AiM Infotech

BMW S1000RR 2009-2014
S1000RR HP4 from 2012
S1000RR 2015

Release 1.04

1
Supported models and years

This user guide explains how to connect BMW S1000RR to AiM devices. Supported models and years are:

• BMW S1000RR	2009-2014
• BMW S1000RR	2015
• BMW S1000RR HP4	from 2012

Warning: for these models/years AiM recommends not to remove the stock dash. Doing so will disable some of the bike functions or safety controls. AiM Tech srl will not be held responsible for any consequences that may result from the replacement of the original instrumentation cluster.
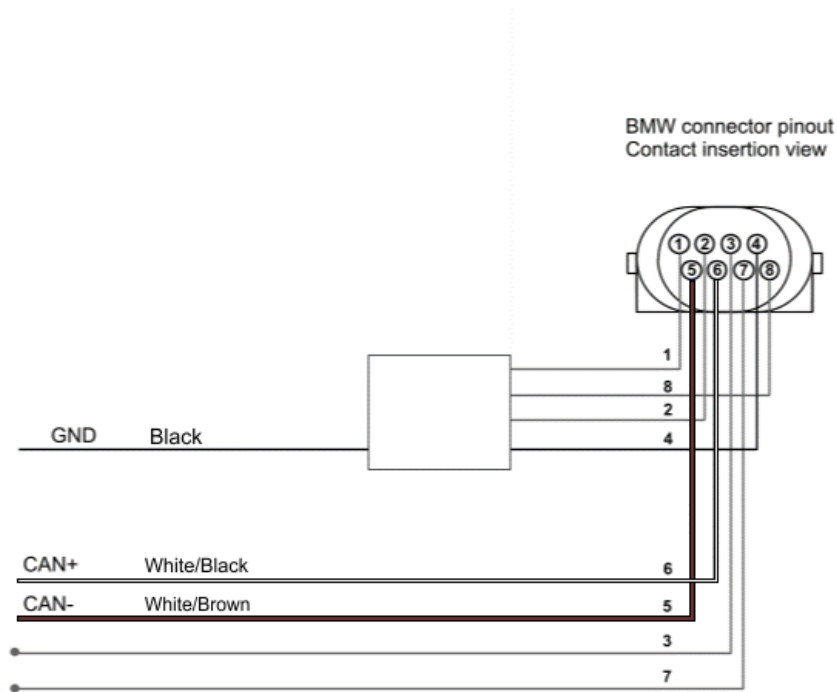
2
CAN bus connection

BMW S1000RR ECU features a bus communication protocol based on CAN that can be reached through the DWA (alarm) connector.

To connect to the ECU of the bike use the connector you find under the bike tail shown below.

Below is shown the DWA connector pinout as well as connection table.

DWA connector pin	Pin function	BMW cable colour	AiM cable label
5	CAN-	White/Brown	CAN-
6	CAN+	White/Black	CAN+

3
Configuration with Race Studio

Before connecting the bike ECU to AiM device set this up using AiM Race Studio software. The parameters to select in the logger configuration are:

- ECU Manufacturer: "BMW"
- ECU Model:
  - "BIKE_S1000RR" for BMW S1000RR 2008-2014 and BMW S1000RR HP4 2013-2014
  - "BIKE_S1000RR_2015" for BMW S1000RR 2015

4
Available channels

Channels received by AiM Devices connected to BMW bikes change according to the selected protocol.

4.1
"BMW" "BIKE_S1000RR" protocol

Channels received by SoloDL and EVO4 connected to "BMW" "BIKE_S1000RR" protocol are:

ID	CHANNEL NAME	FUNCTION
ECU_1	S1_RPM	RPM
ECU_2	S1_THROTTLE	Throttle
ECU_3	S1_GEAR	Gear Sensor
ECU_4	S1_NEUTRAL	Neutral sensor
ECU_5	S1_WATER_TEMP	Engine cooling temperature
ECU_6	S1_SEL_MAP	Selected map
ECU_7	S1_CHK_ENGINE	Engine check
ECU_8	S1_SPEED_F	Front wheel speed sensor
ECU_9	S1_HAND_THRT	Manual Throttle
ECU_10	S1_SPEED_R	Rear wheel speed sensor
ECU_11	S1_INTK_AIR_T	Intake air temperature
ECU_12	S1_YAW_RATE	Yawing rate
ECU_13	S1_ROLL_RATE	Rolling rate
ECU_14	S1_ACC_LATER	Horizontal Accelerometer
ECU_15	S1_ACC_VERTIC	Vertical Accelerometer
ECU_16	S1_TC_INTERV	Traction Control Intervention
ECU_17	S1_TC_OFF	Traction Control in OFF State (alarm)
ECU_18	S1_CLUTCH_SW	Clutch Switch

