

MI-788 Family of Networked Acquisition Controllers

The MI-788 Networked Acquisition Controller (NAC) optimizes overall system throughput and test capacity achieving significant performance advantages.

- Synchronizes measurements with multiple axes of high-speed position data
- Up to 16 channels of multiplexer control
- Maximizes acquisition throughput with VNAs
- Up to 1024 beam steering states in a single acquisition sequence
- Buffers acquisition data

Description

The MI-788 Networked Acquisition Controller (NAC), part of the MI-350 Advanced Antenna Measurement System, has three primary purposes:

- Extend the basic measurement functionality to support beam steering operation with active electronically steered array (AESA) antennas in a MI-350 AMMS
- Improve acquisition speed in systems with a Vector Network Analyzer
- Provide interfaces to legacy equipment in hybrid systems that have a mix of new and old equipment

The MI-788 Networked Acquisition Controller (NAC) is a valuable component that optimizes overall system throughput and test capacity. The overhead of networking, handshaking, sequencing, coordination, triggering, data flow, etc. between many types of devices is often the most significant limiting factor in total system performance. The MI-788 was specifically designed to optimize these interactions, achieving significant performance advantages.

The MI-788 NAC manages the position trigger from the position controller, the external trigger to the receiver and the 'measurement done' signal from the receiver.

This optimizes the triggering cycle among these different instruments for high throughput timing and data collection. External sources and LO units in a measurement range can be triggered by the MI-788 to coordinate with receiver operation, allowing efficient multiple frequency measurements across many instruments. The NAC can also manage MI-3320 multiplexers to provide an additional 16 channels of data.

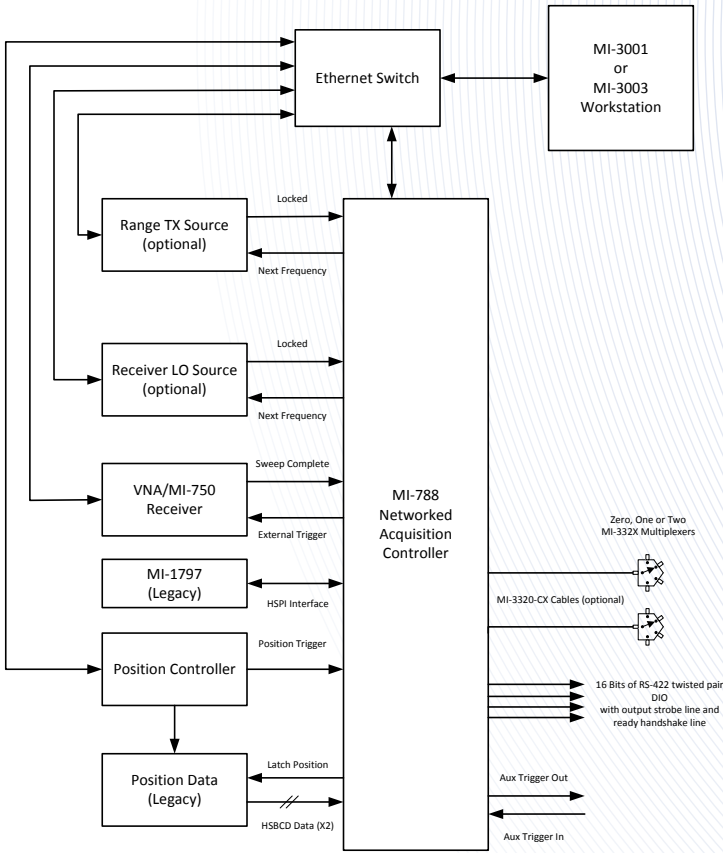
For active antenna testing, a 16 bit beam steering port is provided, with handshake lines, so that a beam steering computer or additional switched data channels can be added seamlessly to the acquisition.

Two high-speed binary coded decimal (HSBCD) ports are provided for position data from position control systems such as the MI-4190 Position Controller, third-party controllers or the legacy MI-1885 Position Display Unit. The NAC collects this position data so that it can be referenced to the position trigger points for the receiver or on each frequency when external sources are used.

The MI-788 NAC buffers vector network analyzer or microwave receiver test data for transmission to the control PC. The NAC then coordinates the transmission of the buffered data to the control PC where it is captured for data analysis purposes. This removes the control PC from real-time responsibilities during the acquisition allowing higher system throughput.

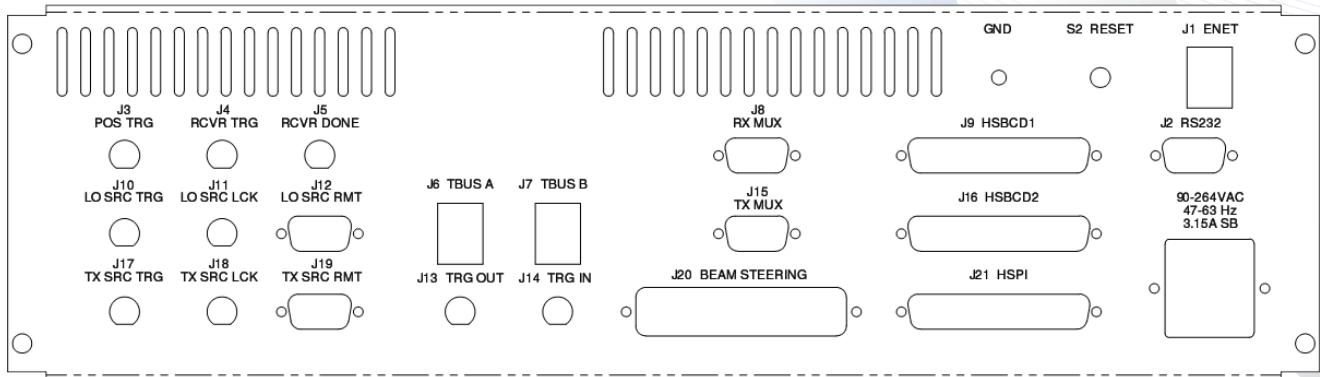
Specifications

Channel Switching	
Multiplexer Compatibility	MI-3320 Family of Multiplexers
Channels	16
Supported Frequencies	1024
Switching Overhead	< 2 msec per channel with no instrument data buffering < 10 usec per channel with instrument data buffering
Beam Steering	
Port Switching	16 bit
Output	RS-422
Switching Overhead	< 2 msec per beam state with no instrument data buffering < 10 usec per beam state with instrument data buffering
Supported States	1024
Other	
Position Data Interface	2 HSBCD
Trigger Ports	9 BNC TTL
External Channel Output	2 MI-3320 Multiplexer connectors
Source Trigger / Lock I/O	2 MI-1797-TL Standard
Auxiliary Trigger	2 BNC TTL programmable (in/out)
Workstation Interface	Ethernet
Size	3U Rack mount 5.75 in H x 19 in W x 20 in L 15 cm H x 48 cm W x 50 cm L
Weight	20 lbs (9 kg)
Power Requirement	110/240 VAC 2A Autosensing



System Block Diagram Using the MI-788 Networked Acquisition Controller

For legacy MI-2097 Automated Microwave Measurement Systems or systems based on an MI-1797 receiver, the NAC can interface with the receiver's high-speed parallel interface (HSPI) data port.



MI-788 Back Panel Layout



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