AiM Infotech

Yamaha R6 WSS MY2018 with MecTronik MKE7 WSS ECU

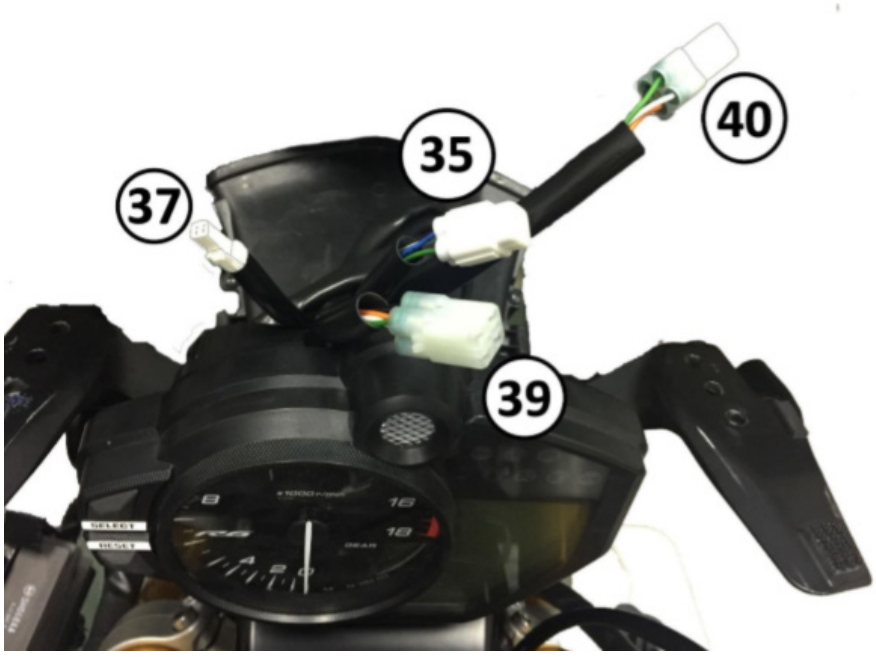
Release 1.00

This tutorial explains how to connect AiM devices to Yamaha R6 with MecTronik MKE7 WSS ECU.

This ECU protocol is compatible with Yamaha R6 World Super Sport 600 MY2018.

1 Wiring connection

For this ECU model, it is possible to connect to AiM devices through the CAN Line – PC Connection connector and from the CAN Line – Logger connector (optional), as well (following pictures; **39, 40**).



Here below you find the two connectors pinout (solder view): their wires are in common, so the pins template is the same for both connectors.

4 ways Sumitomo "CAN Line PC Connection" / "CAN Line Logger" connector;			AiM cable label
Pin	**Cable color**	**Function**	
1	Green	CAN L	CAN -
2	White	CAN H	CAN +
3	Black	GND	GND
4	Orange	KEY FUSE	9-15 VDC

2
AiM device configuration

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

- ECU manufacturer "MecTronik"
- ECU Model: "MKE7_R6_WSS";

3 Available channels

Channels received by AiM loggers connected to MecTronik – MKE7 R6 WSS are:

CHANNEL NAME	FUNCTION
RPM	RPM
GearPos	Active gear
SpeedRearOpt	Optimized rear speed
SpdR	Rear wheel speed
SpdF	Front wheel speed
VRpmRearOpt	Virtual RPM from optimized rear speed
VRpmFront	Virtual RPM from front wheel speed
VRpmRear	Virtual RPM from rear wheel speed
WTS	Water temperature
XTS	Exhaust gas temperature
ATS	Air temperature
LambdaTemp	Lambda temperature
BoardTemp	ECU temperature
OPS	Oil pressure
BrakeRear	Rear brake pressure
BrakeFront	Front brake pressure
BAP	Barometric pressure
MAP	Manifold air pressure
SuspRear	Rear suspension travel (with zero)
SuspFront	Front suspension travel (with zero)
TPS	Throttle position sensor
TpsTarget	Throttle position sensor target
Clutch Slip	Clutch clip
Demand	Rider demand
TrumpPwm	Trumpets actuator

