■ **INPUT:** Bridge voltage from load cells  
**Allowable leadwire resistance:**

$$\text{Total Resistance } [\Omega] \text{ (of all wires)} < \frac{\text{Bridge Resistance } [\Omega]}{\text{Excitation } [V]} \times 1.2 [V]$$

- **Strain Gauge**  
**Rated output from strain gauge:** 1 – 20mV/V;  
 Input to the LCF must be over 3mV.
- **Excitation:** 2 – 10V adjustable (5V standard)  
**Maximum current:** 120mA

■ **OUTPUT**

- **DC Current:** 0 – 20mA DC
- **Minimum span:** 1mA
- **Zero suppression/elevation:** Max. 1.5 times span
- **Load resistance:** Output drive 15V maximum

Output	Load Resistance
4 – 20mA	: 750 (Ω maximum)
2 – 10mA	: 1500
1 – 5mA	: 3000
0 – 20mA	: 750
0 – 16mA	: 900
0 – 10mA	: 1500
0 – 1mA	: 15k

•DC Voltage: -10 – +12V DC

Minimum span: 5mV

Zero suppression/elevation: Max. 1.5 times span

Load resistance: Output drive 1mA maximum at  $\geq 0.5V$

Output	Load Resistance
0 – 10mV	: 10k ( $\Omega$ minimum)
0 – 100mV	: 100k
0 – 1V	: 1000
0 – 10V	: 10k
0 – 5V	: 5000
1 – 5V	: 5000
-10 – +10V	: 10k
-5 – +5V	: 5000

### INSTALLATION

**Power input:** Rating  $\pm 10\%$ , 50/60  $\pm 2$  Hz, approx. 5VA

**Operating temperature:** -5 to +60°C (23 to 140°F)

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

**Mounting:** surface or DIN rail

**Dimensions:** W50xH80xD136 mm (1.97"x3.15"x5.35")  
See General Spec. Sheet Figure C-1.

**Weight:** 400 g (0.88 lbs)

**Terminal assignment:** See General Spec. Sheet Figure D-1.

### PERFORMANCE in percentage of span

**Accuracy:**  $\pm 0.1\%$

**Linearity:**  $\pm 0.05\%$

**Temp. coefficient:**  $\pm 0.02\%/^{\circ}C$  ( $\pm 0.01\%/^{\circ}F$ )

**Response time:**  $\leq 300$  microseconds (0 – 90%),  
2 kHz (-3 dB)

**Line voltage effect:**  $\pm 0.1\%$  over voltage range

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

**Dielectric strength:** 2000V AC @1 minute  
(input or output to power to ground)  
1000V AC @1 minute  
(input to output)

### STANDARDS & APPROVALS

**CE conformity:** EMC Directive (89/336/EEC)

EMI EN61000-6-4

EMS EN61000-6-2

Low Voltage Directive (73/23/EEC)

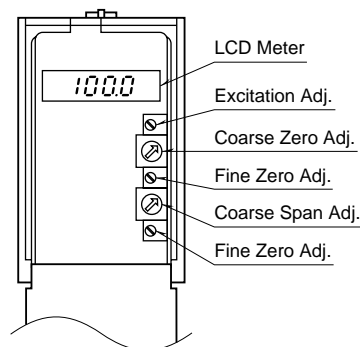
Installation category II

Pollution degree 2

Max. operating voltage 300V

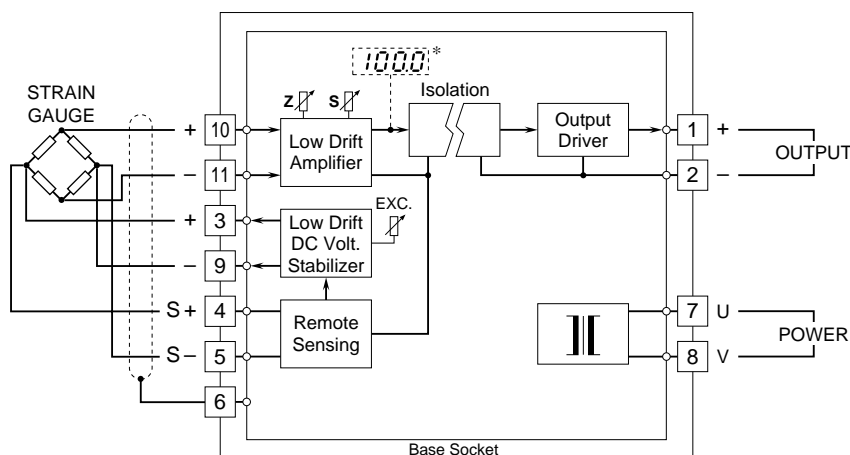
Input or output to power – Basic insulation

### FRONT PANEL CONFIGURATION



- LCD Meter:** Indicates input in % (0 – 100%).
- Excitation Adj.:** Factory adjusted.
- Coarse Zero Adj.:** Tare adjustment. Approx. 5% of input span adjustable with each increment. Max. 80% by 16 positions.
- Fine Zero Adj.:** Tare adjustment
- Coarse Span Adj.:** Gain adjustment. 100 – 20% of input span adjusted by 16 positions.
- Fine Span Adj.:** Gain adjustment

### SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Close across the terminal 3 – 4 and 5 – 9 when the remote sensing is not used.  
\*Option /E