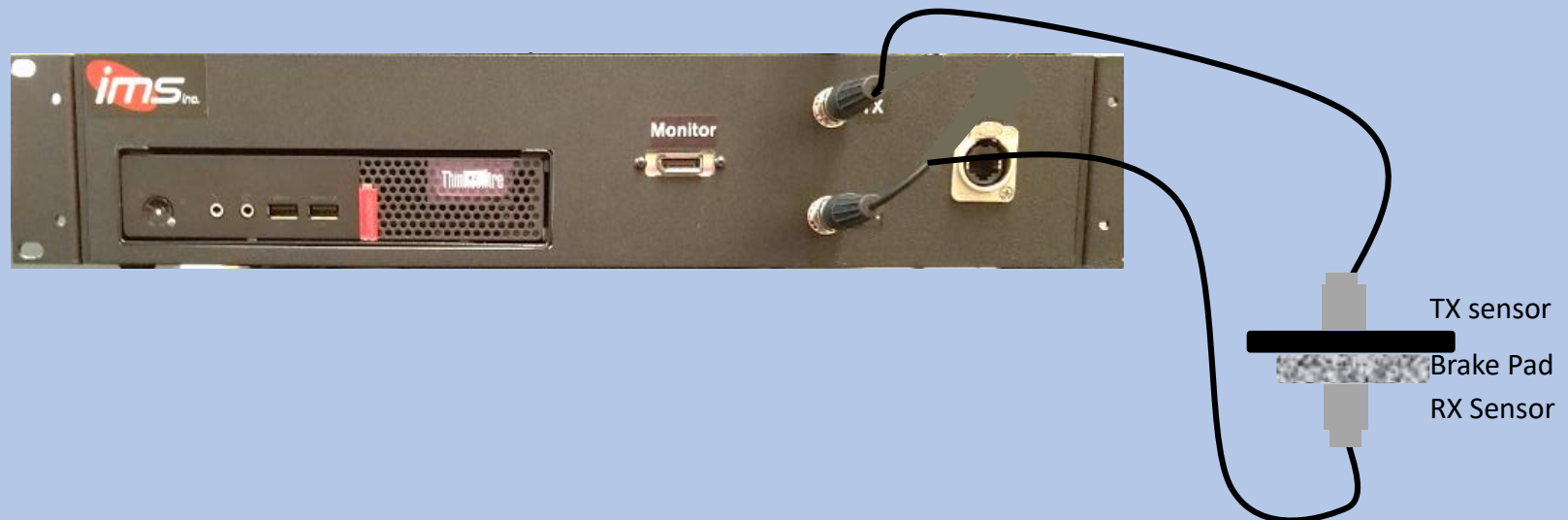




## Dynamic Modulus Measurement on As-Manufactured Brake Pads using the RiETEK in a Production Environment

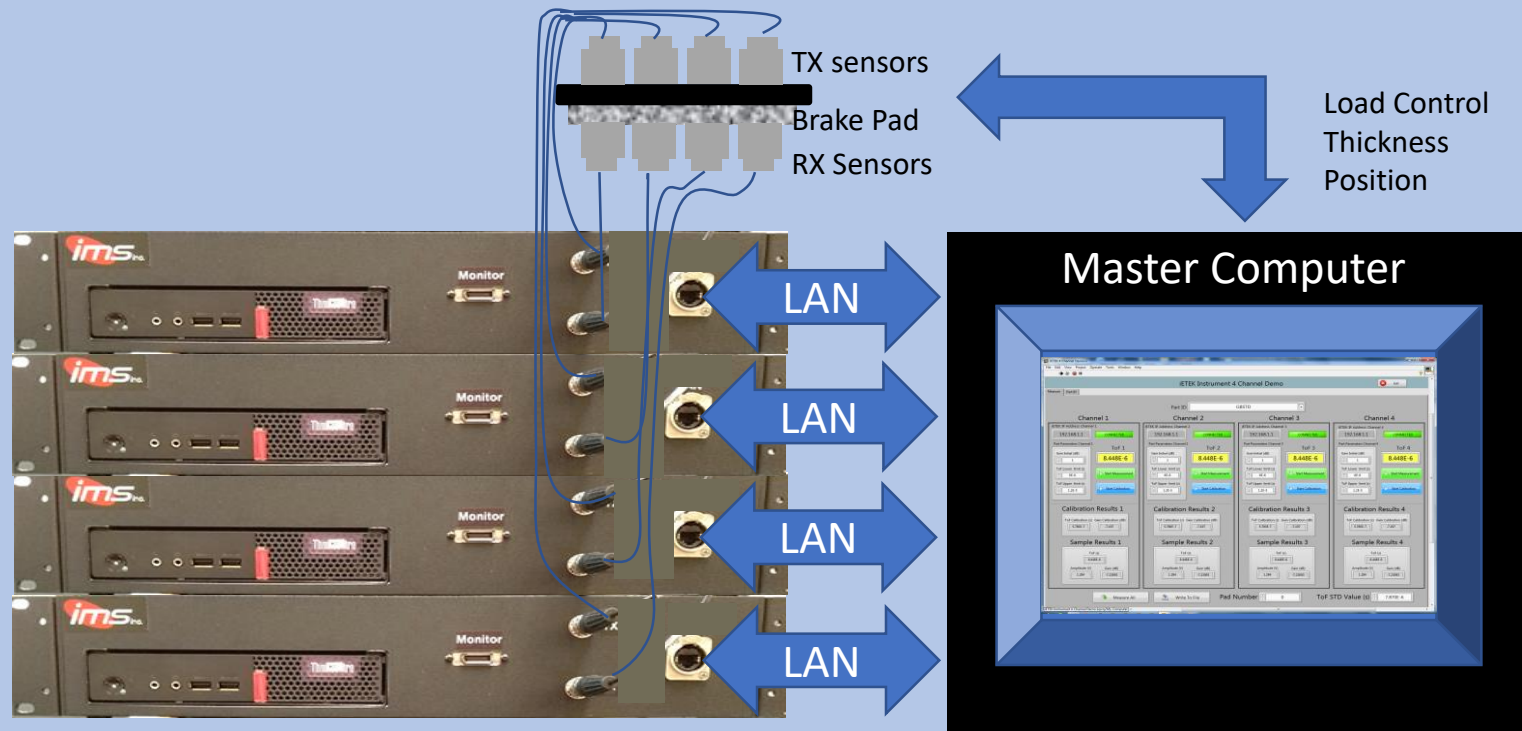
The **RiETEK** is specifically designed to automate the measurement of dynamic modulus and signal loss in automotive brake pads. Rapid, non-destructive measurements can be made on as-manufactured pads in less than 300 milliseconds. This instrument is specifically designed for automation vendors and systems integrators who wish to incorporate dynamic modulus measurements into in-line testing systems.





