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**Cluster General Requirement**

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目录

[1 概要/ Overview 5](#_Toc66366462)

[2 定义范围/ Scope of Definition 5](#_Toc66366463)

[3 源数据/ Source Data 6](#_Toc66366464)

[4 基础信息/ Basic Information 6](#_Toc66366465)

[4.1 速度/ Speed 7](#_Toc66366466)

[4.1.1 车速表/ Speedometer Gage 7](#_Toc66366467)

[4.1.2 车速值/ Digital Speed Display 8](#_Toc66366468)

[4.2 转速/ Tachometer (ICE only) 8](#_Toc66366469)

[4.3 剩余能量/ Residual energy 9](#_Toc66366470)

[4.3.1 油表/Fuel Level Gage (ICE only) 10](#_Toc66366471)

[4.3.2 电量/Battery(BEV only) 10](#_Toc66366472)

[4.3.2.1 电量表/ Hybrid Battery State of Charge Gage 11](#_Toc66366473)

[4.3.2.2 电量信息/ Hybrid Customer State of Charge Page 11](#_Toc66366474)

[4.3.3 剩余里程/Fuel Range/Electric Range 11](#_Toc66366475)

[4.4 行驶里程/ Odometer 12](#_Toc66366476)

[4.4.1 全生命周期的行驶里程/Odometer 12](#_Toc66366477)

[4.4.2 旅行里程（小计里程）/Trip Odometer 13](#_Toc66366478)

[4.4.3 当前里程/Current Trip 13](#_Toc66366479)

[4.5 挡位/ Gear 14](#_Toc66366480)

[4.6 时间和日期/ Time and Date 15](#_Toc66366481)

[4.7 航向/罗盘/ Heading/Compass 16](#_Toc66366482)

[4.8 车外温度/ Exterior temperature 16](#_Toc66366483)

[4.9 限速信息/ Speed limit 17](#_Toc66366484)

[4.9.1 限速标志/Speed limit 17](#_Toc66366485)

[4.9.2 超速警示/Overspeed Warning 17](#_Toc66366486)

[4.10 3D小车模型/3D Car Model 18](#_Toc66366487)

[4.11 充电页面/Peek-in Screen 25](#_Toc66366488)

[4.12 功率表/Power Gage(BEV only) 27](#_Toc66366489)

[5 深度信息/ Depth Information 28](#_Toc66366490)

[5.1 能耗信息/ Energy Consumption Information 28](#_Toc66366491)

[5.1.1 瞬时油耗/ Instantaneous Fuel Consumption (ICE only) 29](#_Toc66366492)

[5.1.2 平均油耗/ Average Fuel Consumption (ICE only) 29](#_Toc66366493)

[5.1.3 平均车速/ Average Vehicle Speed 30](#_Toc66366494)

[5.1.4 可变缸信息/ CLEA: Displacement on Demand (DOD) & GB: Active Fuel Management Page (ICE only) 30](#_Toc66366495)

[5.1.5 ~~ECO指数&~~效率显示/~~Eco Index &~~ Efficiency Display [Only GB] 31](#_Toc66366496)

[5.1.6 最高耗能设备/Top Fuel Consumer of Fuel Page (ICE only) 32](#_Toc66366497)

[5.1.7 油耗趋势/ Fuel Consumption Trend (ICE only) 33](#_Toc66366498)

[5.1.8 最佳油耗/ AFE Best/Fuel Economy (ICE only) 33](#_Toc66366499)

[5.1.9 电量消耗/ Energy Usage (BEV only) 34](#_Toc66366500)

[5.1.10 电耗趋势/ Energy Trend (BEV only) 35](#_Toc66366501)

[5.2 车况信息/ Vehicle Status 35](#_Toc66366502)

[5.2.1 机油寿命/ Oil Life (ICE only) 35](#_Toc66366503)

[5.2.2 PM2.5滤网寿命/ PM2.5 Filter Life (only 458) 36](#_Toc66366504)

[5.2.3 刹车片寿命/ Brake Pad Life 36](#_Toc66366505)

[5.2.4 变速箱油寿命(Deleted)/ Transmission Fluid Life(Deleted) 37](#_Toc66366506)

[5.2.5 发动机空气滤芯寿命/ Engine Air Filter Life (ICE only) 37](#_Toc66366507)

[5.2.6 燃油滤清器寿命/ Fuel Filter Life (ICE only) 38](#_Toc66366508)

[5.2.7 发动机冷却液温度/ Engine Coolant Temperature (ICE only) 39](#_Toc66366509)

[5.2.7.1 发动机冷却液温度表盘/ Coolant Temperature Gauge 39](#_Toc66366510)

[5.2.7.2 数值式发动机冷却液温度/ Digital Coolant Temperature 40](#_Toc66366511)

[5.2.8 变速箱油温度/ Transmission Fluid Temperature 40](#_Toc66366512)

[5.2.9 蓄电池电压/ Battery Voltage 41](#_Toc66366513)

[5.2.9.1 蓄电池电压表盘/ Battery Gauge 41](#_Toc66366514)

[5.2.9.2 数值式蓄电池电压/ Digital Battery Voltage 41](#_Toc66366515)

[5.2.10 胎压/ Tire Pressure 42](#_Toc66366516)

[5.2.11 发动机运转和怠速时间/ Hourmeter and Idlemeter (ICE only) 42](#_Toc66366517)

[5.2.12 机油压力/Oil Pressure 43](#_Toc66366518)

[5.2.12.1 机油压力表盘/ Oil Pressure Gauge 43](#_Toc66366519)

[5.2.12.2 数值式机油压力/ Digital Oil Pressure 43](#_Toc66366520)

[5.2.13 机油温度/Oil Temperature [Only GB] 44](#_Toc66366521)

[5.3 性能信息/ Performance Monitor [Only GB] 44](#_Toc66366522)

[5.3.1 动态加速度/G-Force 44](#_Toc66366523)

[5.3.2 涡轮压力/Turbo Pressure 45](#_Toc66366524)

[5.3.3 发动机扭矩/Engine Torque Display Page 45](#_Toc66366525)

[5.3.4 踏板行程/ Pedal Stroke 45](#_Toc66366526)

[5.3.5 机油压力/Oil Pressure 46](#_Toc66366527)

[5.3.6 机油温度/Oil Temperature(~~TBD~~ Deleted) 46](#_Toc66366528)

[5.4 驾驶辅助（ADAS）相关信息/ ADAS Related Information 46](#_Toc66366529)

[5.4.1 跟车距离和时间指示/ Following Distance and Time Indication 46](#_Toc66366530)

[5.4.2 ACC自动设定速度/ ACC Auto Set Speed (Deleted) 47](#_Toc66366531)

[5.5 其他信息/ Other Information 47](#_Toc66366532)

[5.5.1 单位/ Unit 47](#_Toc66366533)

[5.5.2 语言/ Language 48](#_Toc66366534)

[6 多屏互动/ Multi-screen Interaction 48](#_Toc66366535)

[6.1 多媒体/ Multimedia 48](#_Toc66366536)

[6.2 导航/ Navigation 49](#_Toc66366537)

[6.2.1 地图展示/ Map Presentation 50](#_Toc66366538)

[6.2.2 信息展示/ Information Presentation 50](#_Toc66366539)

[6.2.3 仪表控制/ Instrument cluster Control 50](#_Toc66366540)

[6.3 电话/ Call 50](#_Toc66366541)

[6.4 天气/ Weather 51](#_Toc66366542)

[6.5 Reminder提醒（Deleted） 52](#_Toc66366543)

[6.6 驾驶行为评价/ Driving Behavior Analysis 52](#_Toc66366544)

[6.7 HUD调节指引/ HUD Adjustment Guidance 53](#_Toc66366545)

[7 其他功能/ Other Features 53](#_Toc66366546)

[7.1 仪表视觉/ Visual Features of Instrument cluster 53](#_Toc66366547)

[7.2 Early HMI、欢迎动画及开机动画/ Early HMI, Welcome Animation and Boot Animation 53](#_Toc66366548)

[7.3 异常处理/ Exception Handling 54](#_Toc66366549)

[7.4 仪表设置项/ Instrument cluster Settings 55](#_Toc66366550)

[7.4.1 仪表限速开关及限速来源与限速重置/ Instrument cluster Speed Limit Switch and Reset of Speed Limit 55](#_Toc66366551)

[7.4.2 超速警示开关/ Overspeed Warning Switch 56](#_Toc66366552)

[7.4.3 仪表模式的切换/ Mode Switching of cluster 56](#_Toc66366553)

[7.4.4 车速的显示方式/ Display mode for vehicle speed 56](#_Toc66366554)

[7.4.5 导航信息显示开关/ Navi info switch 56](#_Toc66366555)

[7.5 功能安全/Function Safety 57](#_Toc66366556)

[7.6 不同整车Power Mode下仪表的显示内容/Content shown on cluster in different Power Mode 57](#_Toc66366557)

[8 系统需求/System Requirements 59](#_Toc66366558)

[8.1 账号相关/Account 59](#_Toc66366559)

[8.2 应用内设置/In-application Setting 59](#_Toc66366560)

[8.3 外部调用/External Call 59](#_Toc66366561)

[8.4 数据维护/Data Maintenance 59](#_Toc66366562)

[8.5 版本升级/Version Upgrade 59](#_Toc66366563)

[8.6 埋点需求/Event Tracking Requirements 59](#_Toc66366564)

[8.7 相关CAN信号/Related CAN Signals 59](#_Toc66366565)

[8.8 相关标定项/Related Calibration Items 60](#_Toc66366566)

[**Revision Log** 61](#_Toc66366567)

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# 概要/ Overview

仪表盘（Cluster，以下简称IPC）是虚拟座舱系统（以下简称VCS）偏向驾驶员侧的一块显示区域，便于驾驶员快捷查看信息，这些信息包括基础信息、深度信息、多屏交互信息等。

Cluster (IPC) is a display area leaning to the driver side in the virtual cockpit system (VCS), which is convenient for the driver to quickly view the information, including basic information, depth information and multi-screen interaction information.

