

Schrader 3141M and 33900 Tire Pressure Sensors for BMW Motorcycles

THE FOLLOWING APPLIES TO REPLACING THE OEM SCHRADER TIRE PRESSURE SENSORS USED ON PRE-2022 BMW MOTORCYCLES WITH AFTERMARKET CHOICES ALSO MADE BY SCHRADER. IN 2022 BMW CHANGED MANUFACTURERS TO LDL TECHNOLOGIES. THE TWO SYSTEMS ARE NOT COMPATIBLE.

This is a description of alternatives to the outrageously overpriced replacement BMW tire pressure sensors. Eventually the batteries in the original sensors die. There is content on the internet about how to replace the batteries embedded (literally) in the sensors although they are not designed to be replaced. The effort required to replace the batteries was probably justified at one time by the cost of new replacement sensors from BMW. With lower cost aftermarket alternatives now available buying new replacement sensors has become more attractive. While there are very inexpensive made in China substitutes available these may have quality issues. This note is about sensors from Schrader, the company that manufactured the OEM sensors and the replacement parts used by BMW.

The OEM "banana style" sensors used on many BMW motorcycles look like this:



At some point (circa 2018?) Schrader develops, and BMW adopts, a new style ("Gen 2") sensor to replace the banana style ("Gen 1") sensors. BMW dealers may only have the Gen 2 sensors available now as replacements as the Gen 1 sensors have been superseded. The Gen 2 sensors are lighter than the Gen 1 and have less impact on wheel balance. The Gen 2 sensors look like this:



Gen 1 and Gen 2 side by side (notice that the Gen 2 is much smaller):



Schrader has developed an aftermarket pre-programmed tire pressure sensor as a replacement for the BMW motorcycle OEM part. It is the Schrader 3141M. The 3141M is pre-programmed to work with BMW motorcycles and it is identical to the BMW Gen 2 part save for the BMW logo. The 3141M and the BMW replacement part use a different form factor than the original “banana style” BMW sensor (as is evident in the previous photos) and has a different mounting scheme.

See a short German text on the 3141M here:

<https://www.autotechnik24.de/forum/showthread.php?tid=85>

About the 3141M:

“In the motorcycle sector, BMW has had an RDK system for some time, and in the course of the year there were already inquiries about the sensors, which are “used up”, i.e., should be replaced. Schrader has reacted here and offer 2 sensors in the aftermarket, one for BMW (3141M) and one for KTM (3142M). The sensor comes solo, i.e., without valves, which are available in different versions. This also makes sense in the event that valves and sensors are installed separately, e.g., on the BMW F700, because here the sensor is screwed directly into the rim, the valve sits in a spoke, so you can buy exactly what you need. All you must do then is check if you have a T40 Torx bit to assemble the whole thing.” (translated from the German original text)

The 3141M will replace the sensors in the BMW motorcycle models listed here:

<https://www.motorrad-ersatzteile24.de/motorrad-zubehoer/nach-baugruppe/reifen-und-felgen/reifendruck-sensor/129861/sensor-reifendruckkontrollsystem-schrader-ohne-ventil-fuer-bmw-3141m>

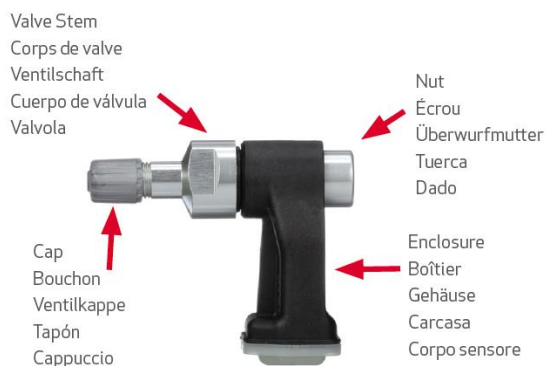
There are three mounting schemes for Gen 2 type sensors:

Mounting | Montage | Montage | Montaje | Montaggio



Depending on the model, BMW may have used either a straight valve stem (the one on the left above) or an angled valve stem (the one on the right above) on wheels where the valve hole is in the middle of the rim. The angled valve stem is advantageous where access space for the air hose chuck is limited due to the brake rotors. The angled valve stem may be substituted for the straight valve stem.

