Tel : 0845 234 0060
Intl: (+44) 01483 831169
Mobile: (+44) 07970 977562

Email: sales@solaris-ecs.co.uk
Web: www.solaris-ecs.co.uk

Solaris S- ECU Range Features In Detail

Fuelling Control

4 base Injection time maps
Secondary Base Injection time map
Secondary Base Injection time blend
Injection End angle
Injection end angle change rate limit
2 injector Split maps
Primary injection End angle Retard
Secondary Injection End angle retard
4 Wideband lambda closed loop maps
Narrow band closed loop control
Overrun Fuel cut-off

Fuelling Corrections:

- Global Multiplier
- 360 Sync Multiplier
- Secondary multiplier
- Barometric Pressure Multiplier
- Air Charge Temperature multiplier
- Engine coolant multiplier
- Load Multiplier
- Cylinder trim Multiplier
- Primary and Secondary Battery Adders
- Transient Fuelling Correction

Ignition Control

4 Base Ignition maps
Coil charge time
Coil charge limiting
Ignition Safety Exclusion zone

Corrections:

- Global Adder
- Engine Oil Temperature Adder
- Barometric Pressure Adder
- Engine Coolant Temperature adder
- Engine coolant Temperature Adder
- Relative fuel pressure adder
- Load adder
- Cylinder Trim adder
- Late ignition Coil charge adder

Boost Control

Rpm/TPS based overall enable control
Boost Target map
Wastegate duty map (2 waste gates)
Closed loop Boost control
Closed loop Post restrictor control
Closed loop turbo speed control
Adjustable PWM frequency for Boost control Solenoid

Gear Shift Set-up

Gear shift mode (switch/Auto/Manual/none)

Manual Gear Box Cut Setup:
- Polarity and Input pull-up Adjustment
- High voltage threshold
- Low voltage threshold
- Voltage Hysteresis
- Debounce Time

Gear Cut

Open and Closed loop Gear cut
Cut mask time
Cut enable based on gear or min rpm
Override Ignition Exclusion zone during gear cut
Low load fuel cut based on TPS or Rpm

Ramp out cut :
- Cut time based on gear
- Fuel cut severity based on gear
- Ignition cut Severity based on gear
- Fuel multiplier based on gear
- Ignition retard based on gear
- Drive by wire target multiplier based on gear

Open Loop main cut:
- Cut time based on gear
- Fuel cut severity based on gear
- Ignition cut Severity based on gear
- Fuel multiplier based on gear
- Ignition retard based on gear
- Drive by wire target multiplier based on gear

Open Loop main cut:
- Cut time based on gear
- Fuel cut severity based on gear
- Ignition cut Severity based on gear
- Fuel multiplier based on gear
- Ignition retard based on gear
- Drive by wire target multiplier based on gear
- Delta Proportion for shift complete based on gear
- Dog to Dog kick time
- Retry Cut time based on gear
- Retry Fuel cut severity based on gear
- Retry Ignition cut Severity based on gear
- Retry Fuel multiplier based on gear
- Retry Ignition retard based on gear
- Failure Count TPS threshold
- Failure Count to disable closed loop gear cut

Gear Blip

Blip Mask time
Blip time based on gear
Blip target based on gear
Blip roll on rate based on gear
Blip duty effect

Throttle Jacker Control

TJC PWM frequency and Polarity adjustment
TJC Direction polarity
TJC enable/disable when engine stopped
TJC Drive enable target threshold
TJC Drive enable error threshold
Minimum Final control duty
Maximum final control duty
TJC Duty Bias
TJC Proportional gain based on gear
TJC Control Derivative Gain based on gear
TJC Derivative active error zone
TJC Target in crank mode
TJC Target in run mode
Positioning failure error threshold
Positioning failure duration threshold

Throttle Bypass Value control

TPV PWM frequency and Polarity adjustment
TPV enable/disable when engine stopped
Minimum Bypass duty
Maximum bypass duty
Bypass duty in crank mode
Bypass duty in run mode

Limp Switch Setup

Limp Switch Polarity
TBV Duty
TJV Target
Drive by wire target

Anti Lag System

Overall Enable
Bypass Duty Effect
High Throttle Bypass Disable Threshold
EGT Control
Adjustable Breakpoints for ALS calibrations
Off Calibration Fuel cut and shutdown delay
Startline Calibration
- Bypass Vehicle Speed
- Exit throttle angle
- Fuel Cut %
- Ignition retard %
- Fuel Multiplier
- Bypass Duty
- Recover Fuel cut