# 定义范围/ Scope of Definition

本文档对IPC需要显示的基础信息、深度信息及多屏互动信息进行了定义。

This document defines the basic information, depth information and multi-screen interaction information that the IPC needs to display.

本文档仅定义VCS中国区别克车型，包括以下车型：458, B233/223-S, E2LB-2-S, E2UB/YB-S, C1YB-2-S。

This document only define VCS Buick of China Region, including: 458, B233/223-S, E2LB-2-S, E2UB/YB-S, C1YB-2-S.

关于IPC的Telltale相关定义请参考PIS-2062 Cluster Telltale Requirement。

For the definition of IPC Telltale, please refer to PIS-2062 Cluster Telltale Requirement.

关于IPC的Warning相关定义请参考PIS-2069 Cluster Warning Requirement。

For the definition of IPC Warning, please refer to PIS-2069 Cluster Warning Requirement.

关于IPC的Network Management、Power Mode、Dimming、诊断等定义请参考系统设计文档。

For the definition of IPC Network Management, Power Mode, Dimming and Diagnosis, please refer to System Design Document.

本文档仅定义仪表显示相关内容，与显示内容无关的内容不在本文档定义。

This document only includes the display content. The content which has nothing to do with display content is not defined in the spec.

本文档中各功能的适配情况应通过标定控制，软件应以最大集实现平台软件。例如标明了GB Only的功能，如果CLEA的ODI也支持，软件可根据实际情况自行选择集成与否。多集成的优势：以后若有新的项目需要这个功能时不需要改软件，只需要改标定。

The adaptation of each function in this document shall be controlled by calibration, and the software shall realize the platform software with the maximum set. For example, it indicates the function of GB only. If the ODI of CLEA also supports it, the software can choose whether to integrate or not according to the actual situation. Advantages of integrating more functions: when new projects need this function in the future, no need to change the software, just need to change the calibration.

# 源数据/ Source Data

~~关于本文档功能的相关总线源数据取用请参考Clea Family Infotainment Connectivity Electrical Interface。~~

~~For the relevant bus source data access of the functions in this document, please refer to Clea Family Infotainment Connectivity Electrical Interface.~~

源数据见各功能描述。

See each function for source data.

# 基础信息/ Basic Information

本章节规定了VCS系统仪表侧所提供显示的基础信息。通常这一类信息在仪表不同显示形式下都将得到保留，具体显示层级及形式请参考交互设计文档。

This section specifies the basic information to be displayed on the instrument cluster side of the VCS system. Generally, such information will be retained in different display forms of the instrument cluster. Please refer to the Interaction Design Document for the specific display layers and forms.

仪表支持以下视图：

The instrument cluster supports the following views:

* 标准
* Gauge
* 地图
* Map
* 驾驶辅助
* ADAS
* 极简
* Stealth
* BEV视图（仅Global B BEV）
* BEV View (only Global B BEV)

每个视图显示的信息请参考交互设计文档。

Please refer to the interaction design document for the information displayed in each view.

视图支持切换，对应本文档7.4.3章节，切换方式请参考交互设计文档。

View switching is supported, corresponding to section 7.4.3 of this spec. Please refer to the Interaction Design Document for the switching mode.

每一次整车休眠（Sleep）后，再次启动时需恢复休眠前的视图。

The view before vehicle sleep will be resumed each time the vehicle is started from sleep.

驾驶辅助视图的具体功能请参考PIS-2081。

Please refer to PIS-2081 for Driver Assistant View.

仪表需要配合彩蛋头等舱模式的显示，彩蛋头等舱模式开启时，仪表的视图应主动切换为驾驶辅助视图，具体参考PIS-2100的3.4.1.1章节。

Instrument Cluster needs to cooperate with the display of EasterEggs First-class mode. When the EasterEggs First-class mode are on, the view of the instrument should be switched to the driver assistant view. For details, please refer to section 3.4.1.1 of PIS-2100.

以下所有内容都应考虑到故障显示。针对表盘，一般显示为表盘最低位置/最小位置；针对非表盘内容，以UE文档设计为准。

All of the following should take into account the fault display. For gage, it is generally displayed as the lowest position / minimum position of dial; for non-gage content, it is subject to UE document design.

本文档中如提到某个指示灯触发，某个内容需要特殊显示，应不包括指示灯在Bulb Check的情况。

If it is mentioned in this document that a certain indicator is triggered and a certain content needs special display, the situation of indicator in bulb check should not be included.

## 速度/ Speed

系统应当支持显示车辆当前行驶速度，包括车速表（Gage）和车速值（Display）。

The system shall support the display of current vehicle speed, including Speedometer Gage and Digital Speed Display.

显示速度时需显示单位“km/h”，对应PIS-2062的3.41章节。

When displaying the speed, the unit "km / h" should be displayed, corresponding to section 3.41 of PIS-2062.

### 车速表/ Speedometer Gage

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

CLEA参考PIS-2085中3.2.1.9.7 Speedometer Gage。GB参考CTRS中3.1.254 Speedometer Gage。

Refer to Section 3.2.1.9.7 Speedometer Gage for CLEA. Refer to Section 3.1.254 Speedometer Gage.

速度的显示范围应当能够包含对应车型的最高车速。车速表指针实际位置以及最高车速标定参考PIS-2085（CLEA）和GB IPC CTRS中的定义。

The speed display range shall be able to include the maximum vehicle speed of the corresponding model. For the actual position of the pointer and the maximum vehicle speed calibration, please refer to PIS-2085 (CLEA) and GB IPC CTRS.

最高车速和标度值策略如下：

The strategy of max speed and interval are as follows:

|  |  |  |
| --- | --- | --- |
| 车型最高车速范围  Max Speed of model | 仪表表显最高车速策略  Max Value of Speedometer | 标度值策略  Interval |
| 不超过180km/h（含180km/h）  Below / Equal to 180km/h | 车型最高车速+20km/h并向上取整到20的倍数  Max Speed of model +20km/h and rounded up to a multiple of 20 | 标度值间隔20km/h显示  Interval shall be 20km/h |
| 超过180km/h  Over 180km/h | 车型最高车速+20km/h并向上取整到30的倍数  Max Speed of model +20km/h and rounded up to a multiple of 30 | 0-120km/h区间标度值间隔20km/h显示  高于120km/h区间标度值间隔30km/h显示  Interval shall be 20km/h of 0-120km/h  Interval shall be 30km/h of over 120km/h |

车速表单位在中国范围内应当保持km/h，不支持单位切换。

The speedometer unit shall be kept in km/h within China, and unit switchover is not supported.

不同车型的车速最大值如下（实际值，应对应表显策略计算表显最大值），仅作参考，具体以标定为准：

The maximum speed of different programs are as follows (actual value, shall calculate based on the strategy above for speedometer). For reference only, specific subject to the calibration.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 项目/Program | 458 | B233/B223 | E2LB-2(1.5T) | E2LB-2(2.0T) |
| 最高车速/Max Speed (km/h) | 195 | 180 | 205 | 230 |

### 车速值/ Digital Speed Display

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

CLEA参考PIS-2085中3.2.1.14.36 Digital Speed Display章节。GB参考CTRS中3.1.534 Digital Speed Display章节。

Refer to Section 3.2.1.14.36 Digital Speed Display of PIS-2085 for CLEA. Refer to Section 3.1.534 Digital Speed Display of CTRS for GB.

车速值精度1km/h。

The digital speed display shall be accurate to 1km/h.

## 转速/ Tachometer (ICE only)

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

系统应当支持在非BEV3车型上显示车辆当前转速信息。CLEA参考PIS-2085中3.2.1.9.8 Tachometer章节。GB参考CTRS中3.1.253 Tachometer章节。

The system shall support the display of current vehicle RPM information on non-BEV3 models. Please refer to Section 3.2.1.9.8 Tachometer of PIS-2085 for CLEA. Please refer to Section 3.1.253 Tachometer of CTRS for GB.

转速显示可能包括转速表、转速值、转速条等。

The RPM display may include tachometer, RPM value, rpm bar, etc.

转速表的最大刻度间隔应当不超过500RPM。转速表应当能够包含自动启停功能状态的展示，自动启停状态参考PIS-2062的3.43章节（indicator #89）。当系统处于自动启停状态，转速指示应为0或AutoStop。当收到的值超过转速表范围，应显示为最大值。

The maximum interval of tachometer shall not be more than 500RPM. The tachometer shall be able to contain a display of the status of automatic start/stop function, and refer to section 3.43 (Indicator #89) of PIS-2062. When it’s autostop status, the tachometer shall point to 0 or AutoStop. If the value received is more than the maximum value specified, the needle will point to the maximum position on the gauge.

每辆车应当有其标定的最大转速，指针实际位置以及最高转速标定参考PIS-2085（CLEA）和GB IPC CTRS中的定义。

Each vehicle shall have its calibrated maximum RPM. For the actual position of the pointer and the maximum RPM calibration, please refer to PIS-2085 (CLEA) and GB IPC CTRS.

