



OPERATING PRINCIPLE: Carlson Instruments are elastic wire strain meters containing two coils of highly elastic steel wire, one of which increases in length and electrical resistance when a strain occurs, while the other decreases. The ratio of the two resistances is independent of temperature (except for thermal expansion) and therefore the change in resistance ratio is a measure of strain. The total resistance is independent of strain since one coil increases the same amount as the other decreases due to a change in length of the meter. Therefore, the total resistance is a measure of temperature.

Standard Carlson Strain Meter

	PRODUCT CATEGORY:
	CARLSON INSTRUMENTS

Carlson Strain Meter

The Carlson Strain Meter is a device which can be embedded in concrete to reveal internal deformations. It responds to any change in dimension of the concrete due to stress, creep, temperature change, moisture change, or chemical growth. The main purpose of the strain meter, however, is to indirectly determine stress. Quick changes in stress are simply achieved by multiplying the measured strain by the modulus of elasticity. But for stress, which develops over a long period of time, account must be taken for changes in modulus of elasticity and of deformations due to creep and all causes other than stress.

The standard strain meter may be embedded in concrete or attached to a surface with saddle mounts. The strain meter is furnished in three different lengths, from 8 cm to 51 cm (8 in. to 20 in.), but all with the identical sensing element. The end away from the cable has a tapped hole (1/4 - 28 UNF) to permit attachment to a spider for mass concrete embedment, or to incorporate an extender thereby increasing the length and sensitivity. The body is covered with PVC sleeving to break the bond with the concrete.

The miniature strain meter is for embedment in concrete applications where small size is essential. The miniature strain meter is furnished in three different lengths, from 10 cm to 20 cm (4 in. to 10 in.), but all with the identical sensing element. The end away from the cable has a tapped hole (6 - 32 UNF), which allows an extender to be added, thereby increasing the length and sensitivity. The body is covered with PVC sleeving to break the bond with the concrete.

The standard strain meters are intended for use in service structures, and the miniature strain meters are mainly for laboratory testing.

> APPLICATIONS

Measures internal deformations in concrete.

> FEATURES

Responds to stress, creep, temperature, moisture change, or chemical growth.

Indirectly determines stress.

> BENEFITS

- | | |
|--------------------------------|---------------------------|
| ✓ Increase Safety | ✓ High Accuracy |
| ✓ Increase Productivity | ✓ High Reliability |



Standard Carlson Strain Meters shown in a Spider



Close-up of Spider

Carlson Strain Meter



PRODUCT CATEGORY:
CARLSON INSTRUMENTS

SPECIFICATIONS + ORDERING

SPECIFICATIONS

DESCRIPTION	STANDARD CONCRETE STRAIN METERS				MINI CONCRETE STRAIN METERS		
	A8	A10	A10S**	A20	M4	M8	M10
Range (micro-strain)*	2600	2100	2100	1050	3900	2000	1600
Resolution (micro-strain)	3.6	2.9	2.9	1.5	5.8	2.9	2.3
Resolution Temperature	0.1°F (.05°C)	0.1°F (.05°C)	0.1°F (.05°C)	0.1°F (.05°C)	0.1°F (.05°C)	0.1°F (.05°C)	0.1°F (.05°C)
Gauge Length	20.3 cm (8 in.)	25.4 cm (10 in.)	25.4 cm (10 in.)	50.8 cm (20 in.)	10.2 cm (4 in.)	20.4 cm (8 in.)	25.4 cm (10 in.)
Weight	.36 kg (.8 lbs.)	.59 kg (1.3 lbs.)	.59 kg (1.3 lbs.)	.82 kg (1.8 lbs.)	86 g (.19 lbs.)	145 g (.32 lbs.)	186 g (.37 lbs.)

*Normally set at factory for 2/3 to 3/4 or range in compression. Within limits, other settings may be specified. **Saddle mount. Mounting diameter is 1-1/16 inches.

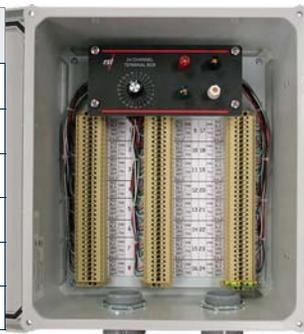
ORDERING INFO

DESCRIPTION	STANDARD CONCRETE STRAIN METERS				MINI CONCRETE STRAIN METERS		
	A8	A10	A10S**	A20	M4	M8	M10
Part Number	CA020A	CA021A	Contact RST	CA022A	CA070A	CA071A	CA072A

**Saddle mount. Mounting diameter is 1-1/16 inches.

ORDERING

ITEM	PART #
Spider	CA024A
Spider Adapter for models A8, A10, and A20	CA023A
No Stress-Strain Enclosure	LPA0170
12 Channel Carlson Terminal Box	ELTSC12
24 Channel Carlson Terminal Box	ELTSC24



24 Channel
Carlson
Terminal Box

Mini Carlson
Strain Meter



Side View

Bottom View

Top View

NO STRESS STRAIN ENCLOSURE