maxAI130 Configuration Software v2

Operation Manual

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Scope and Use of This Manual

…provide the reader with enough background information to understand the overall installation and operation of the maxAI130 configuration software…

The intent of this manual is to provide the reader with all the information required to install and operate the maxAI130 configuration software.

The user is expected to have a basic knowledge of the vehicle's operating parameters normally displayed on an instrument cluster, such as engine RPM, vehicle speed, engine temperature, transmission temperature, engine oil pressure, transmission oil pressure, etc.

maxAI130 Configuration Software allows the user to configure the maxAI130 display via a user friendly, easy to operate PC interface. The software allows the user to modify and configure up to 12 screens with vehicle parameters.

Once configuration is set on the software, the new configuration is transferred to the display by CAN connection.
NOTE: The software version on the maxAI130 should be 0.3.0.0 or higher.

Installation Instructions

System Requirements

Component	Recommended	Minimum
Processor	Intel Compatible (x86) >2GHz >2 Cores	Intel Compatible (x86) >1GHz >2Cores
Memory(RAM)	8G	4GB
Hard drive capacity	>100GB	Defined by OS minimum
USB	2.0 or 3.0	1.1
Operating System	Windows 10 (>Version 1709)	

PC Tool Application Installation

PC Tool Application can be downloaded from maximatecc website:

www.maximatecc.com

Getting Started

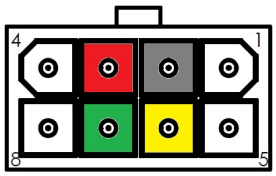
Required Hardware

The Configuration Software speaks to the maxAI130 display via PEAK PCAN USB interface, IPEH-002021 or IPEH-002022.

The software version on the maxAI130 should be 0.3.0.0 or higher.

The required connections to the maxAI130 display are:

Pin	Name	Connection	
2	GND	POWER GROUND PIN 0V	
3	IGNITION	POSITIVE POWER PIN 12V or 24V	
6	CAN HIGH	CAN BUS HIGH, PIN 7 ON PEAK PCAN ADAPTER	
7	CAN LOW	CAN BUS LOW, PIN 2 ON PEAK PCAN ADAPTER	



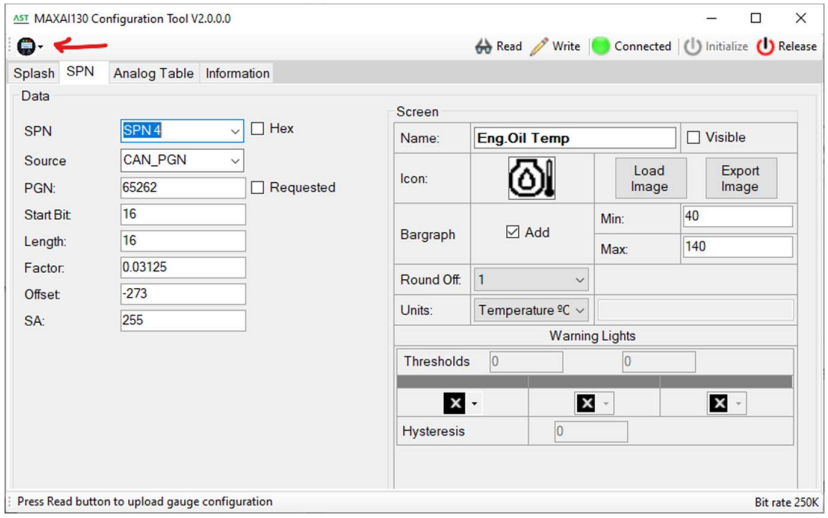
Connect PC→PCAN→Adapter Harness/Power Supply→maxAI130 Display

PC with Software

PEAK USB CAN Adapter

Main Menu

File Menu



To access the **File** menu click on the dropdown icon of the gauge on the top left corner.

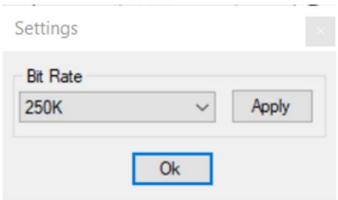
Click **Open** to open an xml file with a stored configuration.

Click **Save** to store the tool configuration in a file.

Click **Save As** to store the tool configuration in a file with a different name.