仪表上显示的转速范围为0-8000RPM（TBD），需显示转速单位RPM，并根据标度值标明系数，如“x1000”。允许不同驾驶模式下转速显示的范围不同。

The scope of Tachometer shown on cluster is 0-8000RPM (TBD). Need to show unit RPM, and show coefficient such as “x1000”. It is applicable to use different speed display ranges for different driving modes.

转速存在红线转速，参照标定*P\_DIC\_TACH\_REDLINE*，默认为6500RPM。

There is tachometer redline. Refer to *P\_DIC\_TACH\_REDLINE*, and 6500RPM by default.

相关定义请参考PIS-2056 Performance Monitor的3.2章节。

For relevant definitions, please refer to Section 3.2 of PIS-2056 Performance Monitor.

## 剩余能量/ Residual energy

系统应当支持显示车辆当前剩余燃油/电量，信号层面读取到的是剩余燃油/电量比例及剩余里程，剩余燃油/电量的显示应当至少包含这两个层面的信息。

The system shall support the display of the vehicle's current residual fuel/power. What is read on the signal layer is the residual fuel/power ratio and the remaining range, and the display of the residual fuel/power shall contain at least the information of these two layers.

### 油表/Fuel Level Gage (ICE only)

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

油表旁边需要配有形状与“燃油低位”指示灯相同的指示灯，用以指示该表为油表，同时该指示灯需要指示油箱位置（左/右）。建议该指示灯与燃油低位指示灯合并显示，即在燃油低位未触发时，指示灯为白色；燃油低位触发时，指示灯（油箱位置小箭头除外）为Amber色。燃油低位指示灯和油箱位置标定参考PIS-2062的3.9章节。显示方式具体参考UE交互文档。

An indicator with the same shape as the "fuel low" indicator is required next to the gauge to indicate that the gauge is a fuel gauge and that indicator is required to indicate the location of the tank (Left/Right). It is suggested that the indicator light be displayed together with the fuel low indicator light. That is, when the fuel low is not triggered, the indicator shall be white. When the fuel low indicator is triggered, the indicator (except the arrow) shall be Amber. Refer to section 3.9 of PIS-2062 for fuel low indicator and tank position calibration. Refer to UE interactive documentation for the display mode.

当油量较少时，需要将油量标红显示，表示油量低；触发条件是Warning #139触发。油量低的红线一般对应1/16满刻度。

When the oil level is low, the oil level should be marked red to indicate the low oil level. The trigger condition is Warning #139. There shall be a red line that extends from tick mark that represents empty to the 1/16th full position on the gauge.

油表CLEA具体参考PIS-2085中3.2.1.9.5 Fuel Level Gage章节， GB参考CTRS中3.1.286 Fuel Level Gage章节。指针实际位置相关标定参考PIS-2085（CLEA）和GB IPC CTRS中的定义。

Please refer to Section 3.2.1.9.5 Fuel Level Gage of PIS-2085 (CLEA) and Section 3.1.286 Fuel Level Gage of GB IPC CTRS for residual fuel details. For the relevant calibration of actual position of the pointer, please refer to PIS-2085 (CLEA) and GB IPC CTRS.

### 电量/Battery(BEV only)

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | No |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | No |
| Global B Buick BEV (B233/223) | Yes |

电量分为电量表和电量信息页。二者都用于告诉用户剩余电量信息。

The battery information is divided into Hybrid Battery State of Charge Gage and Hybrid Customer State of Charge Page. Both of them are used to tell the customer the remaining electricity in propulsion battery.

当触发以下Warning时，电量表和电量信息需要以特殊颜色展现，如下表：

When the following warning is triggered, the meter and information of the electricity need to be displayed in special colors, as shown in the following table:

|  |  |
| --- | --- |
| Warning No. | 颜色/Color |
| 444 (Charge Vehicle Soon) | 黄/Amber |
| 445 (Charge Vehicle Now) | 红/Red |
| 446 (Out of Energy) | 红/Red |

#### 电量表/ Hybrid Battery State of Charge Gage

电量表通过图表形式告知用户剩余电量百分比。是否在电量表上标识低电量位置取决于UE交互设计，若显示，一般位置在20%左右。~~当Warning #446触发时，电量应以红色显示。~~

Hybrid Battery State of Charge Gage tells the user the percentage of remaining battery through Gage. See UE interactive document for whether to mark low battery. If displayed, show at approximate 20%. ~~When Warning #446 is triggered, the power should be displayed in red.~~

GB参考GB IPC CTRS的23.155 Delta Content的3.2.7 Hybrid Battery State of Charge Gage Requirements章节和正文的3.1.588章节（Delta Content为更新，以最新的为准，下同）。相关标定参考GB IPC CTRS中的定义。

Refers to Section 3.2.7 Hybrid Battery State of Charge Gage Requirements of 23.155 Delta Content and Section 3.1.588 of main content of GB IPC CTRS (Delta Content is updated one, subject to the latest, the same below). Refer to the definition in GB IPC CTRS for relevant calibration.

#### 电量信息/ Hybrid Customer State of Charge Page

电量信息以百分比形式展现。~~当Warning #446触发时，电量应以红色显示。~~

The remaining battery shall be shown in percentage. ~~When Warning #446 is triggered, the power should be displayed in red.~~

GB参考GB IPC CTRS的3.1.761 Hybrid Customer Usable State of Charge Page章节。

Refers to Section 3.1.761 Hybrid Customer Usable State of Charge Page.

### 剩余里程/Fuel Range/Electric Range

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

针对燃油车，剩余里程CLEA具体参考PIS-2085中3.2.1.14.24 Fuel Range章节，GB ICE参考CTRS中3.1.203 Fuel Range和3.1.684 Evaluate and Determine Fuel Range章节。范围0-1999km，单位km，精度1km。当系统检测到续航里程低时，不显示具体续航里程，仅显示“低”。

For gasoline vehicles, please refer to Section 3.2.1.14.24 Fuel Range of PIS-2085 for the details of fuel range (CLEA). Refer to Section 3.1.203 Fuel Range of CTRS for the details of remaining range and Section 3.1.684 Evaluate and Determine Fuel Range for GB ICE. The scope is 0-1999km, shall be shown in km, accurate to 1km. When the system detects the fuel range is low, the cluster shall show “LOW” instead of specific fuel range.

针对电动车，剩余里程GB BEV具体参考FG.02.06.13的2.5.4章节。范围0-999km，单位km，精度1km。当系统检测到续航里程低时，不显示具体续航里程，仅显示“低”。当完全没电的时候应显示0km。

For GB BEV, please refer to Section 2.5.4 of FG.02.06.13 for electric range. The scope is 0-999km, shall be shown in km, accurate to 1km. When the system detects the electric range is low, the cluster shall show “LOW” instead of specific electric range. When there is no electricity, shall show as 0km.

当剩余里程显示为“低”时，需要以红色警告用户。

When the range is “LOW”, need to show in red to warn the driver.

故障显示参见UE文档。

See UE Document for fault display.

## 行驶里程/ Odometer

~~行驶里程应当包含2种，CLEA与PIS-2085中3.2.1.12 Odometer章节对应，GB与CTRS中3.1.7和3.1.8章节对应。~~

~~The odometer shall include two types, corresponding to Section 3.2.1.12 Odometer of PIS-2085 for CLEA, Section 3.1.7 and 3.1.8 of GB IPC CTRS for GB.~~

### 全生命周期的行驶里程/Odometer

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

产品全生命周期的行驶里程（Odometer），即当前车辆从生产完成之日起的总行驶里程，驾驶员不可重置。全生命周期行驶里程范围为0-999999, 单位km，取整，四舍五入。CLEA具体参考PIS-2085中3.2.1.12.1 General Odometer requirements和3.2.1.12.2 Season Odometer章节，GB具体参考GB IPC CTRS中的23.154 Delta Content 的3.2.2章节和正文的3.1.7章节。

Full life cycle of the product (Odometer), namely the total odometer of current vehicle as of the date of production completion, which can’t be reset by the driver. The range of season odometer is 0-999999, in km and rounded up to the whole number. Please refer to Section 3.2.1.12.1 General Odometer requirements and Section 3.2.1.12.2 Season Odometer of PIS-2085 for details for CLEA, Section 3.2.2 of 23.154 Delta Content and Section 3.1.7 of main content GB IPC CTRS for GB.

### 旅行里程（小计里程）/Trip Odometer

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

旅行里程（或称小计里程，Trip Distance），分为Trip A(1) Odometer和Trip B(2) Odometer，二者功能一致。旅行里程出厂默认与行驶里程一致，直至用户手动清零（Reset）后从零开始重新记录。点火周期更替不影响旅行里程的累计。旅行里程范围为0.0-99999.9，单位km，保留一位小数，四舍五入。

Trip odometer (or trip distance), including Trip A(1) Odometer and Trip B(2) Odometer respectively, with the same functions. Trip odometer is consistent with odometer by factory default, until recorded from zero after manual reset by the user. The change of ignition cycle shall not affect the accumulation of trip odometer. The range of trip odometer is 0.0-99999.9, in km and rounded up to one decimal place.

针对燃油车，CLEA具体参考PIS-2085中3.2.1.12.3 Trip Odometer章节， GB参考CTRS中3.1.8 Trip Odometer章节。旅行里程与平均油耗、平均车速同时显示，平均油耗见本Spec的5.1.2章节，平均车速见本Spec的5.1.3章节。

For ICE: CLEA: Please refer to Section 3.2.1.12.3 Trip Odometer of PIS-2085 for details, GB: refer to Section 3.1.8 Trip Odometer of CTRS for details. Trip odometer shall be displayed together with average fuel consumption and average vehicle speed, please refer to Section 5.1.2 of this Spec for average fuel consumption and Section 5.1.3 of this Spec for average vehicle speed.

