AHRS-1/MAG-1 Firmware Revision

Version 1.12 09/11/2021 (Franz Lamers)

Enhancement: Added a pitch and bank zero function to the horizon setup menu

Version 1.11 22/05/2021 (Franz Lamers)

Enhancement: Changed backlight increment to 5% and 1% below 10%. Added backlight % readout

readout

Version 1.10 12/11/2020 (Franz Lamers)

Enhancement: Added Heading bug user input

Enhancement: Added SP-7 attitude CAN message emulation

Enhancement: Added CAN packet filtering

Bug: Fixed CAN/INT AHRS speed message mph reading km/h

Bug: Fixed heading bug not showing if below 50 degrees and heading is <=359 degrees

Version 1.09 26/06/2020 (Franz Lamers)

Enhancement: Updated WMM tables

Version 1.08 18/05/2020 (Franz Lamers)

Bug: Fixed km/h and knots GPS speed to AHRS aiding

Version 1.07 20/04/2020 (Franz Lamers)

Enhancement: Added in serial communications

Enhancement: Added support for a new screen controller

Enhancement: General clean up

Version 1.06 18/10/2019 (Franz Lamers)

Bug: Fixed MAG-1 to be able to display GPS pages

Bug: Fixed GPS SOG: nm to kts

Version 1.05 26/09/2019 (Franz Lamers)

Enhancement: Added GPS display on/off menu item

Version 1.04 27/08/2019 (Franz Lamers)

Enhancement: Added GPS info display

Enhancement: Added auto/manual magnetic variation to compass (Has to have an external NMEA GPS for auto magnatic variation calculation)

Version 1.03 10/07/2018 (Franz Lamers)

Bug: Fixed NMEA km/h conversion

Version 1.02 13/03/2018 (Franz Lamers)

Enhancement: Added internal flash check function on startup

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Version 1.01 18/09/2017 (Franz Lamers)
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Bug: Fixed the security code not going over 255
Bug: Fixed the horizon speed unit showing blank after kts
Version 1.00 06/07/2017 (Franz Lamers)
Initial release
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AHRS-3 Firmware Revision
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Version 1.07 09/11/2021 (Franz Lamers)
-----
Enhancement: Added a pitch and bank zero function to the horizon setup menu
Version 1.06 22/05/2021 (Franz Lamers)
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Enhancement: Changed backlight increment to 5% and 1% below 10%. Added backlight %
readout
Version 1.05 12/11/2020 (Franz Lamers)
-----
Enhancement: Added Heading bug user input
Enhancement: Added SP-7 attitude CAN message emulation
Enhancement: Added CAN packet filtering
Bug: Fixed CAN/INT AHRS speed message mph reading km/h
Bug: Fixed heading bug not showing if below 50 degrees and heading is <=359 degrees
Version 1.04 26/06/2020 (Franz Lamers)
-----
Enhancement: Updated WMM tables
Version 1.03 18/05/2020 (Franz Lamers)
Bug: Fixed km/h and knots GPS speed to AHRS aiding
Version 1.02 20/04/2020 (Franz Lamers)
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Enhancement: Added in serial communications
Enhancement: Added support for a new screen controller
Enhancement: General clean up
Version 1.01 18/10/2019 (Franz Lamers)
Bug: Fixed GPS SOG: nm to kts
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Version 1.00 27/08/2019 (Franz Lamers)

Initial release

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ALT-5 Firmware Revision
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Version 1.13 11/04/2022 (Franz Lamers)

Bug: Fixed items in Altitude calibration menu not highlighting

Version 1.12 05/02/2022 (Franz Lamers)

Enhancement: Added in an alarm menu option to select between "deviation" and "level"

Version 1.11 10/05/2021 (Franz Lamers)

Enhancement: Cleaned up mechanical wheels negative altitude scrolling

Version 1.10 02/05/2021 (Franz Lamers)

Enhancement: Implemented an altitude deviation alarm

Enhancement: Changed backlight increment to 5% and 1% below 10%. Added backlight %

readout

Version 1.09 27/08/2020 (Franz Lamers)

Enhancement: Added support for a new altitude pressure sensor

Version 1.08 01/06/2020 (Franz Lamers)

