Installation instructions for Alpha Racing
“Quickshifter/Blipper” for a pre-2014 S1000RR

Skill Level:
Intermediate

Tools Required:

- Allen keys/socket/drivers
- Torx keys/sockets/drivers
- Metric box wrenches and sockets
- Nitrile mechanics gloves
- Torque Wrench
- Wire cutters
- Hacksaw
- Metal file
- Syphon tube
- 5-gallon fuel container
- Disposable rags
- Mechanic’s Pick and Hook set
- 10” surgical clamps (or very long needle nose pliers)
- Small flat blade screwdriver
- “blue” thread locker
- Box cutter and blades

Time requirement:

3-5 hours
Assumptions:

1) Your motorcycle has a functioning and tested “GP” or “reverse” shift pattern assembly currently installed. (Press the foot lever down to shift from a lower numbered gear to a higher numbered gear. Pull the foot lever up to shift from a higher numbered gear to a lower numbered gear). See photo below for OEM shift in Reverse Pattern.

![Photo showing OEM shift in Reverse Pattern.](image)

2) You are familiar with the removal of all plastic body panels.
3) You have access to a BMW service manual that lists the Torque Specifications and requirement for any thread locker for all fasteners and bolts that will be removed.
4) It is best to have the bike on a motorcycle lift table, or held upright by a rear stand.
5) DO NOT use thread locker (as specified by BMW) or install cable ties or otherwise secure any part of your installation UNTIL AFTER you are certain the installation has been successful. It is possible to test your installation with minimal cable ties (loose) and slight tightening of bolts and nuts. Adjustments will be easier to make without thread locker and cable ties. Once final adjustments are made, you must follow BMW guidelines for cable ties, thread locker, and torque specifications.
6) Some photos in this instruction set contain images of cable ties, or completed future steps that may appear out of sequence – please ignore these anomalies and follow the steps in sequence using the photos as a guideline to locate specific connection points, or procedures.
Instructions:

Step 1:
Remove lower, all left side, and all fuel tank related body panels. If you have track plastics – remove everything.

Step 2:
Remove the fuel tank.
   1) Drain as much fuel from the fuel tank as possible using a syphon and 5 gallon fuel container. You can leave less than 1 gallon of fuel in the tank. This will make the tank lighter and easier to manage.
   2) Remove the top left and right fuel overflow tubes. Twist these off – do not pull on the lines. There should be no fuel dripping from this procedure.
   3) Remove the left and right side frame bolts.
4) Remove the rear fuel tank pivot bolt.

5) Slowly pivot tank upward and back to expose the 2 fuel tank sensor connectors and the fuel line quick-disconnect.

6) Use a small flat blade screwdriver to gently pry the locking tab from each sensor connector and carefully remove each connector. The connectors are not interchangeable, but you should mark them as belonging to the fuel tank for later assembly.

7) Place a shop towel under the fuel tank, over the engine.

8) Wear Nitrile gloves for this step to prevent fuel from contacting your skin. Depress fuel line quick release and remove the fuel line. It is normal to have
5ml-20ml of fuel spill during this procedure, but the quick disconnect will seal the tank, and some fuel may drain from the fuel line.

9) Lift the tank and place it on a flat surface. DO NOT rest tank on any of the quick disconnect or wiring harness connectors. DO NOT tilt the tank so that fuel bleeds out from either of the two overflow outlets.

10) Note the correct final position of the fuel line as it rests in the foam insert near the engine – you will have to ensure that this is how it is positioned after reinserting the fuel line into the quick disconnect and as you lower the fuel tank back into place to secure it. This prevents pinching the fuel line. This requires some gentle nudging and manipulation of the fuel line in increments as you lower the fuel tank into final position.
Step 3:

Locate the OEM quickshifter and remove:

1) Follow the OEM quickshifter cable up to where it connects to the OEM wiring harness. This should be very close to the ‘slick’ plug installation point. The OEM quickshifter cable may have a silver BMW sticker on it. Gently pry the tab retainers enough to separate the “shift” connector. Identify the OEM wiring harness connector as ‘SHIFTER’ for later.

2) Note the length of the OEM quickshifter rod assembly as measured from the center of one eyebolt to the other. Write this down and use it later for determining the correct length of the Alpha “quickshifter/blipper” shift rod assembly.
3) Remove the entire OEM quickshifter from the top eyebolt to the bottom eyebolt. Note the location of eyebolt washers – they are behind the eyebolt, not in front. Note the location of standoff spacers.

4) Disassemble the OEM quickshifter from the eyebolts and keep the eyebolts and related fasteners, spacers and washers.

Step 4:

Attach Alpha control module mounting bracket:

1) Cut cable ties and loosen wires (including the left oxygen sensor connector) that are clamped to left cylinder head wiring harness clamping tab.

2) Note the Alpha bracket has a slot cutout that fits over engine wire harness clamping tab. Separate the dual lock strip and remove the adhesive cover. With the word “ALPHA” clearly visible on the right side of the bracket, firmly adhere the dual lock strip lengthwise along the left most end of the bracket and align the top of the strip along the top of the bracket. (see photo below)

3) Turn the bracket over and place on a flat cutting surface. Use a sharp blade to cutout the dual lock tape material covering that slot. This will allow room for the metal tab to protrude through the bracket without pushing on the dual lock tape itself and forcing it loose under hot conditions.
4) Attach the aluminum bracket for the Alpha blipper controller to the generator cover using the included M6x35 bolts and finger tighten to 3Nm + 90°.

5) Secure the blipper controller to the dual lock tape and press firmly to ensure a secure attachment.

Step 5:

Pass Alpha cable with bypass connector marked “gear” and Alpha ‘quickshifter/blipper” sensor with white connector marker “shifter” between engine and frame into the space below the fuel tank.

