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Specialist Components

Tornado V3 and Typhoon V3 ECUs

Release 1.00

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*Specialist Components*



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## INTRODUCTION

AIM has developed special applications for many of the most popular ECUs: by special applications we mean user-friendly systems which allow to easily connect your ECU to our high tech data loggers: user needs only to install harness between the **logger** and the ECU.

Once connected, the logger displays (and/or records, depending on the logger and on the ECU data stream and configuration) values like RPM, engine load, throttle position (TPS), air and water temperatures, battery voltage, speed, gear, lambda value (air/fuel ratio) analog channels...

All AIM loggers include – free of charge – **Race Studio 2** software, a powerful tool to configure the system and analyze recorded data on your PC.

**Warning: once the ECU is connected to the logger, it is necessary to set it in the logger configuration in Race Studio 2 software.  
Select Manufacturer “SC” Model “TYPHOON\_TORNADO\_V3”.  
Refer to Race Studio Configuration user manual for further information concerning the loggers configuration.**

## 1 – Connection with AIM loggers

Tornado V3 and Typhoon V3 ECUs are equipped with a CAN protocol used to communicate with AIM loggers.

They be connected to AIM loggers directly or through the ECU wirings. In this second case a DB9 female connector works as interface.

The table here below shows the connection scheme

ECU Pin	DB9 female connector pin	AIM cable
21 CAN High	6 CAN High	CAN+
22 CAN Low	7 CAN Low	CAN-

## 2 – Communication protocol

Channels received by AIM loggers connected to Specialist Components Typhoon V3 and Tornado V3 ECUs are:

ID	CHANNEL NAME	FUNCTION
ECU_1	ECU_RPM	RPM
ECU_2	ECU_TPS	Throttle position sensor
ECU_3	ECU_KFUEL_MAP	Manifold Air pressure fuel correction
ECU_4	ECU_MAP	Manifold Air pressure
ECU_5	ECU_DTPS	Throttle position sensor delta
ECU_6	ECU_LAMBDA2	Actual Measure Lambda Bank 2
ECU_7	ECU_INJH_PERC	Percentage staged injection
ECU_8	ECU_AE	Acceleration Enrichment
ECU_9	ECU_DE	Deceleration Enleanment
ECU_10	ECU_WH_SP	Wheel speed
ECU_11	ECU_WH_SP_RL	Real left wheel speed sensor
ECU_12	ECU_WH_SP_RR	Rear right wheel speed sensor
ECU_13	ECU_WH_SP_FL	Front left wheel speed sensor
ECU_14	ECU_WH_SP_FR	Front right wheel speed sensor
ECU_15	ECU_DC_B_IDLE	Base Idle duty cycle
ECU_16	ECU_IDLE_OUT	Final Idle duty cycle
ECU_17	ECU_PERC_SLIP	Traction Control Actual Slip
ECU_18	ECU_TAR_SLIP	Traction Control Target slip
ECU_19	ECU_IVCT	Inlet Cam Position angle
ECU_20	ECU_EVCT	Exhaust Cam Position angle
ECU_21	ECU_IVCT_TAR	Target Inlet Cam position

ECU_22	ECU_EVCT_TAR	Target exhaust cam position
ECU_23	ECU_DBW	Drive by wire primary throttle position sensor
ECU_24	ECU_B_INJ_PW	Base Injection pulse width
ECU_25	ECU_RUN_PW	Final injection pulse width
ECU_26	ECU_SA_BASE	Base spark advance
ECU_27	ECU_SA_OUT	final spark advance
ECU_28	ECU_LAMBDA1	Actual Measure Lambda Bank 1
ECU_29	ECU_TAR_LAMBDA	Target Lambda
ECU_30	ECU_KFUELLEARN	Fuel learn value
ECU_31	ECU_CLC1	Closed loop control value bank 1
ECU_32	ECU_CLC2	Closed loop control value bank 2
ECU_33	ECU_GEAR	Gear position
ECU_34	ECU_BOOST_DC	Base boost duty cycle
ECU_35	ECU_BOOST_OUT	Final boost duty cycle
ECU_36	ECU_OIL_PRESS	Oil pressure
ECU_37	ECU_FUEL_PRESS	Fuel pressure
ECU_38	ECU_BARO_PRESS	Barometric pressure
ECU_39	ECU_PBCT	Proportional boost control term
ECU_40	ECU_IBCT	Integral boost control term
ECU_41	ECU_BOOST_TAR	Target Boost Pressure
ECU_42	ECU_BATT_VOLT	Battery voltage
ECU_43	ECU_IBVC	Injector battery voltage correction
ECU_44	ECU_PHASE	injection timing phase
ECU_45	ECU_CAM_COUNT	Camshaft tooth counter
ECU_46	ECU_DWELL	Coil Dwell Time
ECU_47	ECU_RAW_TPS	Raw Throttle position voltage
ECU_48	ECU_RAW_PPS1	Raw Pedal Position 1 voltage
ECU_49	ECU_RAW_PPS2	Raw Pedal Position 2 voltage
ECU_50	ECU_RAW_TPS1	Raw Throttle position 1 voltage
ECU_51	ECU_RAW_TPS2	Raw Throttle position 2 voltage
ECU_52	ECU_TPSPPS_ERR	Throttle/Pedal Fault Code
ECU_53	ECU_PPS	Scaled final pedal position
ECU_54	ECU_PPS1	Scaled Pedal position 1
ECU_55	ECU_PPS2	Scaled Pedal position 2
ECU_56	ECU_TPS1	Scaled Throttle position 1

ECU_57	ECU_TPS2	Scaled Throttle position 2
ECU_58	ECU_TH2O	Coolant temperature
ECU_59	ECU_TOIL	Oil temperature
ECU_60	ECU_KFUELCRNK	Crank fuel correction
ECU_61	ECU_TAIR	Air temperature
ECU_62	ECU_RAW_TH2O	Raw coolant temperature sensor voltage
ECU_63	ECU_RAW_TOIL	Raw oil temperature sensor voltage
ECU_64	ECU_ENG_RUN_T	Engine run timer
ECU_65	ECU_RAW_TAIR	Raw Air temperature sensor voltage
ECU_66	ECU_RAW_LAM	Raw Lambda sensor voltage
ECU_67	ECU_KFUELTH2O	Coolant temperature fuel correction
ECU_68	ECU_KFUELTAIR	Air temperature fuel correction
ECU_69	ECU_CRK_CNT	Crank rotation counter
ECU_70	ECU_BARO_CORR	Barometric pressure fuel correction
ECU_71	ECU_FUEL_CORR	Fuel pressure fuel correction
ECU_72	ECU_OSA_TAIR	Air temperature spark advance correction
ECU_73	ECU_RPM_TAR	Target idle speed