Enhancement: Added a temperature compensation function for the altimeter

Version 1.07 18/05/2020 (Franz Lamers)

Enhancement: Added a factory altitude calibration function Bug: Fixed the VSI m/s scale showing the incorrect value

Version 1.06 20/04/2020 (Franz Lamers)

Enhancement: Added support for a new altitude pressure sensor

Enhancement: Added support for a new screen controller

Enhancement: Added in infiniteg serial protocol

Enhancement: General clean up

Version 1.05 07/08/2019 (Franz Lamers)

Enhancement: Simplified the altitude calibration

Enhancement: Enabled altitude FIFO buffer moving average

Version 1.04 08/06/2019 (Franz Lamers)

Enhancement: Changed Baro setting to 946/1050mb (28.00/31.00)

Enhancement: Change Baro IN to "Hg

Version 1.03 11/10/2018 (Franz Lamers)

Enhancement: Added a piecewise altitude calibration factors

Version 1.02 13/03/2018 (Franz Lamers)

Enhancement: Added internal flash check function on startup

Bug: Fixed the MGL Avionics serial ouput protocol QNH and VSI fields

Bug: Fixed the saving of the QNH setting during power off

Version 1.01 13/09/2017 (Franz Lamers)

Bug: Fixed the security code not going over 255

Enhancement: Changed the altitude bug off screen cyan markers

Version 1.00 15/07/2017 (Franz Lamers)

Initial release

ASI-4 Firmware Revision

*********Units with firmware version 1.00 cannot use future firmware******

******firmware version 1.00 units can be upgraded but the airspeed has to be recalibrated*******

Version 1.11 17/07/2021 (Franz Lamers)

Enhancement: Added in an analog dial display and menu option

Version 1.10 22/05/2021 (Franz Lamers)

Enhancement: Changed backlight increment to 5% and 1% below 10%. Added backlight %

readout

Version 1.09 17/11/2020 (Franz Lamers)

Enhancement: Added support for new pressure sensor

Version 1.08 21/09/2020 (Franz Lamers)

Enhancement: Improved accuracy of airspeed sensor 3 (Set ASI CAL to 100% if ASI

sensor is 3)

Version 1.07 27/05/2020 (Franz Lamers)

Enhancement: Improved accuracy of airspeed sensor 2

Version 1.06 20/04/2020 (Franz Lamers)

Enhancement: Added in serial communications

Enhancement: Added support for a new screen controller

Enhancement: Added a flight log Enhancement: General clean up

Version 1.05 02/03/2020 (Franz Lamers)

Enhancement: Support added for the digital airspeed sensor Enhancement: Support added for the digital high speed sensor

Enhancement: Changed the minimum airspeed to 20mph

Version 1.04 28/05/2018 (Franz Lamers)

Bug: Fixed the max values yellow VNO

Version 1.03 13/03/2018 (Franz Lamers)

Enhancement: Added internal flash check function on startup

Version 1.02 18/09/2017 (Franz Lamers)

Bug: Fixed the security code not going over 255

Version 1.01 06/09/2017 (Franz Lamers)

Enhancement: Changed the airspeed calibration formula

Version 1.00 15/07/2017 (Franz Lamers)

Initial release

ASV-1 Firmware Revision

Version 1.14 22/05/2021 (Franz Lamers)

Enhancement: Changed backlight increment to 5% and 1% below 10%. Added backlight % readout

Version 1.13 17/11/2020 (Franz Lamers)

Enhancement: Added support for new airspeed pressure sensor

Version 1.12 12/10/2020 (Franz Lamers)

Enhancement: Improved accuracy of airspeed sensor 3 (Set ASI CAL to 100% if ASI sensor is 3)

Version 1.11 27/08/2020 (Franz Lamers)

Enhancement: Added support for a new altitude pressure sensor

Version 1.10 01/06/2020 (Franz Lamers)

Enhancement: Added a temperature compensation function for the altimeter

Version 1.09 27/05/2020 (Franz Lamers)

Enhancement: Added a factory altitude calibration function

Enhancement: Improved accuracy of airspeed sensor 2

Version 1.08 20/04/2020 (Franz Lamers)