针对电动车（BEV），GB参考FG.02.06.13的2.5.8 Electric Vehicle Trip A and B章节。旅行里程与电耗一起显示，电耗单位为kWh/100km，范围0.0-19.9kWh/100km，精确到0.1kWh/100km。

For GB BEV, refer to Section 2.5.8 Electric Vehicle Trip A and B of FG. 02.06.13. Distance Travelled shown together with Electrical Energy Economy. The unit of Electrical Energy Economy is kWh/100km. The scope is 0.0-19.9kWh/100km, and the value shall be accurate to 0.1kWh/100km.

仪表不支持通过SWC按键重置旅行里程（小计里程），Reset操作在中控完成，但Reset信号请见仪表CTRS。

The instrument cluster does not support reset trip distance with SWC button, the reset operation shall be completed on console. See CTRS for reset signal.

与PIS-2052的3.2.1.2.4章节对应。

It corresponds to Section 3.2.1.2.4 of PIS-2052.

### 当前里程/Current Trip

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | No |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | No |
| Global B Buick BEV (B233/223) | Yes |

当前里程只适用于BEV车型。当前里程页面提供本次行程的耗电情况。

Current Trip only applies to BEV. The purpose of the Drive Cycle Summary Page is to provide the customer with a summary of electrical fuel economy information for the current drive cycle.

当前里程显示内容包括：当前里程；当前里程的电耗。二者范围和精度同4.4.2章节的旅行里程。

The content of current trip includes current trip distance and electrical energy economy. Same scope and accuracy of trip odometer.

数据源参考FG.02.06.13的2.5.5章节EV Drive Cycle Summary Page。

Refer to Section 2.5.5 EV Drive Cycle Summary Page of FG.02.06.13 for data source.

## 挡位/ Gear

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

系统应当支持显示车辆当前挡位信息。具体参考CLEA PIS-2085中3.2.1.13 Gear Indication章节， GB参考CTRS中3.1.1章节。由于458车型采用ETRS变速箱且显示逻辑与Global B一致，因此在PIS-2085中的3.2.1.13.2章节中指引到Global B的仪表Spec。

The system shall support the display of current vehicle gear. Refer to 3.2.1.13 Gear Indication of PIS-2085 for details for CLEA, Section 3.1.1 of CTRS for GB. Since model 458 adopts ETRS transmission and has the same display logic with Global B, Section 3.2.1.13.2 of PIS-2085 refers to the instrument cluster Spec of Global B.

挡位状态显示包括：P、R、N、D、L、M、D1-D10、D1-D10（数字部分加上划线）、L1-L10、M1-M10。其中，GB BEV车型仅有P、R、N、D四个挡位，参见*P\_VEHICLE\_PROPULSION\_TYPE* (GB VIP)可知车辆类型。

Gear status indication includes P, R, N, D, L, M, D1-D10, D1-D10 (add line to numerical part), L1-L10, M1-M10. Among them, GB BEV only has P, R, N and D. Refer to *P\_VEHICLE\_PROPULSION\_TYPE* (GB VIP) to know the vehicle type.

仪表应当显示所有挡位，用红色高亮显示当前挡位，用白色显示其他挡位。如果CTRS要求当前挡位为含有数字部分，那么数字部分也需要红色高亮显示。

There shall be full range information in cluster, with highlighting current gear in red and other gear in red. If requirement in CTRS requests numerical part, then the part shall also be highlighted in red.

ETRS存在In Progress状态，需要动画展现，具体参考UE交互文档。

Animation needed to show ‘In Progress’ for ETRS. Refer to UE Interaction Document for more.

有以下挡位：

See following gear:

|  |  |  |
| --- | --- | --- |
| 挡位/Gear State | 显示Display | 注释/Notes |
| No Display | 空/None/Blank |  |
| Park | P |  |
| Reverse | R |  |
| Neutral | N |  |
| Drive | D |  |
| Drive Temporary Tap Mode | Dx | x = 1 to 10 |
| Manual Mode without gear | M |  |
| Manual Mode with gear | Mx | x = 1 to 10 |
| Low Mode without gear | L |  |
| Low Range select with gear | Lx | x = 1 to 10 |
| Selective Range in Drive | Dx | bar is shown over number |
| Park in Progress | 🄿 | Visually different than Park. Only for ETRS vehicles. |
| Reverse in Progress | 🅁 | Visually different than Reverse. Only for ETRS vehicles. |
| Neutral in Progress | 🄽 | Visually different than Neutral. Only for ETRS vehicles. |
| Drive in Progress | 🄳 | Visually different than Drive. Only for ETRS vehicles. |
| Manual in Progress | 🄼 | Visually different than Manual. Only for ETRS vehicles. |
| First Gear (TBD) | 1 | Only applies to Heavy Duty and will not apply to most vehicles. |

图例：P R N D **M 5**

Icon:

## 时间和日期/ Time and Date

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

仪表侧应当支持显示时间和日期。时间和日期与中控保持一致，一般时间显示小时和分钟，日期显示月、日和星期几，参考 PIS-2046中的3.2章节。

The instrument cluster side shall support the display of time and date. The time and date shall be consistent with those displayed on the console. Generally, the time display refer to hours and minutes and the date display refers to month, day and day of the week, please refer to Section 3.2 of PIS-2046.

## 航向/罗盘/ Heading/Compass

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

系统应当支持显示车辆当前航向（或称罗盘、指南针），航向总共支持8种，分别为N、NE、E、SE、S、SW、W、NW。若未获取到航向信息，显示内容以UE文档为准。若指南针在校准中，显示内容参见UE文档。航向具体参考CLEA PIS-2085章节3.2.1.14.13 Compass Display章节，GB参考CTRS章节3.1.549章节。

The system shall support the display of current vehicle heading (or compass), including 8 types, N, NE, E, SE, S, SW, W, NW. If heading information is unavailable, the display content shall be subject to UE document. If the compass is calibrating, the display content shall be subject to UE document. Refer to Section 3.2.1.14.13 Compass Display of PIS-2085 for heading details for CLEA, Section 3.1.549 of CTRS for GB.

另外，系统还应当支持360航向，即显示具体航向角度，单位度，精确到1度。具体参考CLEA PIS-2085章节3.2.1.14.34 Compass 360 Display章节，GB参考CTRS章节3.1.549章节。

In addition, the system shall support 360 heading, that is to display specific heading angle, in degree and accurate to 1 degree. Refer to Section 3.2.1.14.34 Compass 360 Display of PIS-2085 for details for CLEA, Section 3.1.549 of CTRS for GB.

具体显示8向航向还是360航向以UE文档为准。

Whether it is 8-direction heading or 360 heading for display, please follow UE document.

## 车外温度/ Exterior temperature

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

系统应当支持显示当前车外温度。CLEA显示范围 -40 – 87.5摄氏度，精度0.5摄氏度（显示范围与精度以数据库为准），458车型VCU接收车外温度相关信号，具体参考 3.2.1.14.28 Outside Air Temperature章节。GB显示范围-40-190摄氏度，精度1摄氏度，参考CTRS中的3.1.713章节。若Warning #71满足触发条件，应在温度前显示雪花。如果收到的值为-40℃，仪表应当显示蓝色“--℃”；如果收到的值为87.5℃（CLEA）或190℃（GB），仪表应当显示红色“--℃”。

The system shall support the display of current outside temperature. For CLEA, the range is -40 – 87.5℃, and accurate to 0.5℃ (the range and accuracy are subject to database). VCU of model 458 receives relevant outside temperature signals, refer to Section 3.2.1.14.28 Outside Air Temperature for details. GB: display range is from -40 to 190 degree and accurate to 1 degree, refer to Section 3.1.713 of CTRS. If Warning #71 satisfies the trigger condition, the snowflake shall be displayed before the temperature. If the received value is -40℃, the meter should display blue "--℃"; If the received value is 87.5℃(CLEA) or 190℃(GB), the meter should show red "--℃".

## 限速信息/ Speed limit

限速信息包括限速标志和超速警示。

Speed limit information includes speed limit marks and overspeed warning.

### 限速标志/Speed limit

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

仪表限速来源参考PIS-2062中3.51章节。

Refer to Section 3.51 of PIS-2062 for data source of the instrument cluster.

~~在CLEA 458上，支持用户选择交通标志限速（TSM）和智能限速（Navigation+V2X+ADAS Map）两种信息来源，两种限速应在显示上进行区分。交通标志限速（TSM）限速支持重置，智能限速不支持重置。~~

~~On CLEA 458, users can choose TSM and Intelligent Speed limit (Navigation+V2X+ADAS Map). The two types of speed limit shall be distinguished in terms of display. TSM speed limit supports reset, while intelligent one doesn’t.~~

相关设置项见本Spec的7.4.1章节中。

See section 7.4.1 of this Spec for the relevant Settings.

### 超速警示/Overspeed Warning

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

超速警示一般以视觉显示呈现，如表盘变红。视觉显示具体参考UE交互文档。

Overspeed warning is always show in visual display, such as showing gage in red. Please refer to UE interaction design document for specific visual display.

