G4X StormX WireIn ECU Specifications

Advanced tuning features at an affordable price.

The Link G4X StormX ECU is the latest version of our trusty, mid-sized ECU. With eight injector and eight ignition drives, it allows sequential injection and direct spark on engines with up to eight cylinders or four rotors.

The StormX has all the upgrades of the AtomX and MonsoonX but offers more advanced tuning features like a built in Trigger Oscilloscope, Stepper Motor Idle Control, Rotary Oil Metering Pump Control, Onboard Knock Control, Open and Closed Loop Boost Control plus most Motorsport features including Full Gear Shift Control, Antilag and Launch Control.

Engine Configurations

- 1-12 Cylinder Distributed
- 2-12 Cylinder Wasted Spark
- 1-8 Cylinder Direct Spark
- Odd Fire Engines
- 2-Stroke, 4 Stroke and Rotary Engines
- Configurable Firing Order
- Configurable TDC Points (for odd fire)

Inputs/Outputs

- 8 x High Current Injector Drives (suits high impedance injectors)
- 8 x Ignition Channels
- 8 x Auxiliary Outputs (All PWM capable). Aux5-8 can control Stepper Motors and drive High or Low
- 8 Digital Inputs (All capable of reading frequencies up to 10kHz)
- +5V Out
- +8V Out
- 3 Temperature Inputs (Configurable pull-ups on ANT1&2)
- 8 x 0-5V Analog Inputs
- 2 x Trigger Inputs (Reluctor, Optical or Hall Sensors)
- On Board Baro

Fueling adjustments

- Traditional, Modelled and Modelled Multi-Fuel Equations
- Single-Point Group, Multi-Point Group, Sequential, Semi-Sequential, Group Staged, Sequential Staged and Sequential/Multi Point Group Staged injection modes
- Asynchronous injection (can add more fuel after initial injection if conditions change)
- Quick tune (automated fuel tuning)
- Up to 440 Zone Fuel Table with configurable load and RPM centers. Configurable X and Y Axis Parameters
- Multiple Fuel Tables
- Up to 6D Fuel Mapping (3D Fuel Table + 3x3D Overlay trim tables)
- Injection Rate Control for Group Injection Modes
- Master Enrichment for Traditional Fuel tuning
- Pre-Crank Prime
- First Crank Prime
- Crank Enrichment

- Post Start Enrichment
- Warm Up Enrichment
- Acceleration Enrichment
- IAT Fuel Correction
- Injector Deadtime Compensation
- Injector Short Pulse Width Compensation
- Injector Timing Control with Beginning, Middle or End Injection Definable
- AFR Table Correction
- Dual Closed Loop Lambda
- Individual Cylinder Fuel Trims
- Overrun Fuel Cut
- Idle Load Trims
- Fuel Temperature Correction
- Barometric pressure compensation
- Injector test function

Ignition Adjustments

- Distributor, Twin Distributor, Wasted Spark, Direct Spark, Rotary leading Wasted and Rotary
- Leading Direct Ignition Modes
- Up to 440 Zone Ignition Table with configurable load and RPM centers. Configurable X and Y Axis Parameters
- Configurable Maximum Advance
- Configurable Spark Duration
- Configurable Spark Edge
- Dwell Time Table with configurable X and Y Axis Parameters
- Multiple Ignition Tables
- Up to 6D Ignition Mapping (3D Ignition Table + 3x3D Overlay Trim Tables)
- Individual Cylinder Ignition Trim
- IAT Trim
- Voltage Correction
- ECT Trim
- OEM Compatibility
- CDI Compatibility
- Transient ignition retard
- Adjustable ignition delay compensation
- Ignition test function
- Idle ignition control

Limits

- Engine Temperature Dependent Progressive Limiting
- Dual Vehicle Speed Limits
- System Voltage Limit
- User Configurable RPM Limits based on external input
- MAP Limit with dual tables
- Optional hard cut
- Progressive cut control

- Selectable fuel or ignition limiting
- Ignition trim and configurable trim decay
- Adjustable control range
- Selectable cut effect (adaptive or constant)

Auxiliary Output Options

- Each Output independently configurable
- Unused ignition and Fuel outputs available as auxiliary outputs
- General Purpose Outputs
- General Purpose PWM Outputs
- Fuel Pump Control
- Fuel Pump Speed Control
- Engine Fan Control
- Air Con Clutch Control
- Air Con Fan Control
- Intercooler Spray Control
- Tacho Control
- Speedo Control
- Check Engine Light
- Purge Solenoid
- Oxygen Sensor Heater
- Switched Cam Solenoid Control
- ECU Hold Power Control
- Shift Light Control
- Starter Control
- VVT Cam Solenoid
- Boost Control Solenoid
- Test functions for each output
- Closed loop Stepper Control & Rotary Oil Pump Control
- Idle Speed Soloenoid
- Idle Speed Stepper
- Internal E-Throttle Controller
- External E-Throttle

Digital Inputs

- Each channel independently configurable with pull-up resistors and active state control
- All digital inputs capable of reading frequencies of up to 10kHz
- Duty Cycle measuring on all digital inputs
- Turbo speed
- Ethanol Sensor Control
- Wheel Speed Detection on all digital inputs with additional general-purpose speed inputs
- Anti-Theft control through digital inputs, over CAN or both
- General Purpose switches, speeds, rpms and frequencies
- large variety of input types