1) Use long needle nose or surgical clamps to gently grab hold of the bypass connector and “quickshifter/blipper” module and guide it through open space along the wiring harness bundles between engine and frame.

2) Remove cable ties where necessary to create space.
3) Do not use excessive force when navigating the connector or “quickshifter/blipper” through the tight spaces. There should be enough space to accommodate one item at a time.

Step 6:

Assemble shift rod and Alpha “quickshifter/blipper” assembly:
1) Pass the Alpha “quickshifter/blipper” module down into the area where the shift rod assembly resides.
2) Assemble and test fit the overall length of the shift rod assembly. The aluminum shift rod has ‘cut’ grooves approximately 1 cm from each end in case a reduction in length is required. DO NOT cut or reduce the length of the steel threaded bolts that are connected to the shift sensor.
3) Assemble the shift sensor and shift rod assembly as depicted in photo above.

4) Note that the OEM ball joints may need to be reversed in position so that the female ball joint is at the top, and the male ball joint is at the bottom.

5) Take care to thread lock-nuts on both ends of the shift sensor bolts, and on the male eye bolt.

6) Compare the length of the Alpha “quickshifter/blipper” shift rod assembly to the OEM shift rod assembly. If the rod is too long and cannot be manually shortened, you will need to disassemble the unit, and cut the aluminum rod, one end at a time, until you have reduced the length enough to get an approximate fit that allows for adjustment of the foot lever to optimal position.
   a. Use a bench vice with soft jaws to avoid scoring the surface of the aluminum shift rod.
   b. Use a hacksaw to cut along the cutoff groove one end of the shift rod.
   c. File off any excess aluminum and ensure a flat surface with no burrs so that lock nuts will have a firm fit.
   d. Reassemble shift rod assembly and measure. Repeat shift rod reduction procedure but cutting off other end if necessary.

   (See photo next page)
7) Reattach the top eyebolt to the gear lever/shift lever and determine if this length will be sufficient to properly shift gears.
8) Ensure that the angle between the shift rod and the gear/shift lever is as close to 90° as possible.

Step 7:

Connect “gear” and “shifter” Alpha bypass connectors:

1. Locate the OEM Shifter wiring harness connector (blue female end) from Step 3.1, and connect the white male Alpha “shifter” connector that is attached to the Alpha “quickshifter/blipper” module.
2. There is a documented and known slight deviation in the current Alpha connector that may require a gentle application of force to align to the OEM connector. A little play might be required to align the plastic guides. Once
they align correctly, the connectors should press together. It may take a few tries before this happens. Do not use tools to modify the shape of the plastic connectors, or use tools to force the connectors together. Manual pressure should be sufficient.

3. Locate the OEM gear potentiometer connector and wiring harness. This is next to the side stand connector (which in the photo has an Alpha side stand delete plug attached).
4. Disconnect the OEM gear potentiometer connector, and assemble the Alpha “gear” bypass connector cable.

Step 8.

Connect the cable marked ‘ground” to the battery's negative pole.
Step 9:

Connect throttle bypass connector to OEM loom:

1. Locate the OEM throttle-twistgrip sensor connector, which can be found attached to the frame above the radiator, and which is colored gray.

2. Compress the side tabs from the top and separate the connector.
3. Plug the Alpha “throttle” bypass cables into the matching male and female OEM throttle twistgrip connectors.

Step 10:

Plug Alpha “ignition” bypass connector to the ignition coil of cylinder 1:

1. This procedure circumvents the need to remove the intake air silencer to access the ignition coils. Ignition Coil #1 is directly behind the Catch Tank and may be accessed with patient application of mechanic’s picks and surgical clamps or long needle nose pliers. Removal of the intake air silencer is an involved process that requires more time and details unavailable in this instruction set. Please refer to the BMW Service DVD for instructions on intake air silencer removal.
2. Remove any cable ties that secure the catchtank.
3. Gently extract the top left end of the catchtank from the frame, being careful not to apply too much pressure, which could cause the hoses to disconnect, or break the hose connection barbs.

4. Using a string, gently secure the catchtank in a manner that reveals enough space above it to clearly view the Ignition 1 coil.

5. Using straight and 90° mechanics pick, access the connector tab and prepare to separate the coil connector from the coil. Use the 90 to gently pull the tab, and the straight to push the plug back out of the connector.
6. Pass the Alpha ‘ignition’ bypass connectors into this space and prepare to connect the smaller Alpha female connector to the ignition coil first. Use needle nose pliers or surgical clamps to push connector into place until you feel a click and are 100% certain that the connectors are securely attached.

7. Now connect the larger Alpha “male” bypass connector to the OEM loom.
8. Neatly tuck all wires behind the catchtank, and release the string.

9. Reinsert the catchtank into the frame and ensure a secure fit.

**Step 11:**

Fit the fuel tank. Take care not to pinch the fuel line.

**Step 12:**

Verify if everything has been plugged in correctly:
There is no need to start the engine! Turn key to ‘on’ position, and put the Start Stop switch in “run” position. The LED display on the blipper controller should flash.

Step 13:
Apply minimal cable ties to avoid loose cables, and test motorbike shifting in a safe environment. You may have to make adjustments to your shift rod. Be aware that RPMs will need to be above 3200 for blipper and quickshifter to work properly.

Step 14:
Once satisfied that testing is successful and setup is optimal, follow BMW guidelines and common sense to secure all cables with cable ties, and follow BMW guidelines for application of torque specifications and thread locking compound where indicated.

Step 15:
Refit all body panels.

Step 16:
See additional Alpha documentation on programing the unit for initial set up and custom settings.