针对CLEA，超速警示显示的条件依赖于PIS-2062的3.51章节，对应PIS-2085的DDH 221。当限速标志闪烁时（满足PIS-2085的[Ind-2022\_23ES+]），需要显示超速警示。请注意超速警示设置开关不会影响到限速标志的闪烁情况。

For CLEA, the condition of the overspeed warning depends on section 3.51 of PIS-2062, corresponding to DDH 221 of PIS-2085. When the speed limit sign is flashing ([Ind-2022\_23ES+] of PIS-2085), the overspeed warning should be displayed. Note that overspeed warning has nothing to do with flashing speed limit sign.

针对Global B，若超出限速标志车速，则满足超速警示条件。

For GB, if the speed is over speed limit, the overspeed warning condition is satisfied.

相关设置项见本Spec的7.4.2章节中。

See section 7.4.2 of this Spec for the relevant Settings.

## 3D小车模型/3D Car Model

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

功能显示中所采用的3D小车模型应当保持与自车状态的一致，具体显示内容如下：

The status of 3D car model in functional display shall be consistent with that of the actual car, of which the specific display requirements are as follows:

* 自车模型与自车实车车型一致

The 3D model shall be consistent with the actual car model

* 自车模型颜色与自车实车颜色一致

The color of 3D model shall be consistent with that of the actual car model

* 以下元素与实际情况一致。对于灯光，若采用指示灯Telltale，灯光状态与其亮暗一致；若采用信号，则该信号为True时点亮相关灯光：

The elements shall be consistent with the actual situation. For lights, if using the telltale, consistent with the telltale; if using the signal, lighting if the value of the signal is True.

|  |  |  |
| --- | --- | --- |
| 元素  Elements | CLEA | Global B |
| 四门两盖  Status of 4 doors and 2 covers | PIS-2062中的3.26章节（Indicator #22）  Section 3.26 of PIS-2062 (Indicator #22) | |
| 若Warning #72-75触发，相应车门需要特殊显示，例如标红。  In case of the triggering of Warning #72-75, the corresponding door shall be specially indicated such as marking it in red. | 若Warning #72触发，相应车门需要特殊显示，例如标红。  In case of the triggering of Warning #72 (Global B), the corresponding door shall be specially indicated such as marking it in red. |
| 转向灯（包括危险警报灯，即双闪）  Turn Lamps (including hazard lights) | PIS-2062中的3.19章节（Indicator #46-47）  Section 3.19 of PIS-2062 (Indicator #46-47) | |
| 位置灯  Lights On | PIS-2062中的3.12章节（Indicator #29）  Section 3.12 of PIS-2062 (Indicator #29) | |
| 远光灯  High Beam | PIS-2062中的3.10章节（Indicator #27）  Section 3.10 of PIS-2062 (Indicator #27) | |
| 刹车灯  Brake Lights | *Brake Lights Active* (Signal) | *Brake Lights Active* (Signal) |
| 日间行车灯  Daytime Running Lamps | *Daytime Running Lamps Active* (Signal) | Indicator #20（GB IPC CTRS的3.1.274章节）  Indicator #20 (Section 3.1.274 of GB IPC CTRS) |
| 倒车灯  Reversing Lamp | *Reversing Lamp* (Signal) | 不适用  Not Applicable |
| 后雾灯  Rear Fog Lamps | PIS-2062中的3.14章节（Indicator #33）  Section 3.14 of PIS-2062 (Indicator #33) | |
| 前车轮转角  Front Wheel Angle | *PPEI Steering Wheel Angle Signal Group 2 : Steering Wheel Angle* (Signal) | *Steering Wheel Information Protected : Steering Wheel Angle Authenticated* (Signal) |
| 车轮转角 = 方向盘转角/15，单位：°  其中，方向盘转角为上述信号值。  Front Wheel Angle = Steering Wheel Angle / 15, Unit: °  Among them, the steering wheel angle is the above signal value.  注：实际情况中方向盘转角与车轮转角不是完全线性关系，且左右轮角度不完全一致，但是由于仪表3D小车只需示意，可按照线性曲线处理且左右轮显示保持一致。  Note: In fact, the steering wheel angle and the wheel angle are not completely linear, and the left and right wheel angles are not completely consistent. However, since the instrument 3D car only needs to give a demonstration, it can be processed as the linear curve and the display of the left and right wheels is kept the same. | |

* ~~四门两盖状态需与实际情况一致，CLEA和Global B都参考PIS-2062中的3.26章节（Indicator #22）。特别地，如果Warning #72-75触发（CLEA）或Warning #72触发（Global B），相应车门需要特殊显示，例如标红，具体参考UE交互设计文档。~~

~~Status of 4 doors and 2 covers shall be consistent with the actual situation, corresponding to Section 3.26 of PIS-2062 (Indicator #22) for CLEA and Global B. Particularly, in case of the triggering of Warning #72-75 (CLEA) or Warning #72 (Global B), the corresponding door shall be specially indicated such as marking it in red, see the UE interaction design document for details.~~

* ~~转向灯（包括危险警报灯，即双闪）状态需与实际情况一致，CLEA和Global B都参考参考PIS-2062中的3.19章节（Indicator #46-47）~~

~~Statuses of direction indicator lamps (including hazard warning lamp, namely double flash) shall be consistent with the actual situation, corresponding to Section 3.19 of PIS-2062 for CLEA and Global B (Indicator #46-47)~~

* ~~驻车灯状态需与实际情况一致，CLEA和Global B都参考PIS-2062中的3.12章节（Indicator #29）（显示效果是否与近光灯区分参考UE交互文档）~~

~~Statuses of parking lamps shall be consistent with the actual situation, corresponding to Section 3.12 of PIS-2062 (indicator #29) for CLEA and Global B~~

* ~~远光灯状态需与实际情况一致，CLEA和Global B都参考PIS-2062中的3.10章节（Indicator #27）~~

~~Status of high beam shall be consistent with the actual situation, corresponding to Section 3.10 of PIS-2062 for CLEA and Global B (Indicator #27)~~

* ~~近光灯状态需与实际情况一致，CLEA参考信号~~*~~Low Beam Active~~*~~，当信号值为True时点亮近光灯（显示效果是否与驻车灯区分参考UE交互文档），Global B暂不实施~~

~~Status of low beam shall be consistent with the actual situation. Referring to the signal~~ *~~Low Beam Active~~* ~~for CLEA, light up the low beam when the signal is True (refer to UE interaction document for the difference between the display effect and the parking lamps). Not implemented on Global B so far.~~

* ~~刹车灯状态需与实际情况一致，CLEA参考信号~~*~~Brake Lights Active~~*~~，当信号值为True时点亮刹车灯，Global B暂不实施~~

~~Statuses of brake lights shall be consistent with the actual situation. Referring to the signal~~ *~~Brake Lights Active~~* ~~for CLEA, light up the brake lights when the signal is True. Not implemented on Global B so far.~~

* ~~日间行车灯状态需与实际情况一致，CLEA参考信号~~*~~Daytime Running Lamps Active~~*~~，当信号值为True时点亮日间行车灯，Global B 参考CTRS 的Indicator #20（3.1.274章节）（备注：CLEA在PIS-2085中也是Indicator #20，但这个指示灯没有让TCS做）~~

~~Daytime Running Lamps should be consistent with the actual situation. CLEA refer to the signal~~ *~~Daytime Running Lamps Active~~* ~~and light up when the signal value is True. Global B refer to CTRS Indicator #20 (Chapter 3.1.274) (Note: CLEA is also Indicator #20 in PIS-2085, but this indicator is not assigned to TCS)~~

* ~~倒车灯状态需与实际情况一致，参考信号~~*~~Reversing Lamp~~*~~，当信号值为True时点亮倒车灯~~

~~Status of reversing lamp shall be consistent with the actual situation. Referring to the signal Reversing Lamp, light up the reversing lamp when the signal is True~~

* ~~后雾灯状态需与实际情况一致，CLEA和Global B参考PIS-2062中的3.14章节（Indicator #33）~~

~~Statuses of rear fog lamps shall be consistent with the actual situation, corresponding to Section 3.14 of PIS-2062 for CLEA and Global B (Indicator #33)~~

* ~~前车轮转角需与实际情况一致，CLEA参考方向盘转角信号~~*~~PPEI Steering Wheel Angle Signal Group 2 : Steering Wheel Angle~~*~~，以线性关系对应车轮转角（备注：实际情况中方向盘转角与车轮转角不是完全线性关系，且左右轮角度不完全一致，但是由于仪表3D小车只需示意，可按照线性曲线处理且左右轮显示保持一致），Global B暂不实施~~

~~The front wheel angle shall be consistent with the actual situation. Referring to the steering wheel angle signal PPEI Steering Wheel Angle Signal Group 2 : Steering Wheel Angle, correspond to the wheel angle linearly (Note: In fact, the steering wheel angle and the wheel angle are not completely linear, and the left and right wheel angles are not completely consistent. However, since the instrument 3D car only needs to give a demonstration, it can be processed as the linear curve and the display of the left and right wheels is kept the same) for CLEA. Not implemented on Global B so far.~~

以下内容表示有模块故障，需要在3D小车模型上予以标识，相关内容是否融合显示参考UE交互设计文档。若采用Warning，则Warning触发时表示有故障；若采用信号，则该信号值为True时表示有故障。故障显示优先级高于状态显示。

There is a module fault as indicated below, which needs to be identified on the 3D car model. Refer to UE interaction design document for the integrated display of relevant content. If a Warning is used, a fault is indicated when a Warning is triggered; If a signal is used, a signal value of True indicates a fault. The fault display has higher priority than the status display.

