

MI-6910 Family of Planar Scanners

Features

- 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 24.4m) and can be configured with a variety of options to improve accuracy, increase automation and simplify operation. Both vertical and horizontal scanners are manufactured with quality, state-of-the-art features. Both are designed to employ Z-axis correction if required. Horizontal scanners are generally custom designs that are based on customer requirements and standard proven design configurations. All of the standard sizes shown here can be adjusted to fit an exact scanning solution to any set of unique requirements.

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 software correction. For higher frequencies, probe correction techniques developed by the National Institute of Standards and Technology (NIST) may be applied.



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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 state-of-the-art drive system developments. When combined with our MI closed loop position control solutions, the MI-6910 scanner offers industry leading position accuracy of better than 0.002 inches (0.05 mm).

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

Model #	MI-6910 -3X3	MI-6910 -5X5	MI-6910 -8X8	MI-6910 -10X8	MI-6910 -10x10	MI-6910 -12X10	MI-6910 -12X12	MI-6910 -20X10	MI-6910 -16x16	MI-6910 -23x22	MI-6910 -30x30	MI-6910 -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 inches rms (mm rms)	0.002 (0.05)	0.002 (0.08)	0.003 (0.08)	0.003 (0.08)	0.003 (0.10)	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 inches 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)
Position Accuracy												
X Axis inches rms (mm rms)	0.003 (0.08)	0.004 (0.10)	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)
Y Axis inches rms (mm rms)	0.003 (0.08)	0.004 (0.10)	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)
Z Axis inches rms (mm rms)	±0.01 (±0.08)	±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 inches/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 inches/sec (cm/sec)	15 (38)	15 (38)	15 (38)	15 (38)	10 (38)	10 (25)	10 (25)	10 (25)	10 (25)	10 (25)	10 (25)	10 (25)
Z Axis Travel	0, 6 in, 12 in. 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 or 13 ft-lbs High: 60 lbs or 60 ft-lbs											
Manual Roll Capacity	60 lbs or 60 ft-lbs											
Recommended Absorber inches (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 inches (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 inches (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 inches (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.

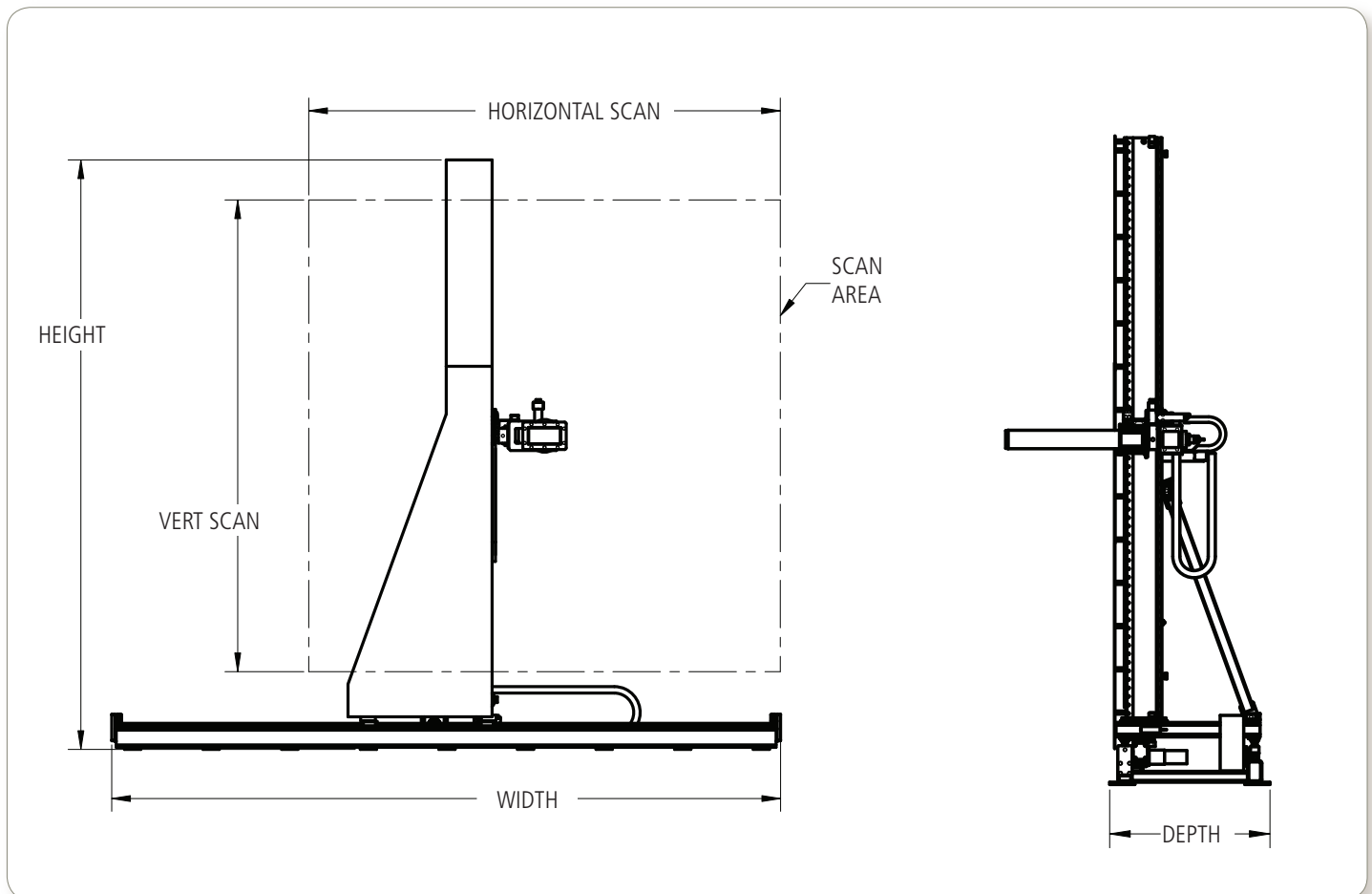
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Ordering Information

The above specifications are only representative of the standard product models listed. The MI-6910 Family of Planar Scanners is highly customizable and MI Technologies 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 must be requested by ordering the appropriate option.



MI-6910 Dimensions

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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-26.5GHz	-RFP Add RF path ¹
	-ZH12 Manual 12 in travel	-RTL Motorized roll high capacity	-RJ40 DC-40GHz	
	-ZM6 Motorized 6 in travel			
	-ZM12 Motorized 12 in travel			

1. Standard RF path frequency range: DC-18GHz, other frequency ranges for RF path available. Consult Factory.

Accessories

MI-6970 Family of Probes and Probe Mounts

MI-51000 Azimuth positioner for cylindrical near-field capability

MI-4190 Family of Position Controllers



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