4 Main ALS Calibrations
- Fuel Duty %
- Ignition Retard %
- Fuel Multiplier
- Bypass Duty
- Recover Fuel cut

Throttle Timeout
- High Temperature recovery
- Entry Air Charge Temperature
- Entry Air Charge Temperature Guard time
- Exit Air charge Temperature
- Air Charge Temperature Override ride on Starting
- Entry EGT
- Entry EGT Guard time
- Exit EGT

Plenum Damping
- Entry Throttle Angle
- Exit Throttle angle
- Rate of Increase clip for Manifold pressure measurement
- Fixed Injection end angle

Pit Lane Limit Calibration Selection Override
- Disable ALS during Pit Limit
- Select ALS calibration 1-4 During Pit Limit

Nitrous Control

Control Valve PWM frequency Adjustment
RPM/TPS/MAP Breakpoint adjustments
4 Base Duty Maps
Maximum Rate of duty increase
PWM battery adder
Base fuel adder
Maximum Base fuel adder decay rate
Fuel adder tuning based on rpm
Fuel adder tuning based on MAP
Ignition adder
Maximum Rate if Ignition adder increase

Traction Control

Minimum Vehicle Speed enable
Disable time after gear cut
Steering angle based Spin targets
Lateral G based spin targets
Spin target tuning
Minimum Spin Target
Base Gain
Torque Reduction Clamp
Fuel cut severity
Ignition Retard

Basic Knock Control

Standard on S6, Not available on S8C or S4C

Full Knock Control

Standard on S8C, Optional on S6, not available on S4C)

Knock control enable on TPS or MAP target
Ignition advance when knock control active
Disable time after gear cut
Reset Ignition retard on gear cut
First event Ignition retard step
Ignition retard Step
Severe event ignition step
Maximum ignition retard
Non-knocking cycles until reinstate step
Ignition reinstate step
Ignition retard threshold for full fuel cut
Ignition retard when knock sensing failed

Starting

Preliminary Fuel injection (2)
Base fuel injection (2)
Fuel multiplier
Ignition angle (2)
Fuel injection end angle
Coil charge multiplier
Valid cam signal revs for 720 sync
Minimum Engine speed for 720 sync
Starting waits for 720 sync

Idle Control

Base Bypass Duty (2)
Air charge temp duty adder
Target engine speed (2)
Closed Loop –
Enable run time
Enable vehicle speed
Enable engine speed error
Enable load select
Enable load
Base Ign adder
Proportional duty adder
Integral Duty enable engine speed error threshold
Integral duty gain
Integral duty minimum
Interval duty maximum
Integral decay
Bypass duty effect

Idle stepper control

PWM frequency
Length of step sequence
Output duty sequence (4)
Step drive time
Power off time
Initialisation direct
Number of steps for initialisation
Number of steps
Minimum target in crank
Minimum target in run

Limiters

Map limit:
- Pressure source
- Pressure limit base
- Fuel cut severity

Pit lane limit:
- Maximum enable speed
- Timeout
- Target vehicle speed
- Target engine speed (first gear)
- Target engine speed (second gear)
- Override ignition exclusion zone during pit lane limit
- World series and Le Mans Strategies

Rev cut :
- Engine speed measure
- Engine speed
- Engine speed Hysteresis
- Instant fuel cut
- Instant ignition cut
- Omit ignition cut

Rev limit
- Engine speed limit
- Engine speed limit in limp mode
- Engine speed Hysteresis
- Limit type
- Severity

High fuel pressure cutout

Launch Control

Maximum Vehicle speed for Activation
Base Engine speed
Fuel cut severity
Ignition retard
Ignition retard Timeout
Ignition retard disable exhaust temp
Exit vehicle speed
Ignition Retard ramp in rate
Drive by wire launch assist:
Cranking throttle position
Rev up Delay
Rev up throttle position
Rev up time
Launch Throttle position
AutoStart:
- Auto start enable
- Weight off wheels time to arm
- Weight on wheels time to trigger
- Maximum cranking time

Drive by wire

Position control:
- Enabled when engine stopped
- PWM Frequency
- Base Duty
- Proportional / Derivative Gain
- Integral Gain
- Integral Minimum
- Integral Maximum
- Final Duty Minimum
- Final duty maximum
- Acceptable error margin
- Maximum duration outside error margin