* 左前灯故障

Front Left Light Failed

|  |  |  |
| --- | --- | --- |
| 元素/Element | CLEA | Global B |
| 近光灯/Low Beam | Warning #45 | Warning #829 |
| 日间行车灯/Daytime Running Lamp | Warning #231 | Warning #842 |
| 驻车灯/Park Light | *Front Left Park Light Failed*  (part of Warning #48) | Warning #831 |
| 前大灯水平调节/Headlamp Leveling | Warning #44 | / |
| AFL灯/AFL | Warning #66 | / |
| 头灯/Headlamp | / | Warning #828 |

* 左后灯故障

Rear Left Light Failed

|  |  |  |
| --- | --- | --- |
| 元素/Element | CLEA | Global B |
| 刹车灯/Brake Light | *Left Brake Light Failed*  (part of Warning #43) | Warning #827 |
| 驻车灯/Park Light | *Rear Left Park Light Failed* (part of Warning #48) | Warning #843 |

* 右前灯故障

Front Right Light Failed

|  |  |  |
| --- | --- | --- |
| 元素/Element | CLEA | Global B |
| 近光灯/Low Beam | Warning #47 | Warning #829 |
| 日间行车灯/Daytime Running Lamp | Warning #230 | Warning #842 |
| 驻车灯/Park Light | *Front Right Park Light Failed*  (part of Warning #49) | #831 |
| 前大灯水平调节/Headlamp Leveling | Warning #44 | / |
| AFL灯/AFL | Warning #66 | / |
| 头灯/Headlamp | / | Warning #828 |

* 右后灯故障

Rear Right Light Failed

|  |  |  |
| --- | --- | --- |
| 元素/Element | CLEA | Global B |
| 刹车灯/Brake Light | *Right Brake Light Failed* (part of Warning #43) | Warning #827 |
| 驻车灯/Park Light | *Rear Right Park Light Failed* (part of Warning #49) | Warning #843 |

* 其他（“/”表示不支持）

Others (“/”: Not supported)

|  |  |  |
| --- | --- | --- |
| 元素/Element | CLEA | Global B |
| 左前转向灯故障  Front Left Turn Lamp Failed | Warning #53 | Warning #834 |
| 左后转向灯故障  Rear Left Turn Lamp Failed | Warning #54 | Warning #835 |
| 右前转向灯故障  Front Right Turn Lamp Failed | Warning #55 | Warning #836 |
| 右前转向灯故障  Front Right Turn Lamp Failed | Warning #56 | Warning #837 |
| 后雾灯故障  Rear Fog Lamp Failed | Warning #46 | Warning #830 |
| 倒车灯故障  Reversing Lamp Failed | Warning #50 | Warning #832 |
| 高位刹车灯故障  High Mounted Brake Lights Failed | Warning #42 | / |
| 后牌照灯故障  Rear License Plate Lamp Failed | Warning #52 | Warning #833 |
| 前雷达不工作  Front Radar Not Working | Warning #2 | / |
| 驾驶座车窗需要初始化  Window of Driver Seat Needs Initialization | Warning #205 | |
| 副驾驶座车窗需要初始化  Window of Front Passenger Seat Needs Initialization | Warning #206 | |
| 左后车窗需要初始化  Rear Left Window Needs Initialization | Warning #207 | |
| 右后车窗需要初始化  Rear Right Window Needs Initialization | Warning #208 | |
| 左前轮胎压故障  Front Left Tire Pressure Failed | Warning #175, #181, #189, #311, #177, #178, #183 | Warning #175, #181, #311, #177, #178, #183  以下Warning要通过DYN判断是否为对应轮胎：  The following warning needs to judge whether it is the corresponding tire through DYN:  Warning #2050, #2051, #2052 |
| 左后轮胎压故障  Rear Left Tire Pressure Failed | Warning #173, #179, #190, #309, #177, #178, #183 | Warning #173, #179, #309, #177, #178, #183, #866, #2072, #2074  以下Warning要通过DYN判断是否为对应轮胎：  The following warning needs to judge whether it is the corresponding tire through DYN:  Warning #2050, #2051, #2052 |
| 右前轮胎压故障  Front Right Tire Pressure Failed | Warning #176, #182, #189, #312, #177, #178, #183 | Warning #176, #182, #312, #177, #178, #183  以下Warning要通过DYN判断是否为对应轮胎：  The following warning needs to judge whether it is the corresponding tire through DYN:  Warning #2050, #2051, #2052 |
| 右后轮胎压故障  Rear Right Tire Pressure Failed | Warning #174, #180, #190, #310, #177, #178, #183 | Warning #174, #180, #310, #177, #178, #183, #868, #2073, #2075  以下Warning要通过DYN判断是否为对应轮胎：  The following warning needs to judge whether it is the corresponding tire through DYN:  Warning #2050, #2051, #2052 |
| 左电动滑移门故障  Left Electric Sliding Door Failed | Warning #211 | / |
| 右电动滑移门故障  Right Electric Sliding Door Failed | Warning #212 | / |
| 前摄像头故障  Front Camera Failed | Warning #117 | |

另外，还有一些与ADAS、泊车辅助、V2X相关的Warning需要配合3D小车显示。部分Warning需要支持彩蛋头等舱模式，见“是否需要彩蛋头等舱模式”列，对应PIS-2100的3.4.1.1章节。

In addition, some Warnings related to ADAS, Parking Assistance and V2X shall be displayed with 3D car model. Some warnings need to support EasterEggs First-class mode, see column “Whether to support EasterEggs First-class mode”. Corresponding to section 3.4.1.1 of PIS-2100.

|  |  |  |  |
| --- | --- | --- | --- |
| 元素/Element | CLEA | Global B | 是否支持彩蛋头等舱模式  Whether to support EasterEggs First-class mode |
| Gap Setting | Warning #276, #405 | | 需要  Necessary |
| 碰撞报警  Collision Warning | Warning #394 | Indicator #1 | 需要  Necessary |
| 行人警告  Pedestrian Warning | Warning #2211 | Indicator #98 | 需要  Necessary |
| 紧急车道保持  Emergency Lane Keeping | Warning #2204, #2205 | / | 需要  Necessary |
| 开门预警系统  Door Opening Warning System | 左侧/Left：Warning #2217  右侧/Right：Warning #2218  两侧/Both Sides：Warning #2219 | / | 需要  Necessary |
| 后方碰撞系统  Rear Collision System | 左侧/Left：Warning #2253  右侧/Right：Warning #2254  两侧/Both Sides：Warning #2255  普通报警/General：Warning #2256 | / | 需要  Necessary |
| 泊车辅助  Parking Assistance | Warning #277, #406 | Warning #454 | / |

## 充电页面/Peek-in Screen

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | No |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | No |
| Global B Buick BEV (B233/223) | Yes |

充电页面仅适用于电动车，仅在整车power mode为OFF/ACCY且在充电时显示。

Peek-in Screen only applies to BEV. It only display when the power mode is OFF/ACCY and the vehicle is charging.

具体参考FG.02.06.13的2.5.1、2.5.2、2.5.3章节。（2.5.1章节为触发条件、2.5.2章节为消失条件、2.5.3章节为该页面的显示内容）

Please refer to section 2.5.1, 2.5.2 and 2.5.3 of FG.02.06.13. (Section 2.5.1 for activation, section 2.5.2 for deactivation and section 2.5.3 for content)

该页面具体显示内容如下：

See below for specific content:

1. ~~是否插上电（2.5.3.1章节）~~

~~Plugged In Status Determination (Section 2.5.3.1):~~

1. 充电状态：

Charging Status:

~~充电状态（2.5.3.2章节）：~~

~~Charging Active Determination (Section 2.5.3.2):~~

~~当车辆正在充电时，应有动画表现充电状态，且显示内容比车辆未充电时更多。Displays will most likely have animations when vehicle is charging and show more content than when vehicle is not charging.~~

充电状态包括充电中、未充电、充电完成、充电故障。未充电时允许不显示内容。

The status include Charging, Not Charging, Charge Complete, and Unable to Charge. Nothing shown is allowed when not charging.

判断四种状态依据如下：

The basis for judging the four states is as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| 是否充电中（2.5.3.2章节）  Charging Active Determination (Section 2.5.3.2)  IND(210,56) | 当前电量（2.5.3.4章节）是否等于充电目标（2.5.3.6章节）？  Is the state of charge (Section 2.5.3.4) equals to Target Charge (Section 2.5.3.6)? | 是否存在充电故障（2.5.3.8章节）？  Unable to charge (Section 2.5.3.8)? | 状态  Status |
| True | / | / | 充电中  Charging |
| False | 不相等  Not equal | 无  No | 未充电  Not Charging |
| False | 相等  Equal | / | 充电完成  Charge Complete |
| False | / | 有  Yes | 充电故障  Unable to Charge |

1. 当前续航里程（2.5.3.3章节）：

Electric Range (Section 2.5.3.3):

充电完成后是否显示具体参考UE交互文档。故障显示参照UE文档。

The UI design may or may not also include showing the anticipated range once charging is complete. See UE Document for fault display.

1. 当前电量（2.5.3.4章节）：

State of Charge (Section 2.5.3.4):

百分比形式展现（0%-100%），精确到1%。故障显示参照UE文档。

Show in percentage (0%-100%). Accurate to 1%. See UE Document for fault display.