Enhancement: Added support for a new altitude pressure sensor

Enhancement: Added support for a new screen controller

Enhancement: Added in infiniteq serial protocol

Enhancement: Added a flight log

Enhancement: General clean up Version 1.07 02/03/2020 (Franz Lamers) -----Enhancement: Support added for the digital airspeed sensor Enhancement: Support added for the digital high speed sensor Enhancement: Changed the minimum airspeed to 20mph Enhancement: Added in infiniteg serial protocol Version 1.06 07/08/2019 (Franz Lamers) -----Enhancement: Simplified the altitude calibration Enhancement: Enabled altitude FIFO buffer moving average Version 1.05 08/06/2019 (Franz Lamers) -----Enhancement: Changed Baro setting to 946/1050mb (28.00/31.00) Enhancement: Change Baro IN to "Hg Version 1.04 01/10/2018 (Franz Lamers) Enhancement: Added a piecewise altitude calibration factors Version 1.03 11/06/2018 (Franz Lamers) -----Bug: Fixed the max values yellow VNO Bug: Moved the m/s VSI text up Version 1.02 13/03/2018 (Franz Lamers) Enhancement: Added internal flash check function on startup Bug: Fixed the MGL Avionics serial ouput protocol QNH and VSI fields Bug: Fixed the saving of the QNH setting during power off Version 1.01 18/09/2017 (Franz Lamers) Bug: Fixed the security code not going over 255 Version 1.00 15/07/2017 (Franz Lamers) _____ Initial release ______ EMS-1 Firmware Revision Version 1.17 18/11/2021 (Franz Lamers) -----Enhancement: Added in a direct connection option to the Rotax 912iS ECU Enhancement: Menu changes for the Rotax 912iS and UL Power

Version 1.16 02/09/2021 (Franz Lamers)

Enhancement: Changed the hobbs minutes in the communication output to normal

minutes

Version 1.15 15/07/2021 (Franz Lamers)

Bug: Fixed EGT/CHT display when using ULPower AUX box

Version 1.14 12/04/2021 (Franz Lamers)

Enhancement: Changed backlight increment to 5% and 1% below 10%. Added backlight % readout

Version 1.13 22/04/2021 (Franz Lamers)

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Enhancement: Changed backlight increment to 5% and 1% below 10%. Added backlight % readout

Bug: Fixed Rotax 912is Throttle position, ambient pressure, ECU hours, Engine hours

Version 1.12 26/03/2021 (Franz Lamers)

Enhancement: Made an automatic/manual menu item selection for the displaying of the analog channels/Volts/Map/Current section

Enhancement: Cleaned up the volts on/off, numeric and bargraph displays

Version 1.11 04/03/2021 (Franz Lamers)

Bug: Fixed CJC showing degree F in the calibration menu

Version 1.10 04/10/2020 (Franz Lamers)

Enhancement: Added selection for decimal or normal hours to Hobbs Meter

Version 1.09 26/08/2020 (Franz Lamers)

Enhancement: Enabled Rotax 912is engine and warning messages

Enhancement: Enabled Rotax 912is throttle bar graph

Bug: Fixed UL Power Fuel Pressure alarm

Bug: Fixed UL Power Oil/Fuel Pressure bar to psi resolution

Version 1.08 20/04/2020 (Franz Lamers)

Enhancement: Added support for a new screen controller Enhancement: Added Hobbs/Maintenance start selection

Enhancement: General clean up

Version 1.07 15/02/2020 (Franz Lamers)

Enhancement: Added UMA senders N1EU70, T1EU70, N1EU70A, T1EU70A, N1EU150, T1EU150

Version 1.06 30/01/2020 (Franz Lamers)

Bug: Fixed the fuel pressure voltage UMA N1EU07/T1EU07 Bar unit

Enhancement: Added the UL Power Sync sensor fault message

Enhancement: Added support for the UL Power Aux box

Enhancement: Changed UL Power ignition status version 0 to latest version doc

Enhancement: Changed UL Power MAP Pressure version 0 to latest version doc

Enhancement: The current ADC values show when menu selection is over the zero and gain menu options

Enhancement: Changed default current gain from 140 to 315

Version 1.05 20/11/2019 (Franz Lamers)

