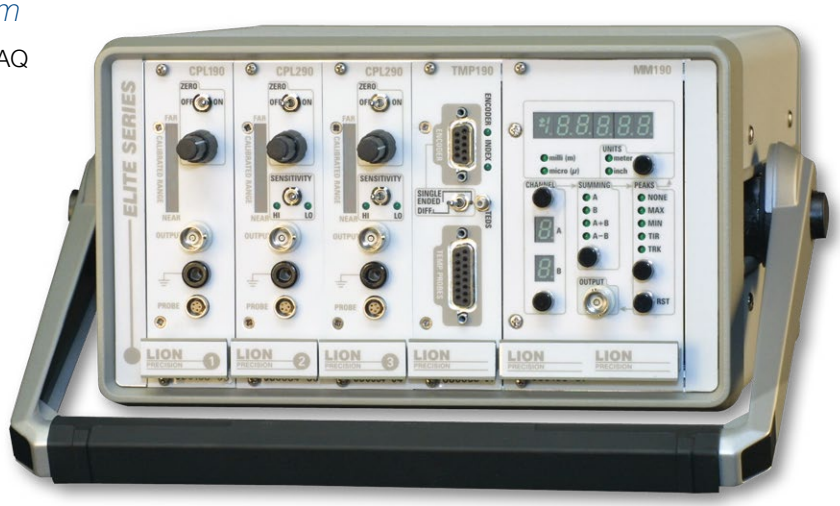
Elite Series

Our top performing capacitive sensor system

Elite Series sensors combine high performance, easy DAQ interface, and the flexibility of custom configurations.

- 1-8 Sensors in a single system
- Rear-panel 68-pin connector configured for National Instruments™
- Support modules available:
  Temperature Sensors, Signal Processing/Display



Export License

Because of high resolutions, export of the Elite Series to some countries requires an export license.

Enclosures

Intelligent Enclosures

Enclosures provide power and drive signals.

Extra slots can be included for future expansion.

- Direct connect to National Instruments DAQ hardware
- Input power: 100-240 VAC 50/60 Hz
- 1-, 2-, 3-, 6-, 8-slot Options
- Mounting flanges on 1-, 2-, and 3-slot
  Height: 144 mm/5.7"; Depth: 207 mm/8.2"
- Tip-up handle on 6- and 8-slot
  Height: 150 mm/5.8"; Depth: 315 mm/12.5"

1-, 2-, and 3-slot enclosures include an external power supply.

Each 6- and 8-slot enclosure includes internal power supply and standard IEC line-power cord.

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Elite Series Modules ➔

Elite Series Sensor Modules

CPL190 Single Range CPL290 Sub-Nanometer Sensor Modules Dual Range

The CPL190 has one range (sensitivity); the CPL290 has two ranges.

- Five-element range indicator
- Coarse/Fine zero adjusts
- Zero adjust disable
- Front-panel BNC analog output
- Differential output to National Instruments 68-pin connector

Specifications

Resolution[1]: 0.0003% - 0.008%

Bandwidth: Selectable
100 Hz, 1 kHz,
10 kHz, 15 kHz

Linearity[2]: <0.2% F.S. typical

Max Drift: 0.04% F.S./°C

Operating Temp: 4-50 °C

Front-Panel BNC: ±10 V, 0 Ω, 10 mA max

National Inst.
Rear Conn.: ±10 V, Differential

[1]Dependent on probe, range, and bandwidth. See next page for details.

[2]Dependent on probe and range. See next page for details.

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Ranges/Probes

The CPL190/CPL290 uses Standard Probes. Standard Probe mechanical details are on page 14.

Range is determined by the probe Sensing Area diameter. The larger the diameter, the larger the range.

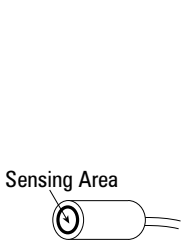
Sensing Areas are coded by diameter in mm (i.e. 0.8, 13).

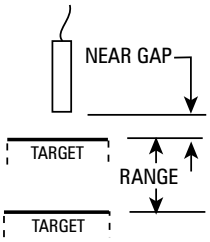
Different probe body styles/sizes are available for each Sensing Area. See “Probes” page for mechanical details.

Flat target surface diameter must be 1.3 times larger than the Sensing Area diameter.