1. 预计充电完成的时间（2.5.3.5章节）：

Time Complete (Section 2.5.3.5):

充电时间和显示方式见下表：

See the following table for time and format:

|  |  |
| --- | --- |
| 充电时间/ Time Complete | 显示方式/Display Format |
| <60分钟  <60 mins | 剩余分钟数  XX minutes remaining |
| ≥60 分钟 & 预计当天可以完成充电  ≥60 mins & Finish today | 充电完成时间点（小时：分钟）  Charge complete time (hour : minute) |
| ≥60 分钟 & 预计当天无法完成充电  ≥60 mins & Cannot finish today | 充电完成时间点，具体参考UE设计~~（x月x日 小时：分钟）~~  Charge complete time. Refer to UE Interactive Document for more. ~~(Month & Day & Hour & Minute)~~ |

故障显示参照UE文档。

See UE Document for fault display.

1. 充电目标（2.5.3.6章节）：

Target Charge (Section 2.5.3.6):

百分比形式展现，精确到1%。故障显示参照UE文档。

Show in percentage. Accurate to 1%. See UE Document for fault display.

1. 充电速率（2.5.3.7章节）：

Charge Rate (Section 2.5.3.7):

充电速率提供每小时充的电量。故障显示参照UE文档。

Charge rate provides an indication of how much range is added for each hour of charging. See UE Document for fault display.

1. 充电故障 ~~若未充电，显示原因~~（2.5.3.8章节）：

Unable to Charge Reasons (Section 2.5.3.8):

若充电状态为充电故障，应显示具体原因。无法充电的潜在原因有很多，在充电页面提供的信息可以让驾驶员了解车辆无法充电的原因，以及他们可以采取的解决方法。虽然可能同时出现多个情况，但存在优先级，因此只显示一个原因。未充电原因没有警报处理器处理优先级且不会循环。

If unable to charge, shall show the specific reason. There are many potential reasons why charging may not be possible, on the peek-in screen there is information provided to give the driver understanding of why the vehicle is not charging and what they may be able to do to resolve. While several conditions might be possible at the same time, there will be priority given such that only one notification will be active for display purposes as this is not part of alert manager and there is no message cycling.

可能的原因如下（中文提示请以UE交互文档的为准）：

See follows for possible reasons (Refer to UE interactive document for Chinese Text):

1. 充电线未完全插入

Cord Not Fully Inserted

1. 充电线锁扣未锁定

Cord Lock Not Working

1. 充电桩未送电

Charge Station Not Sending Power

1. 请尝试更换充电站

Try a Different Charge Station

1. 请更换充电桩

Try a Different Cord

1. 请检查充电站

See Charging Station

1. 车辆正在升级

Vehicle Update in Progress

1. 充电桩不工作

Charge Port Not Working

1. 该公用充电桩暂无法充电

Utility Provider Preventing Charge

## 功率表/Power Gage(BEV only)

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | No |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | No |
| Global B Buick BEV (B233/223) | Yes |

功率表用于表示车辆输出功率和能量回收功率。应用不同颜色表示当前状态，例如用黄色表示电池输出功率，绿色表示电池回收功率。展现形式包括表盘和~~应显示~~具体功率值，表盘范围-100% - 100%，具体功率值范围-999kW – 999kW，单位kW，精确到整数。

The Power Gage is used to represent the vehicle output power and energy recovery power. Different colors should be used to represent the current efficiency status, such as yellow for battery output power and green for battery recovery power. The display form includes the gage and the specific power value to be displayed. The gage range is - 100% - 100%, and the specific power value range is - 999kw – 999kw, in kW, accurate to integer. ~~The specific power value shall be displayed in kW, accurate to integer.~~

具体参考23.157 Delta Content的3.2.2章节、23.156 Delta Content的3.2.6章节和正文的3.1.589 Hybrid Power Gage Requirements章节。相关标定参考GB IPC CTRS中的定义。

Refer to Section 3.2.2 of 23.157 Delta Content, Section 3.2.6 of 23.156 Delta Content and Section 3.1.589 Hybrid Power Gage Requirements. Refer to the definition in GB IPC CTRs for relevant calibration.

指示功率表图例：

Icon for Power Gage:

# 深度信息/ Depth Information

深度信息是VCS仪表提供的可以在单个页面或菜单中展示的更详尽的信息。通常可以使用方向盘按键在不同的菜单模块之间进行切换。

Depth information is the one with more details which are provided by VCS and can be displayed on a single page or menu. Usually, steering wheel buttons can be used to switch between different menu modules.

## 能耗信息/ Energy Consumption Information

能耗信息应当包括瞬时油耗、平均油耗、平均车速、可变缸信息、ECO指数（Eco Index）&效率显示、最高耗能设备、油耗趋势及最佳油耗（AFE Best/Fuel Economy）。支持投屏到仪表显示。

Energy consumption information shall include instantaneous fuel consumption, average fuel consumption, average vehicle speed, displacement on demand (DOD), ECO Index & Efficiency Display, best energy consumption device, AFE Best/Fuel Economy. It supports projection to the instrument cluster for display.

### 瞬时油耗/ Instantaneous Fuel Consumption (ICE only)

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

瞬时油耗是指车辆实时瞬时油耗。范围0.0 – 39.9L/100km，单位采用公制，即升/百公里（L/100km）和升/小时（L/hr）。精度0.1L/100km，精度0.1L/h。单位升/小时（L/hr）仅在速度很低或车辆静止时显示（Auto Stop除外），该单位是否支持参照标定*P\_IFE\_CONSUMPTION\_ENABLED*，默认支持。Auto Stop情况下需显示自动启停。

Instantaneous fuel consumption refers to the vehicle’s real-time instantaneous fuel consumption. The scope is 0.0 – 39.9L /100km. The unit shall be in metric, i.e. liter/100 kilometers (L/100km) and liter/hour (L/hr). The accuracy shall be 0.1L/100km and 0.1L/h respectively. The unit of liter/hour (L/hr) will be displayed only when the speed is very low or the vehicle is static (except auto stop). Whether the unit is supported, please refer to Calibration *P\_IFE\_CONSUMPTION\_ENABLED* and shall set to True by default. Show auto stop when it’s auto stop.

CLEA参考PIS-2085中3.2.1.14.25 Instantaneous Fuel Economy(IFE)章节。

CLEA: refer to Section 3.2.1.14.25 Instantaneous Fuel Economy (IFE) of PIS-2085 for details.

GB参考CTRS中3.1.205 Instantaneous Fuel Economy (IFE) 和3.1.714章节。

GB: refer to Section 3.1.205 Instantaneous Fuel Economy (IFE) and Section 3.1.714 of CTRS for details.

瞬时油耗同时也在中控显示，与PIS-2052中的3.2.1.2.3章节对应。

Instantaneous fuel consumption is also displayed on console, corresponding to Section.

### 平均油耗/ Average Fuel Consumption (ICE only)

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

平均油耗是车辆百公里平均油耗，即旅行里程的平均油耗。范围0.0-39.9L/100km，单位采用公制，即升/百公里（L/100km），精度0.1L/100km。

Average fuel consumption refers to the vehicle’s average fuel consumption per 100 kilometers, that is average fuel consumption of trip odometer. The scope shall be 0.0-39.9L/100km. The unit shall be in metric, i.e. liter/100 kilometers (L/100km) and the accuracy shall be 0.1L/ 100km.

旅行里程的平均油耗与本Spec中4.4章节中的旅行里程同时显示。与旅行里程的重置同步，重置后在没有相关数据时显示“- -”（与Error状态相同）。

The average fuel consumption of trip odometer shall be displayed simultaneously with the trip odometer in Section 4.4 of this Spec. It is reset synchronously with trip odometer, and displayed as “- -”if there is no relevant data after reset (Same as the status of Error).

CLEA参考PIS-2085中3.2.1.14.6 Average Fuel Economy（AFE）章节。

CLEA: refer to Section 3.2.1.14.6 Average Fuel Economy (AFE) of PIS-2085 for details.

GB参考CTRS中3.1.206 Average Fuel Economy (AFE) 和3.1.767 Evaluate and Determine Average Fuel Economy (AFE) 章节。

GB: refer to Section 3.1.206 Average Fuel Economy (AFE) and 3.1.767 Evaluate and Determine Average Fuel Economy (AFE) of CTRS for details.

平均油耗同时也在中控显示，与PIS-2052中的3.2.1.2章节对应。

Average fuel consumption is also displayed on console, corresponding to Section 3.2.1.2 of PIS-2052.

### 平均车速/ Average Vehicle Speed

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

平均车速与本Spec中4.4章节中的旅行里程同时显示，表示该旅行里程的平均车速。精度0.1km/h。

The average vehicle speed is displayed simultaneously with the trip odometer in Section 4.4 of this Spec., representing the average vehicle speed of the trip odometer. It is accurate to 0.1km/h.

平均车速显示与否以UE交互文档为准。

The display of the average vehicle speed is subject to UE interaction design document.

CLEA参考PIS-2085中3.2.1.14.7 Average Vehicle Speed章节。

CLEA: refer to Section 3.2.1.14.7 Average Vehicle Speed of PIS-2085 for details.

GB参考CTRS中3.1.547 Average Vehicle Speed章节。

GB: refer to Section 3.1.547 Average Vehicle Speed of CTRS for details.

### 可变缸信息/ CLEA: Displacement on Demand (DOD) & GB: Active Fuel Management Page (ICE only)

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

针对搭载可变缸发动机的车型，需要显示当前处于全部缸工作模式或一半缸工作模式。自动启停时不显示。

For models equipped with DOD engine, it is required to display that the vehicle is currently in four-cylinder operating mode or two-cylinder operating mode. And no display is required when the auto start/stop is enabled.