# Dynamic Modulus Measurement on As-Manufactured Brake Pads using the RiETEK

IMS Inc. works with system integrator and automated parts handler to customize the parts handling to suit specific needs to make Rapid iETEK measurements in a production environment. Integrators must supply preload and part positioning. All communication with the RiETEK units is done using Modbus TCP communication software supplied by IMS..



4-Channel (8 sensors) RiETEK Configuration



# Dynamic Modulus Measurement on As-Manufactured Brake Pads using the RiETEK

Four position host user interface and RiETEK test data



Example of a 4-channel interface to measure 4 positions simultaneously per brake pad.

	A	B	C	D	E	F	G	H	I
1	Channel #	Pad ID	Position	Raw ToF (us)	ToF Offset (us)	Initial Gain (dB)	Amplitude (V)	Sample Gain (dB)	GB Gain (dB)
2	Channel 1	1	1	14.440	0.678	27	0.6093	25.283	2.435
3	Channel 1	1	2	14.808	0.678	27	0.4488	27.939	2.435
4	Channel 1	1	3	14.680	0.678	27	0.5591	26.029	2.435
5	Channel 1	1	4	14.224	0.678	27	0.5457	26.240	2.435
6	Channel 2	2	1	14.648	0.683	27	0.3857	29.254	3.900
7	Channel 2	2	2	14.824	0.683	27	0.3376	30.411	3.900
8	Channel 2	2	3	14.728	0.683	27	0.3503	30.091	3.900
9	Channel 2	2	4	14.272	0.683	27	0.3282	30.656	3.900
10	Channel 3	3	1	14.672	0.686	27	0.5207	26.647	1.239
11	Channel 3	3	2	14.896	0.686	27	0.3332	30.524	1.239
12	Channel 3	3	3	14.856	0.686	27	0.4582	27.758	1.239
13	Channel 3	3	4	14.472	0.686	27	0.5286	26.518	1.239
14	Channel 4	4	1	14.192	0.715	27	0.4791	27.370	1.857
15	Channel 4	4	2	14.280	0.715	27	0.3078	31.214	1.857
16	Channel 4	4	3	14.344	0.715	27	0.4056	28.818	1.857
17	Channel 4	4	4	13.872	0.715	27	0.4339	28.231	1.857

RiETEK archived Test data written to Excel file which include data for Modulus Calculation and Signal Loss.



## Dynamic Modulus Measurement on As-Manufactured Brake Pads using the RiETEK

Each RiETEK unit consists of an ultrasonic pulser, high gain receiver, high-speed A/D, and processor. The unit is supplied with specially designed ultrasonic sensors which allow for non-destructive testing of a wide variety of friction materials. Modbus TCP is used to initiate the measurement and transfer the test results to a host computer. This instrument is specifically designed for automation vendors and systems integrators who wish to incorporate dynamic modulus measurements into in-line testing systems.

### RiETEK Components