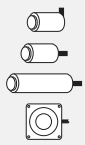
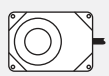
Elite Series

Standard Probes and Ranges for use with the CPL190 and CPL290 Capacitive Sensor Modules





Model numbers include shape (C=Cylindrical, R=Rectangular) and diameter or longest side in mm
See "Standard Probes" page for mechanical details.

Sensing Area Diameter mm	Measurement Range			Resolution[1] @ Bandwidth				Linearity % F.S.	Available Body Sizes	
	Range Type	Range µm mils	Near Gap µm mils	100Hz nm µin	1 kHz nm µin	10 kHz nm µin	15 kHz nm µin		Models	Body Styles
0.5	Fine	10 0.4	20 0.8	0.06 0.003	0.10 0.004	0.40 0.016	0.60 0.024	0.25	C3S C3R C5S C5R C5	
	Standard	50 2.0	50 2.0	0.30 0.012	0.50 0.020	3.0 0.12	4.0 0.16	0.25		
	Extended	80 3.0	60 2.4	0.50 0.020	1.0 0.040	5.0 0.20	—	0.25		
0.8	Fine	25 1.0	75 3.0	0.20 0.008	0.50 0.020	1.2 0.050	1.5 0.060	0.15	C3S C3R C5S C5R C5	
	Standard	100 4.0	100 4.0	0.50 0.020	1.0 0.040	3.5 0.14	5.0 0.20	0.15		
2.0	Ultrafine	10 0.4	20 0.8	0.05 0.002	0.08 0.003	0.15 0.006	0.25 0.010	0.15	C5S C5R C5 C8S C8R C8	
	Fine	50 2.0	75 3.0	0.20 0.008	0.30 0.010	0.60 0.024	1.0 0.040	0.15		
	Standard	250 10.0	125 5.0	0.8 0.030	1.0 0.040	4.0 0.16	6.0 0.24	0.10		
	Extended	500 20.0	125 5.0	1.5 0.060	3.0 0.12	10 0.40	15 0.60	0.15		
3.2	Fine	50 2.0	125 5.0	0.25 0.010	0.4 0.016	1.0 0.032	1.6 0.052	0.20	C8S C8R C8	
	Standard	500 20.0	250 10	2.0 0.10	3.0 0.12	6.0 0.28	10 0.40	0.15		
	Extended	1250 50.0	250 10	10 0.28	15 0.40	20 0.80	30 1.2	0.20		
5.6	Fine	50 2.0	225 9.0	0.3 0.012	0.4 0.016	0.8 0.040	1.3 0.060	0.20	C9.6S C9.6R C9.6 R22	
	Standard	500 20.0	500 20	2.5 0.080	3.0 0.12	7.0 0.24	10 0.40	0.15		
	Extended	2000 80.0	250 10	7.0 0.40	10 0.60	20 0.80	30 1.2	0.20		
13	Fine	2000 80	2000 80	20 0.80	30 1.2	35 1.4	40 1.6	0.50	C18	
	Standard	3200 125	2000 80	30 1.2	40 1.6	50 2.0	60 2.4	0.50		
	Extended	5000 200	3000 120	75 3.0	100 4.0	130 5.2	150 6.0	1.0		
19	Standard	2500 100	5000 200	50 2.0	70 2.8	90 3.6	100 4.0	0.30	R45	
	Extended	6000 250	3000 120	90 3.6	120 4.8	160 6.4	180 7.2	1.0		
21	Standard	8000 300	5000 200	75 3.0	100 4.0	130 5.2	150 6.0	0.50	C25	
	Extended	12500 500	5000 200	130 5.2	180 7.2	230 9.2	250 10	0.50		

[1]Resolution values are RMS. Peak-to-peak values are typically 8-10 times greater than the RMS values.
In high EMI conditions (10 V/m) output DC level may shift and noise may rise to 0.2 VRMS (1% resolution).