The sensor plus straight valve stem looks like this:



The installation procedure (angled valve stem shown):



The various “service kits” available from Schrader are as follows:

SERVICE KITS / VALVE TYPES	
PART NUMBER	DESCRIPTION
5077M	Angled Valve Stem 80° and 8.5mm Valve Hole
5078M	Angled Valve Stem 80° and 11.5mm Valve Hole
5079M	Straight Valve Stem 8.5mm Valve Hole
5080M	Straight Valve Stem 11.5mm Valve Hole
5081M	Bolt
5082M	Angled Valve Stem 80° and 11.5mm Valve Hole Black
5083M	Straight Valve Stem 11.5 mm Valve Hole Black

33900 90° Clamp-in EZ-sensor® Service Packs



90° Aluminum
Straight Stem
#25080



90° Aluminum
Angled Stem
#25078



90° Black
Straight Stem
#25083



90° Black
Angled Stem
#25082

Includes: plastic sealing cap, aluminum clamp-in stem, nickel-plated valve core, nut and rubber grommet

BMW motorcycles have a 11.5mm valve hole. BMW sells the straight valve stem (3 631 8 565 086) and the nut (3 631 8 359 962) separately and the angled valve stem complete (3 631 8 388 689).

If the bike has the tire valve in a cast wheel spoke (see photo on left below) rather than in the middle of the rim, then the sensor is fastened to the rim with a hollow screw (center photo). It is hollow (vented) because it screws into a threaded hole inside the rim that doubles as the passage for air from the valve in the spoke to the inside of the tire.

The screw is BMW part number 36318359961 or Schrader part number 5081M:



The valve service kits from Schrader are available in 4-packs (packaged with cars in mind). For example, the 5080M is available as Schrader 25080-4. A 4-pack may be more economical on a per unit basis (a good deal if you have two wheel sets or a buddy who also wants a couple). A single 5080M is also sold under the part number 25080 for cars.

The problem with the 3141M as a replacement is that it is NOT sold in North America (probably the result of some restriction imposed on Schrader by BMW) and most EU vendors will not ship it to NA. Fortunately there is an alternative – the Schrader EZ-sensor 33900 programmable sensor.

The 3141M is unfortunately not available for sale in North America but there is another Schrader alternative. The Schrader EZ-sensor 33900 programmable sensor is readily available. The 33900 is the same form factor as the BMW Gen 2 and the Schrader 3141M and takes all the same service kits for mounting. While the 3141M comes pre-programmed for BMW motorcycles the 33900 is a universal sensor which must be programmed to be compatible with BMW motorcycles.

A short YouTube video on the 33900 by Schrader:

<https://youtu.be/S7vb46bO-Wo>

Not all tire pressure sensor programming tools have an option to program motorcycle tire pressure sensors but fortunately there is a work-around. Anton Largiader (an independent BMW tech active on several BMW motorcycle internet forums) has had success programming the 33900 for a **2009 Saturn Astra** car and has verified that it works on BMW motorcycles (as have I). Saab also used a compatible sensor for the 2004-2007 models 9-3 and 9-5.

Credit for the discovery that the 2009 Saturn Astra and BMW motorcycles use the same protocol goes to the fellow who did this YouTube video (apparently, he kept trying different cars until he found one that worked):

<https://youtu.be/II0n7RLGFi0>

Note that in this video the fellow programs an Autel MX-sensor. The process is similar for the Schrader EZ-sensor. However, this MX-sensor isn't the correct form factor for a BMW motorcycle wheel as it is mounted to the valve stem at an angle and it will end up sitting in an odd position on the wheel. Fine if you know about it but otherwise susceptible to damage when the tire is removed by someone not expecting it. Also, an issue if you air down your tires for offroad as it may suffer an impact by a soft tire taking an impact.

The following is Schrader's description of the 33900. Note the torque spec of 6 Nm for the nut that clamps the valve + sensor to the wheel. The nut requires a Torx T-40 bit.

Part No. 33900 Schrader Clamp-in Programmable 90 Degree EZ-sensor 314.9 / 315 / 433 MHz (Valve Sold Separately)



Description	Service-Kit	Sensor Applications
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Part No.: 33900
Commercial Name: Schrader Clamp-in Programmable 90 Degree EZ-sensor 314.9 / 315 / 433 MHz (Valve Sold Separately)
OEM Sensor P/N:
Nut Torque: 53 in-lbs (6 Nm) Nm
Screw Torque: -- Nm
Valve Core Torque: 3.5 in-lbs (0.4 Nm) Nm
Note:
 Programming Tool Required. For maximum coverage, ensure your TPMS tool is updated to the latest software available.
 Valve sold separately. Available in 4-packs, 90 deg or straight in silver or black. (Ref. P/Ns 25078-4, 25080-4, 25082-4, 25083-4)



90° Aluminum Clamp-In

Part #33900

Designed to fit specialty aftermarket rims with 90° valve holes. This sensor offers angled or straight stem options for further fitment, as well as silver and matte black color options for customization.

