AiM Infotech

Nemesis 2 ECU for Ducati

Release 1.02

This tutorial explains how to connect Nemesis 2 ECU to AIM loggers using the CAN Bus.
For any further information concerning ECU firmware / software settings and/or upgrading it is always recommended to address to the ECU dealer.

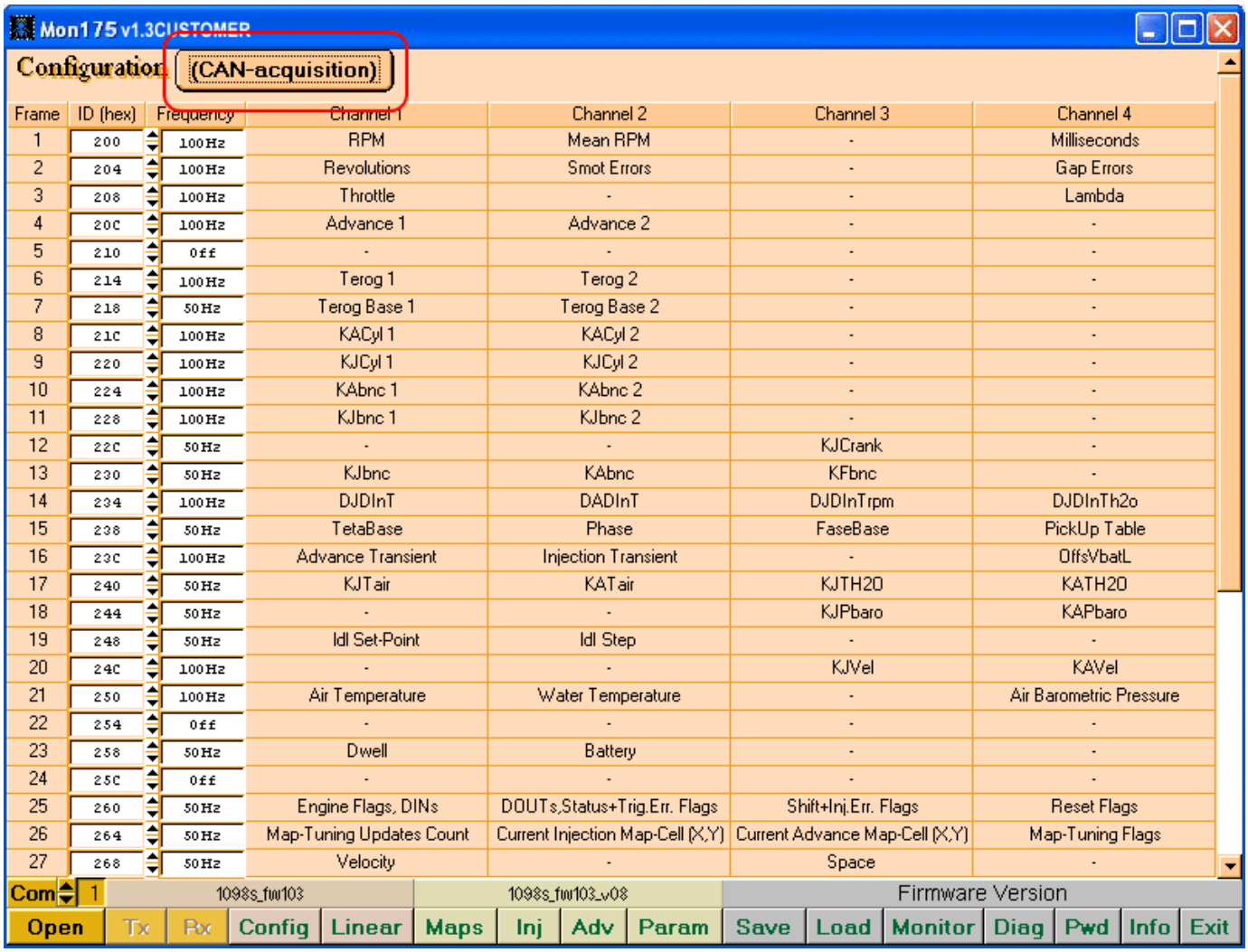
1 Bike Models

Nemesis 2 Plug&Play ECU fits perfectly the following Ducati Bike models (all years):

- Ducati 749
- Ducati 749S
- Ducati 749R
- Ducati 999
- Ducati 999S
- Ducati 999R
- Ducati 848
- Ducati 1098
- Ducati 1098S
- Ducati 1098R
- Ducati 1198
- Ducati 1198