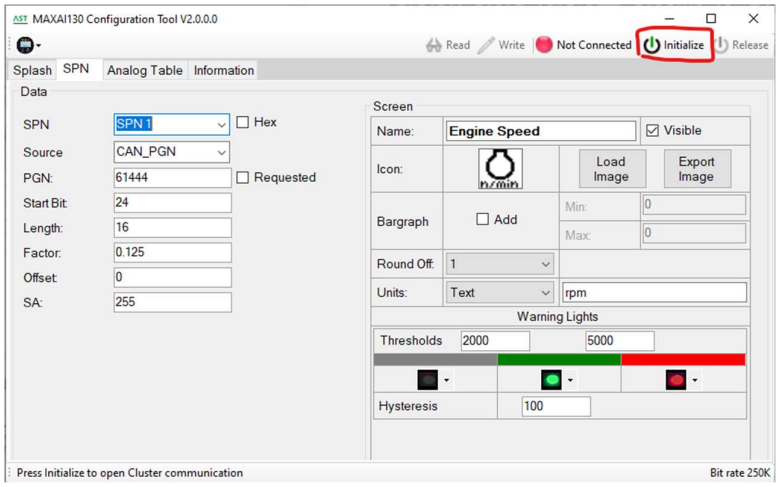
Settings Menu

In this menu the baudrate can be selected. The options are 125, 250 and 500 kbps. After changing the baudrate the instrument will implement it after a power up cycle.

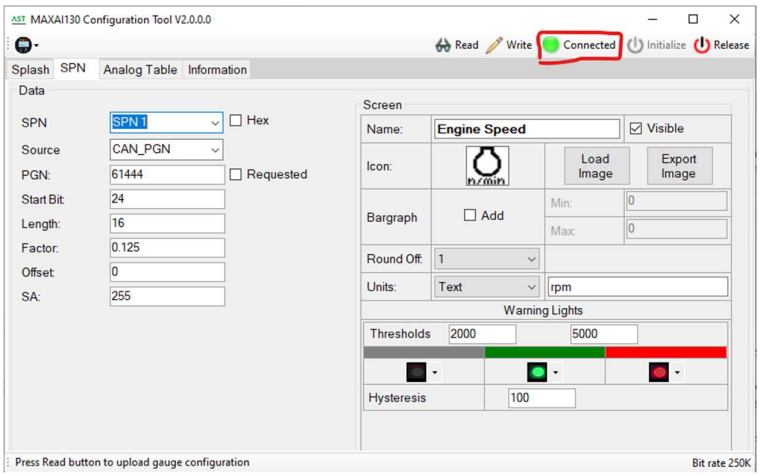


Communication

Connecting with CAN



After connecting all hardware with a USB PCAN adapter and opening Configuration software, establish communication by pressing the **Initialize** button.
Once the successfully communication has been stablished the **Connected** status will be shown in the tool.



After the connection the **Read** and **Write** buttons become active.

Press **Read** to retrieve all the contents of the connected gauge and display them in the tool. If the Splash screen must be included in the data transfer, select the **Update on Read/Write** box in the Splash tab.

Press **Write** to transfer to the display all the data contents present in the tool. If the Splash screen must be included in the data transfer, select the **Update on Read/Write** box in the Splash tab.

Configuration Software Navigation

The configuration Software is broken down into 4 tabs with options or sub tabs under each item as follows:

1. Splash

- Load Image
- Export Image
- Update on Read/Write

2. SPN
    - Data
        - SPN
        - Source
        - PGN
        - Start Bit
        - Length
        - Factor
        - Offset
        - SA
    - Screen
        - Name
        - Visible
        - Icon
        - Bargraph
        - Round Off
        - Units
    - Warning Lights
        - Thresholds
        - LEDs
        - Hysteresis
3. Analog Table
    - Select
    - Analog Data
4. Information
    - SW Version
    - Part Number
    - Firmware Update

Setting Up Display Configuration

Information

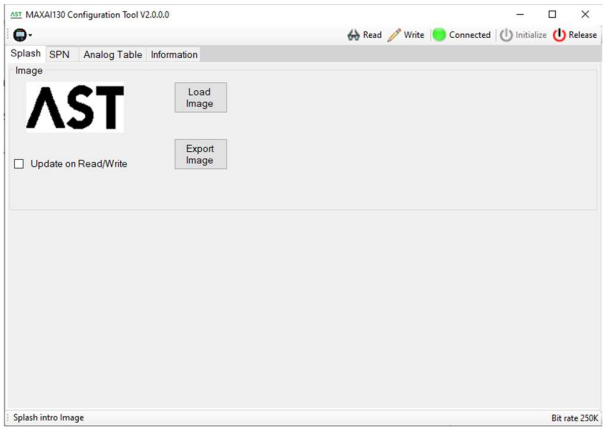
The **Information** tab will allow you to read and set basic display functions.

