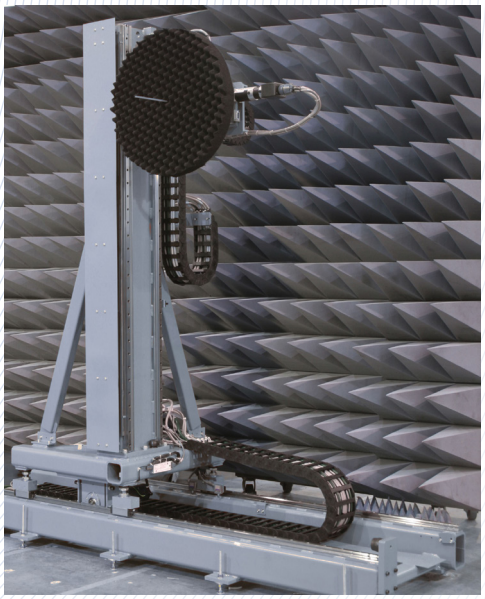
MI-6910 Family of Planar Scanners



- Scan lengths 3 to 80 ft (0.9 to 24.4m)
- Closed-loop position encoders ensure position repeatability and accuracy
- Rugged, practical mechanical design maintains alignment stability and exceptional dynamic planarity
- Modular design meets present and future measurement requirements

Description

The MI-6910 Family of Planar Scanners offers scan dimensions from 3 to 80 ft (0.9 to 24.4 m) and can be configured with a variety of options to improve accuracy, increase automation and simplify operation. When combined with our closedloop position control solutions, the MI-6910 scanner offers industry-leading uncorrected position accuracy of better than 0.002 inches (0.05 mm). These scanners are manufactured with quality, state-of-the-art features and are designed to employ Z-axis correction if required. All of the standard sizes shown here can be adjusted to fit an exact scanning solution to any unique needs.

Applications

The MI-6910 Family of Planar Scanners provides a cost effective solution for precise positioning. These scanners bring unmatched speed and accuracy to planar near-field antenna test applications.

Absolute position accuracy is critical to most measurement applications. The MI-6910 Family of Planar Scanners is designed to make repeated measurements at critically accurate positions. A prime example is the position accuracy required for near-field antenna measurements. MI Technologies has designed positioners for operation at high frequencies without correction. For even higher frequencies, probe position correction techniques can be applied. Typically high-gain directional antennas with low sidelobes are tested in the planar near-field, and even the smallest position errors and uncertainties can quickly degrade system dynamic range. To ensure the best possible measurement results, MI Technologies has implemented a robust mechanical design utilizing the latest drive system developments.

MI Technologies has a long history of producing accurate and reliable positioning systems. Many of our positioners sold more than 30 years ago are still in use today providing accurate movement of antennas, probes, and other complex components. The MI-6910 Family of Planar Scanners is designed in this tradition to maintain alignment over long periods of time even when used around the clock.