2
ECU Software setting

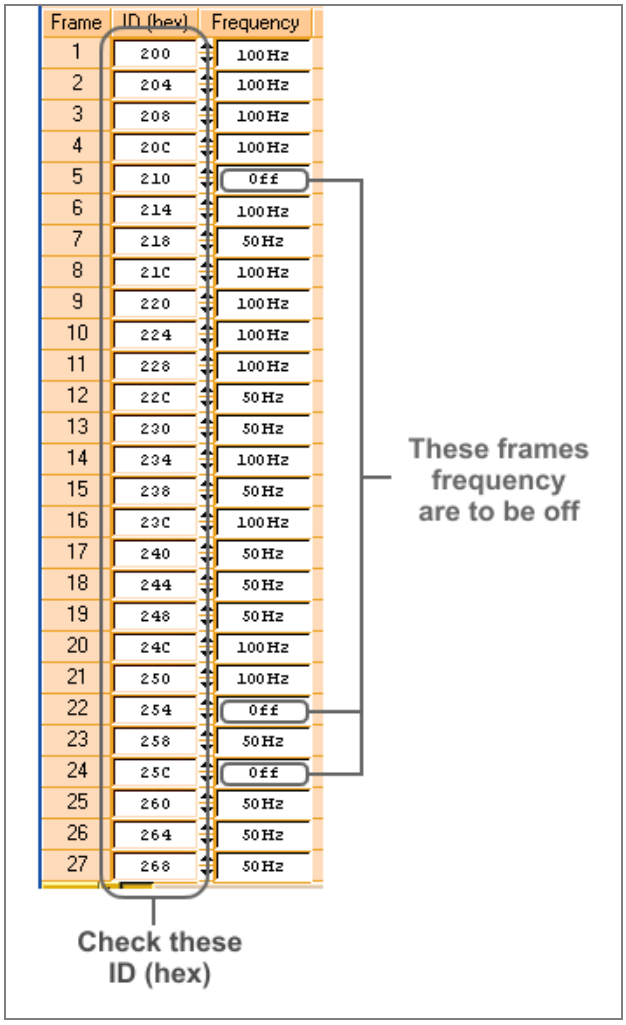
For Nemesis 2 ECU to correctly communicate with AIM loggers the ECU is to be set using MON 175 software that comes with the ECU. Run it and open “CAN-Acquisition” table as shown here below.



Frame	ID (hex)	Frequency	Channel 1	Channel 2	Channel 3	Channel 4
1	200	100Hz	RPM	Mean RPM	-	Milliseconds
2	204	100Hz	Revolutions	Smot Errors	-	Gap Errors
3	208	100Hz	Throttle	-	-	Lambda
4	20C	100Hz	Advance 1	Advance 2	-	-
5	210	Off	-	-	-	-
6	214	100Hz	Terog 1	Terog 2	-	-
7	218	50Hz	Terog Base 1	Terog Base 2	-	-
8	21C	100Hz	KACyl 1	KACyl 2	-	-
9	220	100Hz	KJCyl 1	KJCyl 2	-	-
10	224	100Hz	KAbnc 1	KAbnc 2	-	-
11	228	100Hz	KJbnc 1	KJbnc 2	-	-
12	22C	50Hz	-	-	KJCrank	-
13	230	50Hz	KJbnc	KAbnc	KFbnc	-
14	234	100Hz	DJDInT	DADInT	DJDInTrpm	DJDInTh2o
15	238	50Hz	TetaBase	Phase	FaseBase	PickUp Table
16	23C	100Hz	Advance Transient	Injection Transient	-	OffsVbatL
17	240	50Hz	KJTair	KATair	KJTH2O	KATH2O
18	244	50Hz	-	-	KJPbaro	KAPbaro
19	248	50Hz	Idl Set-Point	Idl Step	-	-
20	24C	100Hz	-	-	KJVel	KAVel
21	250	100Hz	Air Temperature	Water Temperature	-	Air Barometric Pressure
22	254	Off	-	-	-	-
23	258	50Hz	Dwell	Battery	-	-
24	25C	Off	-	-	-	-
25	260	50Hz	Engine Flags, DINs	DOUTs,Status+Trig.Err. Flags	Shift+Inj.Err. Flags	Reset Flags
26	264	50Hz	Map-Tuning Updates Count	Current Injection Map-Cell (X,Y)	Current Advance Map-Cell (X,Y)	Map-Tuning Flags
27	268	50Hz	Velocity	-	Space	-

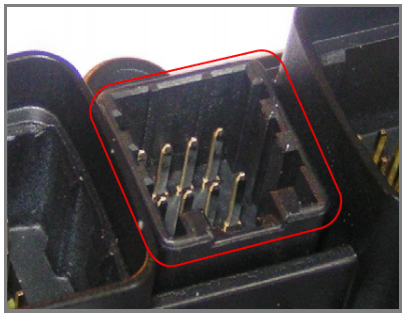
Please note: according to MON software version this page can be slightly different.

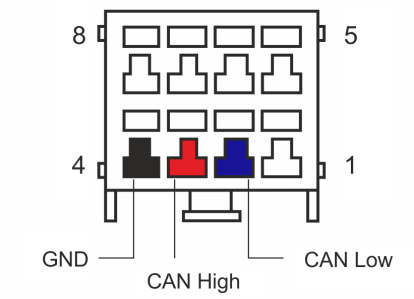
The column to be set is the first one on the left labelled "ID(hex)". Please check that set values are as shown here below. It is also important to check that frames 6, 22 and 24 frequency is set "OFF" because these frames should remain disabled.