Enhancement: Added in a fuel level channel to the analog channels

Enhancement: Added in flight start selection between RPM1/RPM2 (Start for

Hobbs/maintenance timer)

Enhancement: Serial out analog pressure unit is set to 0.1psi

Enhancement: Added fuel flow

Enhancement: Support added for the Rotax 912iS CAN unit

Enhancement: Support added for the UL Power engine using the RS232 protocol

Version 1.04 25/09/2019 (Franz Lamers)

Bug: Fixed the minimum volts causing a max values CRC error

Version 1.03 05/08/2019 (Franz Lamers)

Bug: Fixed CH3 and CH4 ADC values not displaying when NTC is selected for TC

Channels

Version 1.02 08/07/2019 (Franz Lamers)

Bug: Fixed RDAC current calibration resolution when under 10A

Bug: Made Analog Channels 3 and 4 = off when NTC is selected for CHT Channels

Enhancement: Increased MAP Cal band to 75

Bug: Fixed leap year time issue

Version 1.01 19/11/2018 (Franz Lamers)

Bug: Fixed the ADC Value display in the USER menus

Enhancement: Removed the vertical silver line if only CHTs are selected Enhancement: Moved the temperature unit if only CHTs or EGTS are selected

Version 1.00 20/01/2018 (Franz Lamers)

Initial release

FF-4 Firmware Revision

Version 1.11 17/05/2021 (Franz Lamers)

Enhancement: Changed backlight increment to 5% and 1% below 10%. Added backlight %

readout

Version 1.10 28/05/2020 (Franz Lamers)

Bug: Fixed manual speed entry if Tank1 and Tank2 set to sender

Bug: Fixed initial loading of fuel tank level when manually entering a fuel level

Version 1.09 20/04/2020 (Franz Lamers)

Enhancement: Added in serial communications

Enhancement: Added support for a new screen controller

Enhancement: General clean up

Version 1.08 30/01/2020 (Franz Lamers)

Bug: Fixed the fuel pressure voltage UMA N1EU07/T1EU07 Bar unit Version 1.07 29/06/2018 (Franz Lamers) ------Enhancement: Fuel tank bargraphs fit better when showing single flow, dual tanks Enhancement: Added X1000 to K-Factors Bug: Fixed 0.1L calculated tank fuel deduction Version 1.06 08/05/2018 (Franz Lamers) Bug: Fixed the fuel pressure user calibration ADC value not showing when using the internal ADC Enhancement: Added a 0.5-4.5V fuel pressure sender type Version 1.05 13/03/2018 (Franz Lamers) Enhancement: Added internal flash check function on startup Enhancement: Added display fuel pressure only mode Version 1.04 20/02/2018 (Franz Lamers) Bug: Fixed single level display not showing fuel level correctly Version 1.03 20/10/2017 (Franz Lamers) -----Enhancement: Enabled the dual fuel flow, dual calculated tanks mode Bug: Fixed up the display for the single fuel flow, dual tanks mode Version 1.02 27/09/2017 (Franz Lamers) Bug: Fixed the low caution multiplier under tank setup Bug: Removed the multiplier text for low alarm Version 1.01 18/09/2017 (Franz Lamers) ______ Bug: Fixed the security code not going over 255 Version 1.00 05/07/2017 (Franz Lamers) _____ Initial release ______ INFO-1 Firmware Revision Version 1.15 27/03/2022 (Franz Lamers) -----Bug: Extended the G-force dial 10G/-8G low alarm to -8G Version 1.14 29/09/2021 (Franz Lamers) -----Enhancement: Changed the G-force setup menu text Enhancement: Improved the G-force calibration method

Version 1.13 12/04/2021 (Franz Lamers)

Enhancement: Changed backlight increment to 5% and 1% below 10%. Added backlight % readout

Version 1.12 19/10/2020 (Franz Lamers)

Enhancement: Increased filter for slip indicator

Enhancement: Increased filter for volts

Enhancement: Increased filter for temperature

Enhancement: Increased filter for current

Enhancement: Removed split seconds on stop watch

Version 1.11 26/06/2020 (Franz Lamers)