Stated succinctly, the Schrader options for tire pressure sensor replacements for pre-2022 BMW motorcycles are:

BMW 36 31 9 832 032
Schrader 3141M
Schrader 33900

US\$220 (outrageously expensive!)
US\$70 (must be imported into the US and Canada)
US\$30-40 (must be programmed or cloned using a TPMS tool)

The service kit required for mounting the sensor is not included in the above prices and must also be purchased (but can be reused the next time). The Schrader valve service kits are sold in Canada and the US. BMW prices for the service kit parts are similarly outrageously expensive so buying those elsewhere as Schrader aftermarket parts can be well worthwhile.

The 33900 is the most economical option but it requires programming (i.e. as for the aforementioned 2009 Saturn Astra). There are a number of TPMS programming tools that are compatible with the Schrader EZ-sensor but the tools tend to be pricey for infrequent personal use. It may be possible however, to bring a 33900 to a tire shop and ask them to program it for you and still come out ahead cost-wise.

Schrader lists these programming tools for the EZ-sensor:

ATEQ	VT-56, VT-36, VT-55
Schrader	EZ-sensor Pad, VT-46, TECH400Pro, TECH300ProC, EZ-Programmer, 2130
Bartec	TECH1000, TECH400Pro, TECH300Pro, TECH500, TECH200, TECH300SD, TECH400SD, TECH400+, TPMS PAD
Snap-on	TPMS4, TPMS3, TPMS2
Injectoclean	CJ-36
K-Tool	KTITPMSPRO, KITIPMSTOOL
Mac Tools	ET3838, ET3824
Matco Tools	MD-56, MDMAXTPMS, TPR3834
Monster Tools	MSTTPMSPRO, MSTTPMSTOOL
Myers Tire	MYERS VT46, MT360
NAPA	92-1551, 92-1541, 92-1531, 92-1525
OTC	3838, 3834
TechSmart	T46000, T55001

Not far from Kelowna, O'Reilly Auto Parts in Omak WA can supply both the 33900 and the valve service kits. You would need to call ahead and have them bring it in as it unlikely to be in stock. At the time of this writing, I paid US\$40 for one 33900 sensor (unprogrammed) at O'Reilly.

I dropped into the Hwy 97 Kelowna location of Kal Tires. Their price is Cdn\$80 for the 33900 sensor and Cdn\$4 for the 25080 service kit (= 5080M). The \$80 includes programming and they have programming tools that include BMW motorcycles in the programming menu. I have seen reports however that even though BMW motorcycles appear in the menu of some tools the tool may not actually do the programming. This bears further investigation. In any event, as previously noted programming for a 2009 Saturn Astra will work and any of the above-mentioned tools can do it.

Alternatively, there are any number of online sources that can be found searching the part numbers. Note that prices vary quite a bit so one needs to shop around and remember that shipping is usually extra.

The hollow screw (Schrader 5081M) service kit appears to be unique to valve-in-spoke motorcycle applications and I had no luck finding it for sale in NA. Therefore one may have little choice but to buy the BMW part (36318359961). I did look at whether one could simply drill a hole through a standard M8 socket head screw but that won't work because the diameter of the head (13mm) is too large to fit the bore of the sensor.

If you decide to purchase an unprogrammed 33900 I can program it for you for Cdn\$5 (helps pay for the tool!).

When programmed the 33900 can either be assigned an ID number (every sensor has a unique ID so that the TPMS system knows what sensor is on what wheel) or it can assume the ID number of the sensor it is replacing (cloning). Cloning a sensor can be done by a TPMS programming tool but requires that the old sensor still be functioning (unless you happen to know its ID). If the new sensor's ID is different that the old one it replaces, either the GS-911 or Motoscan app diagnostic tools can be used to enter the IDs into the bike's TPMS.

The bike's TPMS will recognize the new sensor once the sensor wakes up (requires riding the bike some distance) or alternatively a wake-up tool can be used along with a GS-911 or Motoscan app diagnostic tool for instant recognition. It is a good idea to verify the functioning of a new sensor using a wake-up tool if one is available before mounting the tire.

I believe all the foregoing to be accurate, but you may wish to do your own research before spending your money. I have tried to verify everything by consulting multiple sources.

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