Minimum target in crank
Maximum target in crank
Minimum target in run
Pedal demand filter constant
Pedal position to throttle position curve
Rescale demand above idle control
After start limit
Limp home mode target

Variable Valve timing

Vvt1 Inlet/exhaust angle latch points
Vvt1 Inlet/exhaust angle latch offsets
Vvt2 Inlet/exhaust angle latch points
Vvt2 Inlet/exhaust angle latch offsets
Engine enable speed
Open loop:
- Inlet/exhaust switchover engine speed
- Inlet/exhaust duty at low engine speed
- Inlet/exhaust duty at high engine speed

Closed loop :
- Inlet angle target
- Exhaust angle target
- Failure error threshold
- Failure error time

PWM:
- Inlet base duty
- Inlet proportional gain
- Inlet integral gain
- Inlet integral minimum
- Inlet integral maximum
- Exhaust base duty
- Exhaust proportional gain
- Exhaust integral gain
- Exhaust interval minimum
- Exhaust integral maximum

Control valves:
- Vvt1 Inlet/exhaust drive direction
- Vvt2 Inlet/exhaust drive direction

Datastreams

DataStream select
Custom CAN:
- Frame identifier
- Frame frequency
- Frame content

Fully configurable 8-point external calibration switch for switching combinations of:

(Optional)

Fuel map
Ignition map
Starting Map Select

Base Lambda Target table
Base Lambda Target adder based on TPS
Base Fuel multiplier based on TPS
Base Ignition Multiplier Based on TPS
Rev Limit Reduction
Wastegate control Map Target Adder
Wastegate TPS Progression Multiplier
ALS Calibration Select (If not on separate switch)
Nitrous Calibration Select (If not on separate switch)
Pit Limit (If not on separate switch)
Launch Control (If not on separate switch)
Tyre Type (Wet/Dry)
Drive by wire target
Idle Control Base switch

Fully configurable 8-point external calibration switch for the Traction control.

Sensor Input functions:

(Availability dependent on number of input pins free)

Acceleration sensors (Lateral/Longitudal/Vertical G and Yaw)
Air Charge temp (2)
Air Inlet temp (2)
Ambient Air temp (1)
Barometric Absolute Pressure (1)
Beacon input (for lap timing) (1)
Cam position (5, (vvt:2 inlet, 2 exhaust) phase)
Crankcase Pressure (4)
Crank position (2)
Suspension Damper Position (Sensor per corner) (4)
Engine coolant Pressure (1)
Engine coolant Temp (4)
Engine oil pressure (4)
Engine oil temp (1)
EGT (2, 1 on S6 and S4C)
Fuel pressure (2)
Fuel temp (1)
Gear cut Request
Gear position (1) , Gear position also possible by wheel speed.
Inlet port position (2)
Knock (4, 1 on S6) (Dedicated)
Lambda NTK/LSU (2, 1 on S6 and S4C) (Dedicated)
Load cells (3)
Manifold Absolute Pressure (4)
Pedal Position (2)
Post restrictor pressure (2)
Steering wheel angle (1)
Tacho Input (1)
Throttle Position (4)
Throttle Jacker Position (1)
Turbo Speed (4)
Vehicle Speed (All 4 wheels + radar)
Fuel Consumption Switch (1)

Switch Inputs

(Availability dependent on number of input pins free)

Number of Positions in Brackets.

Anti Lag Switch (2)
Calibration Switch (8)
Clutch Depressed switch (2)
Enable switch (To enable what?)
Limp switch (2)
Nitrous Switch (2)
Pit Lane limit switch (2)
Rain Light switch (2)
Sensor Switch ?????
Traction Control Switch (8)
Weight on wheels switch ???

Output functions

(Availability dependent on number of free output pins (Ancillary + spare injector)

Alternator
Auto Start
Brake by Wire (2)
Change light
Clutch Control
Drive by Wire (2)
Engine Speed Controlled (2)
Exhaust Gas Recirculation
Fan control (3)
Fuel Pump Relay (2)
Gear Shift cut Request
Headlight Control
Heated Screen Control
Idle Speed Control (4)
Lambda heater (2)
Lateral G Negative
Lateral G Positive
Nitrous Control
Rain Light
Tacho
Throttle Bypass Valve
Throttle Jacker Control
Throttle Jacker Direction
VVT (4, 2 inlet, 2 exhaust)
Wastegate Control (2)
Wastegate Antiphase (2)
Water injection