Gearshift	Gearshift
CutLevel	Cut level
Gas	Rider gas position
BoardTime	ECU “ON” status (time)
VBat	Battery voltage
SuspF16	Front suspension voltage
SuspR17	Rear suspension voltage
VRef1	Sensor power supply 1
VRef2	Sensor power supply 2
DrumV	Drum voltage
Lambda	Lambda value
GswUp	Gear Shift Up State Machine
DrumPos	Drum position
LoadCell	Load cell
InjCorLam	Correction for lambda closed loop
CutFunction	Cut strategy source
GswDw	Gear Shift Down State Machine
EDiEs	Pickup early sync error counter
WorkAct	Active working mode
EDiTe	Teeth measured on last Pickup Error
SpdFDi	Front speed errors
SpdRDi	Rear speed errors
EngRev	Engine revolutions counter
EDiLs	Pickup late sync error counter
StrFunction	Contains the following strategies functions:
= 1 Warm up	Active warm up strategy
= 2 Speed Limit	Active speed limiter
= 3 Gear shiftup	Active gear upshift
= 4 gear shiftdn	Active gear downshift
= 5 engine brake	Active engine brake
= 6 anti jerk	Active anti-jerk control
InjDiag4	Contains the following status messages:

= 1 OUT 7 SCGND	Ground short circuit – output 7
= 2 OUT 7 SCBAT	Battery short circuit -output 7
= 3 OUT 7 OPEN	Open circuit – output 7
= 5 OUT 8 SCGND	Ground short circuit – output 8
= 6 OUT 8 SCBAT	Battery short circuit -output 8
= 7 OUT 8 OPEN	Open circuit – output 8
WorkMode3	Contains the following strategies functions:
= 1 SHIFT UP	Active shift up
= 2 SHIFT DN	Active shift down
= 3 LAMBDA CL	Lambda closed loop
= 4 INJ CYL	Active injection cylinder correction
= 5 INJ MAIN	Active main injection correction
= 6 INJ SPEED	Injection speed correction
= 7 IGN DRY	Ignition advance for dry conditions
= 8 IGN RAIN	Ignition advance for rainy conditions
WorkMode2	Contains the following strategies functions:
= 1 DEMAND DRY	GAS demand – dry conditions
= 2 DEMAND RAIN	GAS demand – rainy conditions
= 5 EBRAKE A	Engine brake A
= 6 EBRAKE B	Engine brake B
DbwStateLSB	Contains the following status messages:
= 1 ENABLED	Active drive by wire
= 2 BANK A	Active bank A
= 3 BANK B	Active bank B
= 5 RECOVERY	Drive by wire recovery status
= 6 Disable A	Disabled bank A status
= 7 Disable B	Disabled bank B status
LambdaDiagMSB	Contains the following status messages:
= 1 UM OPEN	UM signal open
= 2 IAP SC GND	IAP signal short circuit to ground
= 3 IAP SC BAT	IAP signal short circuit to battery
= 4IAP OPEN	IAP signal open circuit

= 5 HTR SC GND	Heater short circuit to ground
= 6 HTR SC BAT	Heater short circuit to
= 7 HTR OPEN	Heater open circuit
DbwStateMSB	Contains the following status messages:
= 1 GAS FAULT	Gas Error status
= 2 TPS A FAULT	TPS A error
= 3 PID A FAULT	PID A error
= 4 HBR A FAULT	H Bridge A error
= 5 TPS B FAULT	TPS B error
= 6 PID B FAULT	PID B error
= 7 HBR B FAULT	H Bridge B error
EngStateMSB	Contains the following status messages:
= 1 STARTED	Started engine
= 2 SEQUENTIAL	Sequential injection
= 3 TOO SLOW	Slow engine (power up and OFF injection)
CoilDiag3	Contains the following status messages:
= 1 OUT 5 SCGND	Ground short circuit – output 5
= 2 OUT 5 SCBAT	Battery short circuit -output 5
= 3 OUT 5 OPEN	Open circuit – output 5
= 5 OUT 6 SCGND	Ground short circuit – output 6
= 6 OUT 6 SCBAT	Battery short circuit -output 6
= 7 OUT 6 OPEN	Open circuit – output 6
CoilDiag4	Contains the following status messages:
= 1 OUT 7 SCGND	Ground short circuit – output 7
= 2 OUT 7 SCBAT	Battery short circuit -output 7
= 3 OUT 7 OPEN	Open circuit – output 7
= 5 OUT 8 SCGND	Ground short circuit – output 8
= 6 OUT 8 SCBAT	Battery short circuit -output 8
= 7 OUT 8 OPEN	Open circuit – output 8
LambdaDiagLSB	Contains the following status messages:
= 1 INTERNAL	Internal ECU error
= 2 LOW TEMP	Active speed limit