ECU_19	S1_SIDE_STAND	Side stand
ECU_20	S1_BRK_FR_SW	Front Brake
ECU_21	S1_BRK_RR_SW	Rear Brake
ECU_22	S1_ACC_LONGIT	Longitudinal Accelerometer
ECU_23	S1_OIL_PRESS_SW	Oil pressure switch
ECU_24	S1_EWS_CTRL	Immobilizer Control
ECU_25	S1_BRK_FAIL	Brake malfunction (Error)
ECU_26	S1_ABS_OFF	ABS in off State (alarm)
ECU_27	S1_MAP_MENU	Map selection menu
ECU_28	HP4_TC_SEL	Traction control selection
ECU_29	HP4_LAUNCH	HP4 Launch control switch
ECU_30	HP4_POT_R	HP4 Rear potentiometer
ECU_31	HP4_POT_F	HP4 Front potentiometer
ECU_32	HP4_BANKING	HP4 Banking angle
ECU_33	HP4_R_SPEED	HP4 Rear wheel Speed
ECU_34	HP4_BIKE_SPD	HP4 Bike speed
ECU_35	HP4_F_SPEED	HP4 Front wheel speed
ECU_36	HP4_ACC_LON	HP4 Longitudinal acceleration

Technical note: note all data channels outlined in the ECU template are validated for each manufacturer model or variant; some of the outlined channels are model and year specific, and therefore may not be applicable. Channels labelled HP4, for example are only available on BMW S1000RR HP4 2013-2014 bikes.

4.2
"BMW" "BIKE_S1000RR_2015" protocol

Channels received by SoloDL and EVO4 connected to "BMW" "BIKE_S1000RR_2015" protocol are:

ID	CHANNEL NAME	FUNCTION
ECU_1	RPM	RPM
ECU_2	TPS	Throttle position sensor
ECU_3	BANKING	Banking
ECU_4_	ENG_TEMP	Engine temperature
ECU_5	INJ_FUEL_ml	Fuel injection in ml
ECU_6	OIL_LEV_SW	Oil level switch
ECU_7	GEAR	Engaged gear
ECU_8	ASC_ON	Anti spin control on
ECU_9	MIL	Malfunctioning indication lamp
ECU_10	SPD_REAR	Rear wheel speed
ECU_11	SPD_FRONT	Front wheel speed
ECU_12	LIFT_OFF	Lift control off
ECU_13	ASC_TRQ_REDUCT	Torque reduction for anti spin control intervention
ECU_14	ASC_%TYREGRIP	Tyre grip % for anti spin control intervention
ECU_15	WHE_MOM_ACTUAL	Wheel torque actual
ECU_16	WHE_MOM_REDUCT	Wheel torque reduction
ECU_17	TPS_HAND	Throttle position sensor by hand
ECU_18	LAUNCH_CTRL	Launch control
ECU_19	TC_LEV	Traction control level
ECU_20	MOM_TOT_REDUCT	Total torque reduction
ECU_21	ABS_ON	ABS on
ECU_22	BRAKE_P_FRONT	Front brake pressure
ECU_23	BRAKE_P_REAR	Rear brake pressure
ECU_24	YAW_RATE	Yaw rate

ECU_25	LAT_ACC	Lateral accelerometer
ECU_28	ACCZ	Vertical acceleration
ECU_29	FRONT_DAMPmm	Front dampers travel in mm
ECU_30	REAR_DAMPmm	Rear dampers travel in mm
ECU_31	R_REBOUND_SET	Rear rebound set
ECU_32	R_BUMP_SET	Rear bump set
ECU_33	F_REBOUND_SET	Front rebound set
ECU_34	F_BUMP_SET	Front bumpset
ECU_35	INTAKE_AIR_T	Intake air temperature

Technical note: note all data channels outlined in the ECU template are validated for each manufacturer model or variant; some of the outlined channels are model and year specific, and therefore may not be applicable.