SW Version displays the software version read from the unit.

Part number displays the part number model of the display.

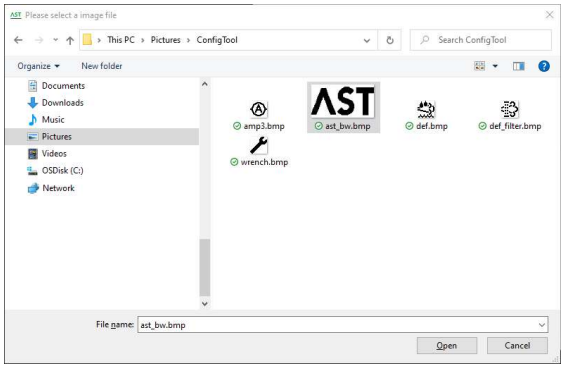
Firmware with the Update Button the user can upload a new version of firmware to the gauge.

Splash



To add the Splash screen to the read and write processes check the box **Update on Read/Write**. Otherwise the Splahs changes will be ignored.

To change the cluster splash screen, select the **Load Image** button.

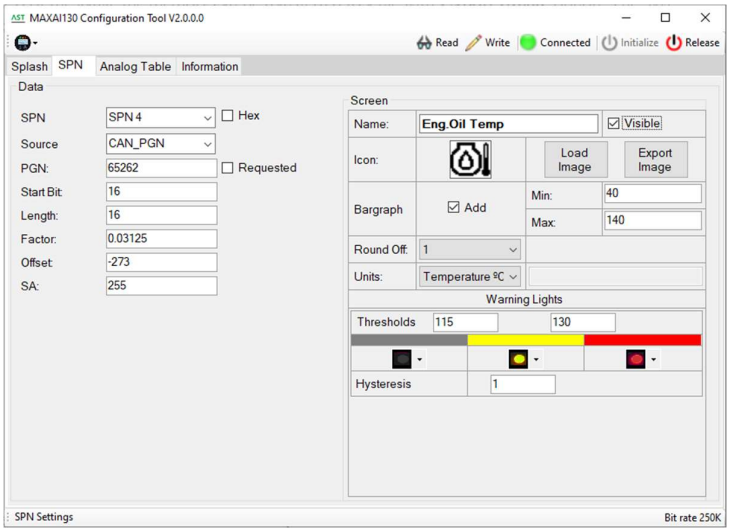


Select the file to be used for the new splash screen. Make sure to choose an image that is sized to 106 x 56.

Once the new image is selected, it will show up on the screen. At this point, the new splash screen will be ready to be transferred to the display once the **Write** process is started.

To read the Splash screen already in the display the box **Update on Read/Write** must be checked. Then after a **Read** process of the gauge the memory can be transferred to a file with **Export Image** option. The Save Image File dialog will open. Click **Save** to store the file at the desired location.

SPN



This tab sets the 12 available data screens. Each screen represents a single SPN.

SPN: this field controls the data screen. Use the drop-down menu to choose the SPN from 1 to 12.

The Source field sets where the data for the screens comes from. The available options are:

NOT USED – This selection makes the data screen as not available.

ANALOG INPUT1 – This sets the source as a resistive sender connected to Input 1 pin of the gauge.

ANALOG INPUT2 – This sets the source as a resistive sender connected to Input 2 pin of the gauge.

ANALOG INPUT3 – This sets the source as a voltage (0-5V) sender connected to Input 3 pin.

ANALOG INPUT4 – This mode is not currently available.

CAN PGN – This sets the source as the messages received in the CAN Bus. This is the **default** mode.

CAN SIGNED 16 – Special case for data received with signed integer of 16 bits.

In case of CAN PGN Source selection the following fields will be used to define the CAN message.

PGN: This is the Parameter Group Number according to J1939 that contains the data to be displayed in the screen.

Start Bit: This defines the start bit within the frame of the piece of information to be displayed.

Length: This sets the length for the data starting from the Start Bit defined before.

Factor: This sets the resolution of the units for each bit.

Offset: This sets if there is an offset between the value on the screen and the data content.

SA: This field defines if the source of the data has to come from a specific source address. Set to 255 (0xFF) if all sources must be attended.