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Specifications

MI-6910-	3x3	5x5	8x8	10x8	10x10	12x10	12x12	20x10	16x16	23x22	30x30	80x40
Scan Area Horiz. x Vert. ft. (m)	3x3 (.9x.9)	5x5 (1.5x1.5)	8x8 (2.4x2.4)	10x8 (3x2.4)	10x10 (3x3)	12x10 (3.7x3)	12x12 (3.7x3.7)	20x10 (6.1x3)	16x16 (4.9x4.9)	23x22 (7x6.7)	30x30 (9.1x9.1)	80x40 (24.4x12.2)
Recommended Frequency Range (GHz)												
Low	3.3	2.2	1.12	1.12	0.96	0.96	0.96	0.75	0.96	0.75	0.49	0.49
High[1]	110	110	60	60	60	40	40	40	40	40	40	40
Planarity												
Uncorrected in. rms (mm rms)	0.002 (0.05)	0.002 (0.05)	0.003 (0.08)	0.003 (0.08)	0.003 (0.08)	0.004 (0.10)	0.004 (0.10)	0.004 (0.10)	0.004 (0.10)	0.004 (0.10)	0.004 (0.10)	0.006 (0.15)
Corrected in. rms (mm rms)	0.001 (0.03)	0.001 (0.03)	0.001 (0.03)	0.001 (0.03)	0.001 (0.03)	0.002 (0.05)	0.002 (0.05)	0.002 (0.05)	0.002 (0.05)	0.002 (0.05)	0.002 (0.05)	0.003 (0.08)
Accuracy												
Axis X in. rms (mm rms)	0.003 (0.08)	0.003 (0.08)	0.004 (0.10)	0.004 (0.10)	0.004 (0.10)	0.006 (0.15)	0.006 (0.15)	0.006 (0.15)	0.008 (0.20)	0.008 (0.20)	0.008 (0.20)	0.008 (0.20)
Axis Y in. rms (mm rms)	0.003 (0.08)	0.003 (0.08)	0.004 (0.10)	0.004 (0.10)	0.004 (0.10)	0.006 (0.15)	0.006 (0.15)	0.006 (0.15)	0.008 (0.20)	0.008 (0.20)	0.008 (0.20)	0.008 (0.20)
Axis Z in. (mm)	±0.01 (±0.3)	±0.01 (±0.3)	±0.02 (±0.5)	±0.02 (±0.5)	±0.02 (±0.5)	±0.03 (±0.8)	±0.03 (±0.8)	±0.03 (±0.8)	±0.03 (±0.8)	±0.03 (±0.8)	±0.03 (±0.8)	±0.03 (±0.8)
Roll Axis (deg)	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05	±0.03	±0.03	±0.03	±0.03
Scan Speed												
X in/sec (cm/sec)	15 (38)	15 (38)	15 (38)	15 (38)	10 (25)	10 (25)	10 (25)	10 (25)	10 (25)	10 (25)	10 (25)	10 (25)
Y in/sec (cm/sec)	15 (38)	15 (38)	15 (38)	15 (38)	10 (25)	10 (25)	10 (25)	10 (25)	10 (25)	10 (25)	10 (25)	10 (25)
Z Axis Travel	0, 6 in (15 mm), 12 in (30 mm). See option table.											
Roll Axis Travel												
Manual	-95° to +95°. Detents to indicate -90°, -45°, 0°, 45°, 90°.											
Motorized	0-360° continuous with rotary joint. -140 to +190 travel with limit switches											
Motorized Roll Capacity	Standard: 40 lbs (18.1 kg) or 13 ft-lbs (17.6 N-m) High: 60 lbs (27.2 kg) or 60 ft-lbs (81.3 N-m)											
Manual Roll Capacity	60 lbs (27.2 kg) or 60 ft-lbs (81.3 N-m)											
Recommended Absorber in. (cm)	5 (13)	8 (20)	12 (30)	12 (30)	12 (30)	12 (30)	12 (30)	18 (46)	24 (61)	24 (61)	24 (61)	24 (61)
Outline Dimensions												
Height in. (m)	80 (2.03)	104 (2.64)	140 (3.56)	140 (3.56)	164 (4.17)	164 (4.17)	188 (4.78)	164 (4.17)	236 (5.99)	320 (8.13)	416 (10.57)	536 (13.61)
Width in. (m)	90 (2.29)	114 (2.9)	150 (3.81)	184 (4.67)	174 (4.42)	208 (5.28)	208 (5.28)	304 (7.72)	268 (6.81)	391 (9.93)	500 (12.7)	1123 (28.52)
Depth in. (m)	34.5 (0.88)	34.5 (0.88)	34.5 (0.88)	34.5 (0.88)	34.5 (0.88)	44.5 (1.13)	44.5 (1.13)	44.5 (1.13)	56.5 (1.44)	87 (2.21)	111 (2.82)	135 (3.43)

[1] Higher frequencies can be attained when using less than the maximum scan area.

Ordering Information

The above specifications are only representative of the standard product models listed. The MI-6910 Family of Planar Scanners is highly customizable and MI Techologies can readily optimize the size, frequency range, planarity and other performance factors to customer requirements. Because of this breadth of design flexibility, customers are encouraged to specify their need rather than the tightest tolerance available.

The MI-6910 scanners are designed to work specifically with MI position controllers. Cables and position control units are ordered separately. If desired, an installed RF path may be requested by ordering the appropriate option.

Configuration Options

Absorber Shield		Z Axis Travel		Roll Axis		Rotary Joint		RF Path	
-A0		-Z0		-RTM		-RJ26.5		-RF0	
-A0	No Absorber	-Z0	No Travel	-RTH	Manual Roll	-RJ0	No Rotary Joint	-RF0	No RF Path
-AS	Standard Absorber	-ZH6	Manual 6 in Travel	-RTM	Motorized Roll Standard Capacity	-RJ26.5	DC-26.5 GHz	-RFP	Add RF Path[1]
		-ZH12	Manual 12 in Travel	-RTL	Motorized Roll High Capacity	-RJ40	DC-40 GHz		
		-ZM6	Motorized 6 in Travel						
		-ZM12	Motorized 12 in Travel						

[1] Standard RF Path Frequency Range: DC-18 GHz, other frequency ranges for RF path available. Consult factory.

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