= 3 LOW POWER	Active Gear shift up
= 4 VM SC GND	VM signal short circuit to ground
= 5 VM SC BAT	VM signal short circuit to battery
= 6 VM OPEN	VM signal open circuit
= 7 UM SC GND	UM signal short circuit to ground
= 8 UM SC BAT	UM signal short circuit to battery
InjDiag3	Contains the following status messages:
= 1 OUT 5 SCGND	Ground short circuit – output 5
= 2 OUT 5 SCBAT	Battery short circuit -output 5
= 3 OUT 5 OPEN	Open circuit – output 5
= 5 OUT 6 SCGND	Ground short circuit – output 6
= 6 OUT 6 SCBAT	Battery short circuit -output 6
= 7 OUT 6 OPEN	Open circuit – output 6
WorkMode1	Contains the following status messages:
= 1 ENABLED	Enabled working mode
= 2 RAIN LIGHT	Active rain light
= 3 DROP OFF	Active drop off strategy
= 4 WARM UP	Active warm up strategy
= 5 TYRE A	Tyres A set
= 6 TYRE B	Tyres B set
= 7 TYRE C	Tyres C set
EngFunctionLSB	Contains the following status messages:
= 1 KILL	Stopped engine with key
= 2 STOP	Stopped engine with stop button
= 3 DROP OFF	Stopped engine for DROP strategy
= 4 RPM LIMIT	Active RPM limiter
= 5 IDLE CTRL	Active idle control
= 6 LAMBDA CTRL	Active lambda control
InjDiag2	Contains the following status messages:
= 1 OUT 3 SCGND	Ground short circuit – output 3
= 2 OUT 3 SCBAT	Battery short circuit -output 3
= 3 OUT 3 OPEN	Open circuit – output 3

= 5 OUT 4 SCGND	Ground short circuit – output 4
= 6 OUT 4 SCBAT	Battery short circuit -output 4
= 7 OUT 4 OPEN	Open circuit – output 4
InjDiag1	Contains the following status messages:
= 1 OUT 1 SCGND	Ground short circuit – output 1
= 2 OUT 1 SCBAT	Battery short circuit -output 1
= 3 OUT 1 OPEN	Open circuit – output 1
= 5 OUT 2 SCGND	Ground short circuit – output 2
= 6 OUT 2 SCBAT	Battery short circuit -output 2
= 7 OUT 2 OPEN	Open circuit – output 2
CoilDiag2	Contains the following status messages:
= 1 OUT 3 SCGND	Ground short circuit – output 3
= 2 OUT 3 SCBAT	Battery short circuit -output 3
= 3 OUT 3 OPEN	Open circuit – output 3
= 5 OUT 4 SCGND	Ground short circuit – output 4
= 6 OUT 4 SCBAT	Battery short circuit -output 4
= 7 OUT 4 OPEN	Open circuit – output 4
CoilDiag1	Contains the following status messages:
= 1 OUT 1 SCGND	Ground short circuit – output 1
= 2 OUT 1 SCBAT	Battery short circuit -output 1
= 3 OUT 1 OPEN	Open circuit – output 1
= 5 OUT 2 SCGND	Ground short circuit – output 2
= 6 OUT 2 SCBAT	Battery short circuit -output 2
= 7 OUT 2 OPEN	Open circuit – output 2
GasDiagn	Contains the following status messages:
= 1 NO INPUT	Not configured input
= 2 TOO LOW	Too low voltage
= 3 TOO HIGH	Too high voltage
= 4 TOO NOISE	Too noisy signal
= 5 TOO FAST	Too fast signal variations
= 6 TOO DIFFERENT	Too different redundant signals
= 7 COMPARE MISSING	Missing signal

= 8 NO VALID DATA	Not valid data
EngStateLSB	Contains the following status messages:
= 1 STALL	Stopped engine
= 2 MOVING	Moving engine
= 3 SYNC	ECU synchronised with crankshaft at 360°
= 4 PHASED	ECU is phased with phase signal at 720°
TpsDiag	Contains the following status messages:
= 1 NO INPUT	Not configured input
= 2 TOO LOW	Too low voltage
= 3 TOO HIGH	Too high voltage
= 4 TOO NOISE	Too noisy signal
= 5 TOO FAST	Too fast signal variations
= 6 TOO DIFFERENT	Too different redundant signals
= 7 COMPARE MISSING	Missing signal
= 8 NO VALID DATA	Not valid data