3
Wiring connection

Nemesis 2 ECU features a data transmission bus based on CAN on the front central AMP connector.
All AiM devices are provided with a 120 Ohm CAN termination resistor. To make them communicate with Nemesis 2 ECU it is necessary to remove it. SoloDL and EVO4 resistor is on the ECU connection cable and it is thereby possible to remove it while the resistor is integrated in MXL and it is not removable. For this reason the wiring connection is different. Here below are AMP connector, its pinout as well as the different connection tables.





AMP Pin	Pin function	EVO4, SoloDL cable
Pin 2	Can Low	CAN-
Pin 3	Can High	CAN+
AMP Pin	**Pin function**	**MXL cable**
Pin3	CAN High	CAN+
Pin4	GND	CAN-

4
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 “DUCATI”
- ECU Model “ECU_Nemesis_2”;

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Available channels

Channels received by AIM loggers connected to Nemesis 2 ECU are:

ID	CHANNEL NAME	FUNCTION
ECU_1	N2_RPM	RPM
ECU_2	N2_SPEED	Bike speed in km/h taken from rear wheel speed sensro that is wired to the ECU
ECU_3	N2_SMOT_ERRORS	Engine speed sensor error count
ECU_4	N2_GAP_ERRORS	Crank wheel error in gap count
ECU_5	N2_THROTTLE	Throttle sensor position
ECU_6	N2_LAMBDA	Value of lambda as calibrated in AFR by the configuration file (if fitted)
ECU_7	N2_ADVANCE_1	Final corrected ignition advance – horizontal
ECU_8	N2_ADVANCE_2	Final corrected ignition advance – vertical
ECU_9	N2_TEROG_1	Final injection time after corrections in m/sec - horizontal
ECU_10	N2_TEROG_2	Final injection time after corrections in m/sec - vertical
ECU_11	N2_TEROG_BASE1	Base map fuel injection time in m/sec - horizontal
ECU_12	N2_TEROG_BASE2	Base map fuel injection time in m/sec - vertical
ECU_13	N2_KACYL_1	Correction advance - horizontal - deg - from trim map
ECU_14	N2_KACYL_2	Correction advance - vertical - deg - from trim map
ECU_15	N2_KJCYL_1	Correction injection - horizontal - ms - from trim map
ECU_16	N2_KJCYL_2	Correction injection - vertical - ms - from trim map
ECU_17	N2_KABNC_1	Correction advance - horizontal - deg - temp trim
ECU_18	N2_KABNC_2	Correction advance - vertical - deg - temp trim
ECU_19	N2_KJBNC_1	Correction injection - horizontal - ms - temp trim
ECU_20	N2_KJBNC_2	Correction injection - vertical - ms - temp trim
ECU_21	N2_KJCRANK	Correction injection - function of crancking map
ECU_22	N2_KJBNC	Correction injection – all cyl – ms – temp trim
ECU_23	N2_KABNC	Correction advance – all cyl – deg – temp trim

ECU_24	N2_KFBNC	Correction phase – all cyl – deg – temp trim
ECU_25	N2_DJDINT	Final ms injection correction – from throttle transient
ECU_26	N2_DADINT	Final deg advance correction – from throttle transient
ECU_27	N2_DJDINT_RPM	ms injection correction – from throttle transient / Rpm
ECU_28	N2_DJDINT_H2O	ms injection correction – from throttle transient / water
ECU_29	N2_TETABASE	Advance base map
ECU_30	N2_PHASE	Final Injection phase angle
ECU_31	N2_PHASE_BASE	Base Injection phase angle map
ECU_32	N2_ADV_TRANS	Advance transient calculation / function throttle
ECU_33	N2_INJ_TRANS	Injection transient calculation / function throttle
ECU_34	N2_KJTAIR	Injection correction – function of air temp
ECU_35	N2_KATAIR	Advance correction – function of air temp
ECU_36	N2_KJTH20	Injection correction – function of water temp
ECU_37	N2_KATH2O	Advance correction – function of water temp
ECU_38	N2_KJPBARO	Injection correction – function of air pressure
ECU_39	N2_KAPBARO	Advance correction – function of air pressure
ECU_40	N2_IDLE_RPM	Idle set point – RPM target
ECU_41	N2_STEP	Idle step %
ECU_42	N2_AIR_TEMP	Air temperature - deg°
ECU_43	N2_WATER_TEMP	Water temperature - deg°
ECU_44	N2_BARO_PRESS	Air pressure in millibar
ECU_45	N2_DWELL	Coil charge time - ms
ECU_46	N2_BATTERY	Battery voltage
ECU_47	N2_CRANKING	Crancking
ECU_48	N2_BRAKE_SW	Brake switch
ECU_49	N2_NEUTRAL	Neutral sensor
ECU_50	N2_SIDE_STAND	Side stand sensor