Enhancement: Updated WMM tables

Version 1.10 20/04/2020 (Franz Lamers)

Enhancement: Added support for a new screen controller

Enhancement: General clean up

Version 1.09 07/03/2020 (Franz Lamers)

Enhancement: Added +9G/-6G & +10G/-8G G-Force scale

Enhancement: Added colored alarm and caution boxes around G-Force and G-Force max

min values

Enhancement: Added caution and alarm colored ticks to the G-Meter display

Enhancement: Changed High and Low alarm on/off to Caution/High

Version 1.08 29/01/2020 (Franz Lamers)

Bug: Fixed the current gain readout in the current menu when <10A

Enhancement: The current ADC values show when menu selection is over the zero and

gain menu options

Enhancement: Changed default current gain from 140 to 315

Version 1.07 18/10/2019 (Franz Lamers)

Bug: Fixed GPS SOG: nm to kts

Version 1.06 26/09/2019 (Franz Lamers)

Enhancement: Added GPS display on/off menu item

Version 1.05 18/09/2019 (Franz Lamers) _____

Enhancement: Added GPS info displays and menus

Bug: Fixed the minimum volts causing a max values CRC error

Enhancement: Added a dual G-Force meter scale (+5G/-3G and +10G/-6G)

Enhancement: Automatically syncs time from GPS when a valid fix has been achieved

Version 1.04 11/09/2019 (Franz Lamers)

Bug: Fixed the lightning charge bolt graphic to turn on >0A and not at 1A

Version 1.03 23/08/2019 (Franz Lamers)

Enhancement: Added a new G-Meter display plus new G-force menu items

Enhancement: Added communications and related menu items

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Version 1.02 09/05/2019 (Franz Lamers)
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Bug: Fixed the slip indicator ball showing the incorrect direction
Version 1.01 11/02/2019 (Franz Lamers)
Bug: Fixed leap year time issue
Version 1.00 21/05/2018 (Franz Lamers)
Initial release
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LASER-1 Firmware Revision
Version 1.04 24/05/2021 (Franz Lamers)
Enhancement: Changed backlight increment to 5% and 1% below 10%. Added backlight %
readout
Version 1.03 26/06/2020 (Franz Lamers)
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Enhancement: Added support for a new screen controller
Version 1.02 14/01/2019 (Franz Lamers)
Enhancement: Added support for the 10 byte communication format
Version 1.01 13/03/2018 (Franz Lamers)
Enhancement: Added internal flash check function on startup
Version 1.00 05/07/2017 (Franz Lamers)
Initial release
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MAP-3 Firmware Revision
Version 1.05 02/09/2021 (Franz Lamers)
Enhancement: Changed the hobbs minutes in the communication output to normal
minutes
Version 1.04 18/05/2021 (Franz Lamers)
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Enhancement: Changed backlight increment to 5% and 1% below 10%. Added backlight %
readout
Version 1.03 04/10/2020 (Franz Lamers)
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Enhancement: Added selection for decimal or normal hours to Hobbs Meter Version 1.02 20/04/2020 (Franz Lamers) -----Enhancement: Added in serial communications Enhancement: Added a flight log Enhancement: Added Hobbs/Maintenance start selection Enhancement: Added support for a new screen controller Enhancement: General clean up Version 1.01 13/03/2018 (Franz Lamers) -----Enhancement: Added internal flash check function on startup Enhancement: Added a programmable label to the TEMP setup ***Load default settings if upgrading from an earlier version*** Version 1.00 10/08/2017 (Franz Lamers) ______ Initial release ______

RPM-1 Firmware Revision

Version 1.11 02/09/2021 (Franz Lamers)

Enhancement: Changed the hobbs minutes in the communication output to normal minutes

Version 1.10 18/05/2021 (Franz Lamers)

Enhancement: Changed backlight increment to 5% and 1% below 10%. Added backlight % readout

Version 1.09 04/10/2020 (Franz Lamers)

Enhancement: Added selection for decimal or normal hours to Hobbs Meter

Version 1.08 20/04/2020 (Franz Lamers)

Enhancement: Added in serial communications

Enhancement: Added a flight log

Enhancement: Added Hobbs/Maintenance start selection Enhancement: Added support for a new screen controller

