PEGASEM MMS / WSS

Modular Mounting System and Wheel Speed Sensor

Features

- Modular construction
- Adjustable to different types of vehicles
- Easy to disassemble and transport
- Low weight
- Robust and corrosion resistant
- Available in a special carrying case

Applications

- Speed Measurement
- Acceleration Testing
- Tire Slip-Testing
- Traction Measurement
- Distance Measurement
- Long-term Tests
- Vehicle Development
- Registration
- Support of GNSS-equipment

PEGASEM delivers a Modular Mounting System for the attachment of test equipment and sensors to the car wheel bolts and nuts. This system offers extreme flexibility and adaptability for fitting of different types of equipment to different vehicles. It offers some unique and useful features nowhere else available on the market.

The system consists of five main components:

- Clamps or Magnetic Holders for fitting the wheel bolts
- Wheel Adapter Plate for Sensors
- Harness Protection Sleeve
- Mounting Plate for the fender or car body
- Cable and waterproof connection to route the sensor signals to the data acquisition device

Fitting Wheel Bolts:
Two different bolt variants are available for this system, Hexagonal Clamps (collects) or Magnetic Holders.
Both are suitable for general use, each with special advantages in different applications.

Modular Mounting System (MMS) and Wheel Speed Sensor (WSS) on the front wheel

The **Clamps** main property is its high holding force. It allows attachment of heavy equipment securely to the wheel nuts, even on very bad roads.

19mm Clamp Holder with Sleeve and Quick Fastener on a wheel bolt

Additional features:

- Special Aluminium alloy for Low Weight
- Anodized surface for corrosion resistant
- Quick fastener for Collet

The clamps are designed as a collet. This design uses six “fingers” to firmly grab the head of the hexagon nuts or bolts. A sliding sleeve applies the pressure to the fingers and presses them firmly onto the nut/bolt.
Available collets from 13 to 24 mm are usually available on request.

The **Magnetic Holders** is a new proprietary and registered design. They are for quick and ease of connect/disconnect of the measuring equipment. The Magnetic Holders are ideal for series test of tires where frequent and quick changes are required. They offer a clear cost advantage due to their interchangeable Guide Caps and magnetic core element. Various cap sizes allow the use of one magnetic core element for different wrench sizes (e.g. 15, 17, 19, 21, 22, 24 and 27 mm).

Magnetic holder shown with guide caps for 17, 19, 21, 22mm

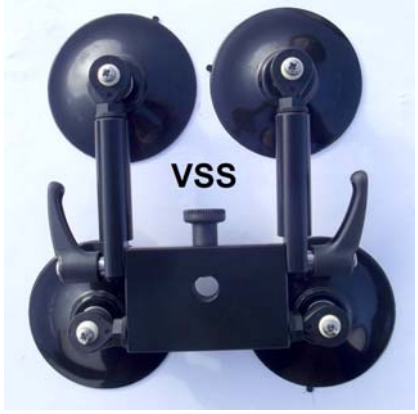
The **Wheel Adapter Plate** with radial slots is attached to the collars of the magnetic holders or the quick fasteners of the clamps. A wheel speed sensor (WSS), or a slip ring assembly (SRS) can be mounted in the disc center as well as customer specific equipment. The slots allow the use of the disc on rims with different pitch circles and pitch counts.

Discs up to 250 mm diameter are available from stock. Other sizes can be produced on request.

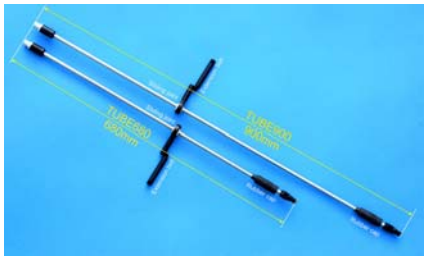
For industrial vehicles like busses and trucks collets for nuts of 27, 30, 32 and 33mm W/AF (Width Across Flanges) are available as well as special discs fitting large wheels with up to 10 and 12 lug nuts.

If bolts are placed deeply inside the rim, the holders can be lengthened with extension pieces in steps of 45mm.

Fender Mounts:
Magnetic or suction cup based holders create a reference point for the harness tube on the fender above the wheel. VMM type holders are based on four rubber coated magnets while the VSS type uses four suction cups for non-ferrous car bodies made of aluminium or glass-fibre.



Harness Tubes:
The Harness Protection Tube provides shielding and torsional protection for the signal wires. It is fabricated of high-grade stainless steel for strength and corrosion resistance. The Harness Protection Tube is typically 680 mm long (8mm outer diameter) and will fit for nearly all passenger cars and SUVs. For bigger vehicles a 900mm version of the tube is available as well as an extra robust one meter long variant with 12mm outer diameter.



The rubber sealed clamping sleeves protect the internal connectors against dust, water and other contaminants and provide the necessary strength of the tube.

Transportation Case:
For convenience a robust transportation case is available that can carry two sets of MMS and WSS pieces to enable testing on two vehicle wheels. The case dimensions are designed for the 680mm long harness tubes.

Sensors:
The MMS Mounting System is the base for various sensors types, as PEGASEM WSS wheel speed sensors, slip ring assemblies or Laser height sensors. Most often the MMS is delivered with a PEGASEM WSS.