EXAMPLE:

Transmission Oil Temperature SPN has the following definition. It is placed in the PGN 65272, starting after the fourth byte (32 bits) with length 2 bytes (16 bits). The resolution or factor is 0.03125 ºC each bit with an offset of -273 because it is transmitted in Kelvin.

SPN 177 ***Transmission Oil Temperature***

Temperature of the transmission lubricant.

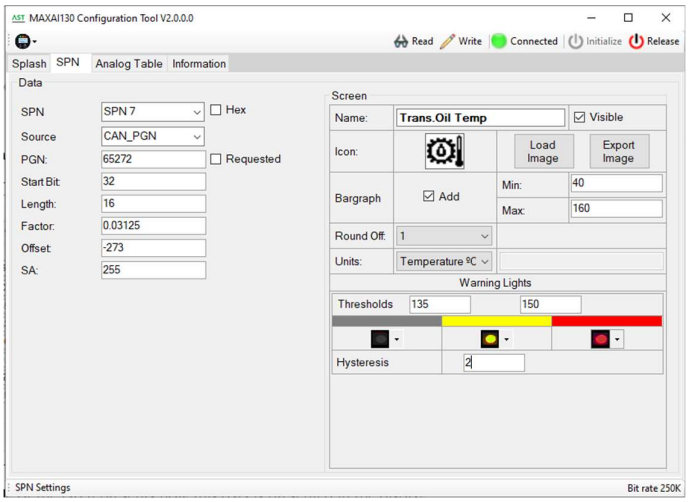
Data Length:	2 bytes	
Resolution:	0.03125 deg C/bit, -273 deg C offset	
Data Range:	-273 to 1734.96875 deg C	Operational Range: same as data range
Type:	Measured	
Supporting Information:		
PGN reference:	65272	

PGN 65272 ***Transmission Fluids 1***

Transmission Repetition Rate:	1 s
Data Length:	8
Extended Data Page:	0
Data Page:	0
PDU Format:	254
PDU Specific:	248 PGN Supporting Information:
Default Priority:	6
Parameter Group Number:	65272 (0x00FEF8)

Start Position	Length	Parameter Name	SPN
1	1 byte	Clutch Pressure	123
2	1 byte	Transmission Oil Level	124
3	1 byte	Transmission Filter Differential Pressure	126
4	1 byte	Transmission Oil Pressure	127
5-6	2 bytes	Transmission Oil Temperature	177
7	1 bytes	Transmission Oil Level High / Low	3027
8.1	4 bits	Transmission Oil Level Countdown Timer	3028
8.5	4 bits	Transmission Oil Level Measurement Status	3026

Therefore this SPN is configured in the gauge as follows.



The right side of the tab represents how this data is presented in the display.

Name: This sets the title of the data screen.

Icon: In this section the user can load the desired icon for the screen. The file must have a resolution 24 x 24 pixels (bmp, pgn or bmp). It is also possible to export the current icon into a file.

Bargraph: This sets the optional bargraph. If the box is selected, the gauge will show a bargraph with 10 sectors from the **Min**: to the **Max**: values.

Round Off: This controls the resolution of the measurement. This will be the minimum step shown on screen.

Units: This controls the type of units of the information presented in the SPN. The available options are:

Text	This is a free configurable Text in the box to the right.
Temperature ºC	The units are ºC and they will converted if Imperial mode is used.

Pressure kPa	The units are kPa and they will be converted if PSI or BAR is used.

In the bottom right side of the tab we find the settings for the warning lights for that particular SPN.

Thresholds: There can be different LEDs status in three ranges of the data value. In this fields the user can set the thresholds for those three ranges. The thresholds must be between the **Min** and **Max** values defined in the same SPN.

LEDs: In this section the color status can be set. Also it can be configured as not used. In that case the LEDs will be off.

Hysteresis: The hysteresis value for the thresholds can be set here.

Analog Table

This tab controls the curves for the data if one of the Analog Input pins are used. There are four tables, one for each input pin. Currently the hardware supports resistive senders in inputs 1 and 2, and a voltage sender from 0 to 5V at input 3.

The data in the table fields will be Ohms for the Inputs 1 and 2 or millivolts for the Input 3.

The value at index Table(0) will correspond to the value written in the **Min**: field in the Bargraph section of the SPN tab. The value at index Table(10) will correspond to the **Max**: field in the same Bargraph section.

All the other indexes will be equally spaced from **Min** to **Max**.