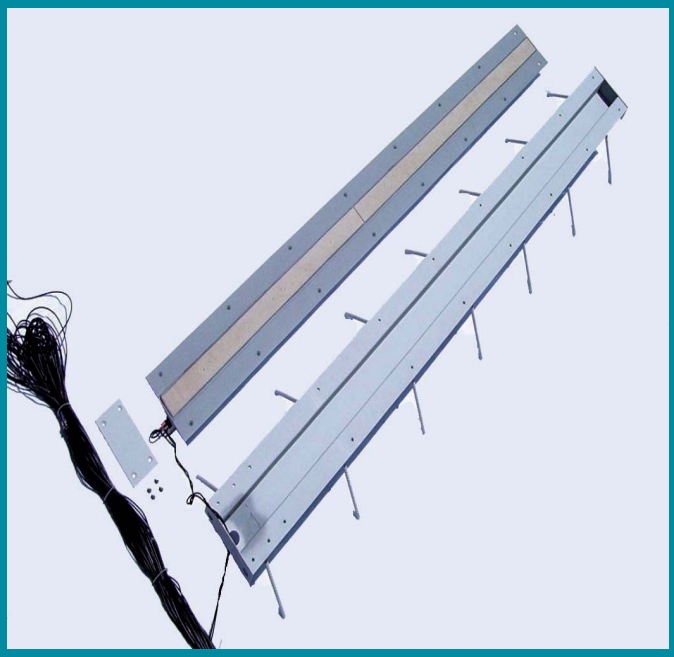
QUICK CHANGE QUARTZ WIM SENSOR



KISTLER

QUARTZ WIM SENSOR PRODUCED BY KISTLER INSTRUMENTS

SENSOR FRAME AND CARRIER PRODUCED BY TDS

FEATURES

The sensor frame is embedded in the roadway. The sensor carrier containing the quartz WIM sensor is bolted into the frame.

The quartz sensor can operate at speeds ups to 100 miles per hour.

The quartz sensor is prepotted in the carrier to eliminate any need for field potting.

The quartz sensors are available in 0.75 and 1 meter length.

TDS can supply carriers capable of holding 1, 2, 3 or 4 of the quartz sensors to provide various length sensor arrays.

The frames are available in standard 1 meter, 1.75 meter (2 sensors), 3 meter (3 or 4 sensors) and 4 meter (4 sensors) lengths.

Other lengths are available upon request.

BENEFITS

Ease of installation - No drain required, mimimal road surface penetration.

Quick change design and connectorized sensor allows for the removal and replacement of the quartz sensor with simple tools in less than 1 hour, thereby minimizing lane down time.

Long life (> 5 years in steady traffic).

The use of carriers with false inserts allows the agency to install large numbers of sites and only populate a limited number of the sites with the actual sensors..

APPLICATIONS

Toll Road Plaza Axle Detection - AVC

High Speed Open Road WIM Points

Border Crossing Evaluation

Bypass and Prepass WIM Lanes

QUICK CHANGE QUARTZ SENSOR

OPEN JUNCTION BOX

CLOSED JUNCTION BOX

QUARTZ SENSOR INSTALLATION

The Kistler quartz WIM sensor is designed to be installed directly into the roadway using a special epoxy to encapsulate the sensor. In the event of a failure of the sensor, the encapsulation and the enclosed sensor must be physically removed from the roadway and replaced. This will typically remove the lane from service for a minimum of 8 hours while the epoxy cures. In those applications where a quicker replacement is required, TDS offers a steel quartz sensor frame and carrier combination.

In the TDS design, the quartz sensor is encapsulated into the carrier prior to shipment. A sand/epoxy grout secures the sensor strips into the carrier.

The sensor frame is permanently installed into the roadway. Prior to installation a conduit is connected to the junction box for routing of the interface cable to the WIM interface box. The conduit runs from the sensor frame junction box to the location where the WIM amplifier is to be installed (usually near the lane processor). An extension cable is pulled through the junction box on the end of the frame to the sensor amplifier. The carrier is then bolted into the frame. The quartz sensor is connected to the extender cable. Then the junction box cover plate is installed. The junction box with the cover on and the cover removed are shown above.

Replacement of the quartz sensor requires removal of the junction box cover and the sensor cradle and disconnection of the sensor from the extender cable. This allows for the replacement of a failed sensor in less than one hour using standard tools.

QUARTZ SENSOR

Kistler's LINEAS WIM Type 9195C is a force sensor with quartz elements. The sensor is a modular element that is installed into a slot that has been saw-cut across an asphalt or concrete road. When a force is applied to the sensor surface, the quartz disks yield an electric charge proportional to the applied force through the piezoelectric effect. The electric charge is converted by a charge amplifier into a proportional voltage which can then be processed as required.

Two or more sensors can be connected together to make a longer single sensor strip. Several sensors that are installed adjacent to one another can be connected electrically in parallel and operated with a single charge amplifier. The output signal then corresponds to the sum of the forces acting simultaneously on all sensors connected.

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