WSS:
PEGASEM Wheel Speed Sensors offer high precision information as to the rotational speed of the car wheels, they can also be used as vehicle speed and distance transducers. For testing of tyres and Antilock Braking-Systems (ABS), they give exact information as to the status of the wheels for slip and skid calculations. WSS Wheel Speed Sensors have been designed for harsh environments typical of tests on a car wheel hub. They resist shock, vibration, dust, mud, saltwater, snow and ice without problems.
They fit seamlessly with the PEGASEM Modular Mounting System and can quickly be attached to a wide range of different wheels and hubs. The three different versions of this series meet various needs in the vehicle testing business.

WSS Wheel Speed Sensor Technical Data

	WSS2	WSS3	WSS4	Unit
Electrical Specifications				
Supply Voltage	6..24	6..24	6..24	VDC
Typ. Supply Current	33	33	33	mA@12V
Digital Output Type	TTL 5V	TTL 5V	TTL 5V	Dual Channel quadrature Single Channel + Direction
Digital Output Pulse Rate	200	1600	1600	PPR
Analogue Speed Output	-	-	0..5000	mV
Serial Interface (RS232)	-	-	yes	
Internal Distance Counter	-	-	yes	Accessible per RS232
Optional Windows software for online speed display	-	-	yes	Linked per RS232
Calibration Capability				
Output Pulse Rate	-	-	200/400/800/1600	ppr [1)]
Speed Voltage	-	-	yes	
Mechanical Specifications				
Length of Harness Protection Tube	680	680	680	mm 900 mm on request
Maximum Rotational Speed	3000	3000	3000	RPM
Stainless Steel Hub Ball Bearings	yes	yes	yes	
Operational Temperature Range	-40.. +70	-40.. +70	-40.. +70	° (deg C)
Sensor Size (WxDxH)	108x43x30	108x43x30	108x43x30	mm
Weight (Sensor head only)	310	310	310	grams
Sealing	IP67	IP67	IP67	Hermetically sealed

Sample Ordering Information for MMS and WSS Products

PEGASEM offers typical mounting kits that cover a wide range of applications. To get an individual quotation please send a request to info@pegasem.com or to one of our dealers briefly describing the desired application. We will send you a quote that will fit your individual needs at the best. The list below shows a few typical configurations only.

Ordering Number	Comment
MMSWHL Hex Clamp 17/19/21-D170	Wheel Mounting Kit comprised of 3x5 clamps, (17/19/21mm), 5 extension sleeves, 5 clamp fasteners, one slotted disc (dia 170mm), 5 knurled nuts
WSS2-200-VMM-T8-680	Wheel Speed Sensor Head 200 ppr, dual channel quadrature pulse output (A/B-type) Harness tube L=680mm, VMM Fender MagMount
WSS3-1600-VMM-T8-680	Wheel Speed Sensor Head 1600 ppr, dual channel quadrature pulse output (A/B-type) Harness tube L=680mm, VMM Fender MagMount
WSS3-1600-VSS-T8-680	Wheel Speed Sensor Head as above but VSS Fender Suction Cup based Mount
WSS4-1600-VMM-T8-680	Wheel Speed Sensor Head 1600 ppr, dual channel quadrature pulse output (A/B-type) Harness tube L=680mm, VMM Fender MagMount, Analog speed output 0 .. 5VDC
Case WSS/MMS	Transportation case to carry two WSS/MMS sensor systems

Optional Accessories	Dimensions	Comments
CAB8-ODU-OE-5	L= 5m	Sensor cable, Push-Pull connector, open wire ends
CAB8-ODU-DSUB-5	L= 5m	Sensor cable, Push-Pull connector, DSUB on end
CAB8-ODU-OE-10	L= 10m	Sensor cable, Push-Pull connector, open wire ends
CAB8-ODU-DSUB-10	L= 10m	Sensor cable, Push-Pull connector, DSUB on end
CAB8-ODU-OE-20	L= 20m	Sensor cable, Push-Pull connector, open wire ends
CAB8-ODU-DSUB-20	L= 20m	Sensor cable, Push-Pull connector, DSUB on end
SB1-OE-2	80x33x28 mm	Interconnection Box for one WSS sensor head, 2x BNC output, Power In, RS232 I/O Sensor power supply cable with open ends, L=2m
SB2-OE-2	120x33x28 mm	Interconnection Box for one WSS sensor head, 3x BNC output, Power In, RS232 I/O Sensor power supply cable with open ends, L=2m
SB2-USB-OE-2	110x33x28 mm	Interconnection Box for one WSS sensor head, 3x BNC output, Power In, USB I/O Sensor power supply cable with open ends, L=2m
SB4-OE-2	105x105x22 mm	Interconnection Box for four WSS sensor heads, 2x BNC outputs per channel Sensor power supply cable with open ends, L=2m
Case-WSS/MMS	74x27x32 cm	Sturdy Transport Case for two MMS/WSS systems

1) Rate can be configured through the serial interface by PEGAVIEW software. Max. output 5 VDC.
2) For details and power cable options see SPLITBOX product sheet.

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