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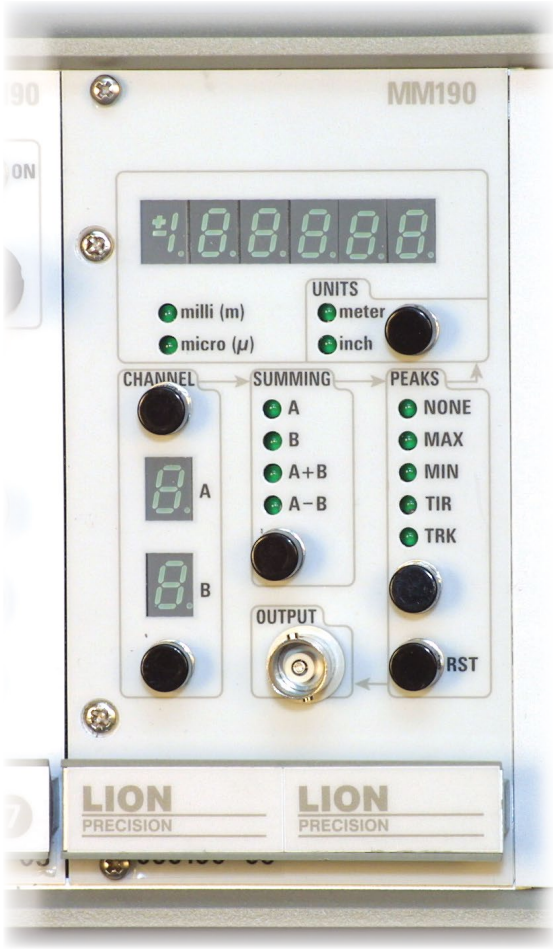
Elite Series Support Modules

MM190 Meter Module

Signal Processing and Five-Digit Display Module

Two-channel summing and peak-capture functions

- Five-digit display: Metric or inch units
- Summing: A, B, A+B, A–B of any two channels in the system
- Peak-capture functions: Max, Min, TIR, Tracking TIR (Self-resetting TIR)
- Analog output of conditioned signal through BNC
- Differential analog output of conditioned signal through National Instruments 68-pin connector
- Display accuracy: 0.1%



Specifications

BNC Output Scaling Error: -3.0% Max.

Internal Scaling Error: 0.2%

Difference Error: 0.2%

Summing Error: 0.2%

Tracking TIR Error Relative to Frequency: (not recommended below 100Hz)

10 Hz: -15.0%

100 Hz: ±0.3%

1 kHz: ±1.5%

5 kHz: ±4.0%

TIR Error Relative to Input Frequency:

DC: -15.0%

1 kHz: ±1.3%

5 kHz: ±4.0%

Peak Droop: 1 mV/15 seconds

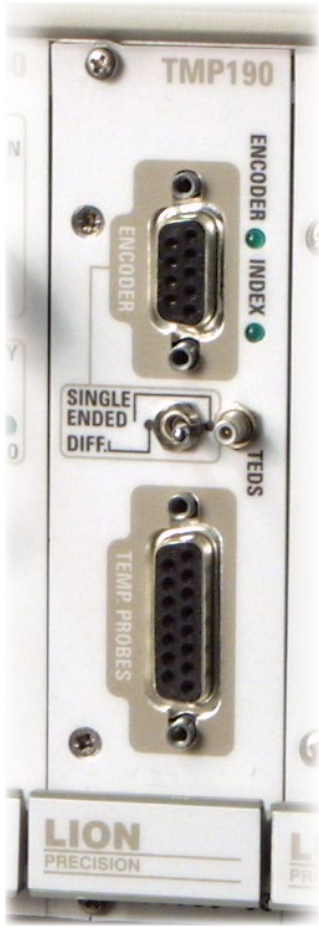
BNC Output Impedance: 150 Ohms

TMP190 Temperature Module

Seven-Channel Temperature Sensor

Used in conjunction with LabVIEW™ or Lion Precision SEA™ V8 software to read temperature sensors and encoder/index inputs.

- Seven thermistors included
- Index and encoder inputs for SEA™
- +5 V and +15 V encoder/prox power
- Single-ended or differential encoder input
- Encoder and index state indicators



Specifications

Accuracy*:	±1.8 °F @ 40-180 °F ±1.0 °C @ 4-82 °C
Output Voltage:	±10VDC
Measuring Range:	40-180 °F 4-82 °C
Sensor Interchangeability Error:	±0.2 °F ±0.1 °C

*In high EMI environments (10 V/m) temperature measurement may shift as much as 4°C.

Magnetic Mount Thermistor