LINK ENGINE MANAGEMENT

Analog Inputs

- Each input independently configurable with preset or custom calibrations and configurable fault conditions
- Built in Barometric Pressure Sensor
- Large variety of Analog input functions
- General Purpose Temperatures, Pressures, Rotary Switches and more
- Analog Inputs can also be used as Digital Inputs
- Large number of built in calibrations
- Ten Calibration Tables and 3 Linear Calibrations for when a custom calibration is required

Triggering

- Digital Trigger Decoding
- Reluctor, Optical Proximity or Hall Sensors
- Programmable filtering and arming thresholds
- Configurable trigger patterns or preset triggering options
- Supports nearly all OEM trigger patterns and custom trigger arrangements

Programmable Math Processing

- Eight individually controllable math channels with up to four parameters in each
- Math channels can be used as table axis's and as digital or analog inputs

Motor-Sport Features

- Anti Lag
- Launch control
- Gear Shift Control (Digital Inputs, Gear Lever Force or Gear Barrel Position)

Anti-Lag System

- Dual 3D Fuel enrichment, Ignition cut and Ignition retard Tables
- Optional Cyclic idle (normal and cool-down)
- Optional 3D Idle controller Override Tables (one for Antilag and one for Cyclic Idle)
- Lockout condiitons based on engine speed and throttle position with hysteresis

Launch Control

- Single RPM, 3D RPM Table or Latched (RPM when button pressed) Launch modes
- Progressive cut control
- Selectable fuel or ignition limiting
- Selectable cut effect (adaptive or constant)
- Adjustable control range
- Vehicle speed controlled
- Ignition Trim with optional 3D table and relative or absolute ignition angle options
- Optional 3D Fuel Trim table

Gear Shift Control

- Digital input (clutch switch), gear lever force (sequential gearbox), gear lever force (H pattern gearbox), and gear barrel position sensor input options

G4X

- Timed or controlled modes
- Adjustable progressive cut levels
- Power re-introduction control
- Ignition retard control
- Fuel enrichment control
- Cut duration based on gear

Idle Control
- Solenoid, Stepper or EThrottle Control
- Open or Closed loop actuator control and Closed loop Ignition control available
- Large variety of position offsets for open loop and additional target offsets for closed loop actuator control
- Specific start-up offsets and hold times
- Dashpot functionality to smooth re-entry into idle and prevent undershoot

Electronic Throttle Control
- Supports external controllers
- Multiple 3D target tables

Boost Control
- Open or Closed Loop Boost Control
- Multiple Target and Base Position Tables
- Multiple Trim tables
- Boost by Gear control

Knock Control
- 2 Built in Knock inputs
- Fuel Enrichment and Ignition Retard functionality
- Adjustable frequency filter
- Adjustable gain (per cylinder)
- Individual cylinder detection
- Individual cylinder ignition retard and fuel enrich
- Adjustable detection angle (start/end)
- Noise threshold table (3D)
- Adjustable ignition retard and fuel enrich sensitivity
- Configurable ignition reintroduction and fuel enrich decay

Variable Valve Timing Control
- Up to 4 cams independent control
- Supports many OEM applications
- Closed loop control
- Multiple 3D Cam angle target tables
- Optional advanced PID control settings for advanced tuners
- Automatic function for calibrating cam angles

Chassis and Body

- AC Control - Basic and Advanced modes available
- AntiTheft - Via Digital Input, CAN or both
- Gear Detection - CAN, RPM/Speed or Analog Position Sensor
- Individual wheel speed sources with the ability to specify Driving and Non-Driving wheel speed sources
- Starter control - Multiple options available from very basic to Touch to start.

Logging

- 512 Megabytes of Datalogging
- Up to 250 ECU Logging channels
- Up to 1kHz per channel with a maximum total sample rate of 100kSamples/s when using ECU Logging
- Unlimited channels when using PCLink logging

Communications

- Tuning Port USB on board
- One CAN bus
- Custom CAN configuration allowing tuners and end users to add support for new CAN devices

Processing

- 150 MHz Specialised Engine Management Microprocessor
- Ignition control to 0.1 degree, fuel to 0.01 ms
- 32 Bit Floating Point Calculation
- 12 Bit ADC Resolution
- 20000+ RPM
- 4Gb Non Volatile Flash

Environment

- Internal Temperature Range -10 - 85oC
- Ambient Temperature Range -30 - 90oC
- Voltage 8 - 22V
- Operating Current 200mA
- Electrical protection on all inputs and outputs
- Onboard Barometric Pressure Sensor

Packaging Contents

- G4X StormX ECU
- Wiring and Installation Instructions
- 2 large Link Stickers
- 2 small Link Stickers

Manufacturing Standard

- ISO 13485

Additional Accessories (purchased separately)

- Intake Air Temperature Sensor
- 3/8 NPT (Aluminium or Steel Mounting Bosses to suit)
- 3 Channel Link Igniter
- Throttle Position Sensor
- 3 Channel Link Igniter
- Wideband O2 Controller & Sensor
- Injector Ballast Resistor Packs