Enhancement: General clean up

Version 1.07 26/02/2019 (Franz Lamers)

Enhancement: Added in 2 Engine/Rotor display screens Enhancement: Added in Engine/Rotor left/right selection

Enhancement: Added in flight start selection between RPM1/RPM2, Engine/Rotor (Start for Hobbs/maintenance timer)

Version 1.06 09/09/2018 (Franz Lamers)

Enhancement: Improved the Rotor/RPM screen

Version 1.05 13/03/2018 (Franz Lamers)

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Enhancement: Added internal flash check function on startup

Version 1.04 18/09/2017 (Franz Lamers)

Bug: Fixed the security code not going over 255

Version 1.03 09/08/2017 (Franz Lamers)

Bug/Enhancement: Hobbs/Maintenance timer message to show only once if CRC error and

init Hobbs/Maintenance to default values

Enhancement: Defaulted maintenance timer to 10 Hours

Version 1.02 03/08/2017 (Franz Lamers)

Bug: Fixed highlighting of the label menu option
Bug: Fixed the RPM2 display minimum not decrementing

Version 1.01 15/07/2017 (Franz Lamers)

Bug: Fixed the manual/auto flight detect showing the T/O RPM menu option Enhancement: Highlighted the max values according to high alarm/caution etc.

Version 1.00 06/07/2017 (Franz Lamers)

Initial release

TC-4 Firmware Revision

Version 1.10 20/05/2021 (Franz Lamers)

Enhancement: Changed backlight increment to 5% and 1% below 10%. Added backlight % readout

Version 1.09 04/03/2021 (Franz Lamers)

Bug: Fixed CJC showing degree F in the calibration menu

Version 1.08 20/04/2020 (Franz Lamers)

Enhancement: Added support for a new screen controller

Enhancement: General clean up

Version 1.07 12/10/2018 (Franz Lamers)

Enhancement: Added in serial communications

Version 1.06 19/06/2018 (Franz Lamers)

Bug: Fixed the max reset if using the vertical/horizontal display mode (Bug introduced in ver 1.05)

Version 1.05 17/05/2018 (Franz Lamers)

Bug: Fixed max values egt/cht color flashing limits Enhancement: Added seperate EGT and CHT trend graphs

Version 1.04 13/03/2018 (Franz Lamers)

Enhancement: Added internal flash check function on startup

Version 1.03 18/09/2017 (Franz Lamers)

Bug: Fixed the security code not going over 255

Version 1.02 29/08/2017 (Franz Lamers)

Bug: Removed the additional y character shown when editing the label field

Version 1.01 03/08/2017 (Franz Lamers)

Bug: Fixed highlighting of the label menu option Enhancement: Changed green bar color to lime

Enhancement: Removed silver border around bars and slider

Enhancement: Cleaned up some ADC internals

Version 1.00 28/06/2017 (Franz Lamers)

Initial release

TP-3 Firmware Revision

Version 1.07 17/05/2021 (Franz Lamers)

Enhancement: Changed backlight increment to 5% and 1% below 10%. Added backlight % readout

Version 1.06 20/04/2020 (Franz Lamers)

Enhancement: Added in serial communications

Enhancement: Added support for a new screen controller

Enhancement: General clean up

Version 1.05 14/02/2020 (Franz Lamers)

Enhancement: Added UMA senders N1EU70, T1EU70, N1EU70A, T1EU70A, N1EU150, T1EU150

Version 1.04 03/02/2020 (Franz Lamers)

Bug: Fixed the pressure voltage UMA N1EU07/T1EU07 Bar unit

Enhancement: The current ADC values show when menu selection is over the zero and

gain menu options

Enhancement: Changed default current gain from 100 to 315

Version 1.03 18/09/2019 (Franz Lamers)

Bug: Fixed the minimum volts causing a max values CRC error

Version 1.02 16/10/2018 (Franz Lamers)

Bug: Fixed the LM335 cal factor when loading default settings

Version 1.01 03/08/2018 (Franz Lamers)

Enhancement: Changed the pressure display values to maximum 999

Version 1.00 16/03/2018 (Franz Lamers)

Initial release