CLEA参考PIS-2085中3.2.1.14.16 Displacement on Demand (DOD) 章节。

CLEA: refer to Section 3.2.1.14.16 Displacement on Demand (DOD) of PIS-2085 for details.

GB参考CTRS 3.1.324 Active Fuel Management Page章节。

GB: refer to Section 3.1.324 Active Fuel Management Page of CTRS.

显示内容参见PIS-2052的3.2.1.2.1章节。

See section 3.2.1.2.1 of PIS-2052.

### ~~ECO指数&~~效率显示/~~Eco Index &~~ Efficiency Display [Only GB]

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | No |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes ~~(Only Eco Index)~~ |
| Global B Buick BEV (B233/223) | Yes ~~(Only Efficiency Display)~~ |

~~ECO指数和效率显示都是效率类显示内容，ECO指数仅适用于油车（ICE），效率显示仅适用于电车（BEV）。~~

~~Eco index and efficiency display are efficiency display contents. Eco index is only applicable to ICE and efficiency display is only applicable to BEV.~~

~~ECO指数（Eco Index）向驾驶员提供驾驶燃油效率的相对值。Eco Index是一个百分数，介于0%-100%之间。通常，用图表示Eco Index，而不是直接显示百分数，例如可用红色一侧表示费油，绿色一侧表示省油。GB参考CTRS中3.1.313章节。~~

~~ECO Index provides the driver with a relative value of driving fuel efficiency. ECO Index is a percentage, between 0% and 100%. Generally, Eco Index is represented by chart rather than the direct display of percentage. For example, the red side represents fuel-consumptive, and the green side represents fuel-efficient. GB: refer to Section 3.1.313 of CTRS for details.~~

效率信息页用于表示车辆加速、减速和能量回收。~~与ECO Index类似，~~效率信息范围-100% - 100%~~也是一个百分数~~，~~但~~通常用图表示。例如用不同颜色表示当前状态，黄色或红色表示实时能效低~~车辆加速~~，绿色表示实时能效高~~电池回收功率，用类似小绿叶等图示表示能量回收，以区别刹车损失的能量~~。效率百分比越接近0%，能效越高；效率百分比绝对值越大，能效越低，一般急加速和急减速能效较低。参考3.1.325 Drive Efficiency Display Page章节。

The Drive Efficiency Display Page is used to represent vehicle acceleration, deceleration and energy recovery. ~~Similar to ECO Index,~~ The range ofEfficiency is -100% - 100% ~~a percentage~~, usually shown in chart. For example, Using different colors to indicate the current state, yellow for low efficiency ~~vehicle acceleration~~, green for high efficiency ~~battery power recovery, and indicator like small green leave to indicate energy recovery, to distinguish the energy lost by braking~~. The closer the efficiency percentage is, the higher the energy efficiency is; the higher the absolute value of the efficiency percentage, the lower the energy efficiency is, and the energy efficiency of the acceleration and deceleration is generally lower. Refer to Section 3.1.325 Drive Efficiency Display Page.

### 最高耗能设备/Top Fuel Consumer of Fuel Page (ICE only)

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

仪表支持显示耗能最高的四个设备名称和小图标。支持显示所有支持设备的油耗单位为L/hr，显示范围为0.01—9.99L/hr，精确到0.01L/hr，显示与否参照标定*P\_FUEL\_CONSUMER\_SHOW\_VALUE*；不支持显示每个耗能设备的油耗。若总数值为0.00L/hr，应显示Off。以上支持的内容可以不全显示，具体显示内容以UE交互设计文档为准。

The instrument cluster supports the display of the names and small icons of top four fuel consumers. The display of fuel consumption of all supported devices is supported in L/hr and the scope shall be 0.01—9.99L/hr, accurate to 0.01L/hr, whether it is displayed or not refers to Calibration *P\_FUEL\_CONSUMER\_SHOW\_VALUE*; but does not support the display of fuel consumption of each fuel consumer. If the value is 0.00 L/hr, shall show Off. All contents above may not be displayed in full, and the specific display content is subject to UE interaction design document.

该功能仅适用于燃油车。

This feature is only applicable to fuel vehicles.

CLEA参考PIS-2085中3.2.1.14.68 Top Fuel Consumer of Fuel Page章节。

CLEA: refer to Section 3.2.1.14.68 Top Fuel Consumer of Fuel Page of PIS-2085 for details.

GB参考CTRS中3.1.546 Top Fuel Consumer of Fuel Page章节。

GB: refer to Section 3.1.546 Top Fuel Consumer of Fuel Page of CTRS for details.

支持的设备和优先级顺序如下：

The supported devices and the priority order are as follows:

* 空调
* A/C
* 风扇
* Fan
* 挡风玻璃加热（仅GB）
* Heated Windshield (Only GB)
* 后窗加热
* Heated Rear Window
* 前挡风玻璃除雾
* Front Enhanced Defogger
* 座椅加热
* Seat heating device
* 远光灯
* High beam
* 前雾灯（仅GB）
* Front fog lamp (Only GB)
* 后雾灯
* Rear fog lamp
* 4WD（仅GB）
* 4WD (Only GB)

### 油耗趋势/ Fuel Consumption Trend (ICE only)

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

油耗趋势记录最近一段距离的油耗。可以通过油耗趋势线表示，也可以通过图表来表示。

Fuel consumption trend records the fuel consumption of recent distance. It can be represented by fuel consumption trend line, or by chart.

一个点（柱）代表的油耗所计算的距离由标定*P\_AFE\_STATISTICS\_DISTANCE*决定，默认为5km，即默认每5km产生新的点（柱）。系统支持最多10个点（柱），具体显示多少点（柱）参考UE交互文档。其中，Y轴表示平均油耗（单位L/100km，精确到0.1L/100km），X轴为行驶距离（单位km）。

The distance for fuel consumption calculation which is represented by a point (column) shall be determined by Calibration *P\_AFE\_STATISTICS\_DISTANCE*, 5km by default, that is, a new point (column) will be generated every 5km. The system supports at most 10 points (columns), please refer to UE interaction design document for specific points (columns) displayed. Wherein, Y-axis represents average fuel consumption (in L/100km and accurate to 0.1L/100km), and X-axis represents driving distance (Unit: km).

CLEA参考PIS-2085中3.2.1.14.69 EcoDrive AFE Statistics Page章节。

CLEA: refer to Section 3.2.1.14.69 EcoDrive AFE Statistics Page of PIS-2085 for details.

GB参考CTRS中3.1.312 EcoDrive AFE Statistics Page章节。

GB: refer to Section 3.1.312 EcoDrive AFE Statistics Page of CTRS for details.

### 最佳油耗/ AFE Best/Fuel Economy (ICE only)

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

最佳油耗（AFE Best/Fuel Economy）向驾驶员提供选定距离内当前平均油耗和最佳油耗的比较。可选择三个距离（如50km、100km、500km，参照标定*P\_AFE\_CURRENT\_BEST\_DISTANCE\_X*，其中X=1, 2, 3）作为选项，仅支持在中控切换距离。精确到0.1L/100km。

AFE Best/Fuel Economy provides the driver with a comparison of current average fuel consumption and optimal fuel consumption over the selected distance. Three distances (such as 50km, 100km, 500km, please refer to Calibration *P\_AFE\_CURRENT\_BEST\_DISTANCE\_X*, wherein X=1, 2, 3) can be selected as options. Only support to select distance on ICS. The accuracy shall be 0.1L/100km.

最佳油耗页面可以同时显示瞬时油耗和平均油耗，与本文档5.1.1和5.1.2章节对应。

AFE Best/Fuel Economy page can display Instantaneous Fuel Consumption and Average Fuel Consumption simultaneously, corresponding to Sections 5.1.1 and 5.1.2 herein.

CLEA参考PIS-2085中3.2.1.14.59 AFE Best and Current for Given Distance章节。

CLEA: refer to Section 3.2.1.14.59 AFE Best and Current for Given Distance of PIS-2085 for details.

GB参考CTRS中3.1.207 AFE Best and Current for Given Distance章节。

GB: refer to Section 3.1.207 AFE Best and Current for Given Distance of CTRS for details.

仪表不支持通过SWC按键Reset，Reset操作在中控完成，Reset后由仪表VIP层重新计算最佳油耗。最佳油耗与PIS-2052的3.2.1.2章节对应。

The instrument cluster does not support Reset with SWC button, the reset operation shall be completed on ICS. See CTRS for reset signal. AFE Best/Fuel Economy corresponds to Section 3.2.1.2 of PIS-2052.

### 电量消耗/ Energy Usage (BEV only)

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | No |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | No |
| Global B Buick BEV (B233/223) | Yes |

电量消耗仅适用于BEV车型。电量消耗页告诉用户上次充电的电量被如何使用。

Energy usage page only applies to BEV. The page provides the driver with a summary of how the battery energy has been used for the latest charge.

电量消耗页应显示一份用电清单，并显示每一个耗电设备使用电量的百分比和具体电量值。百分比精确到1%，具体电量值精确到1kWh。

Energy usage page shall provide a breakdown in percentages and electricity value. Accurate to 1% and 1kWh.

用电清单如下：

Breakdown list:

* 驾驶

Driving Accessories

* 空调/风扇

Climate

* 动力电池温控

Battery Conditioning

* 遥控启动

Remote Start

### 电耗趋势/ Energy Trend (BEV only)

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | No |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | No |
| Global B Buick BEV (B233/223) | Yes |

电耗趋势记录最近一段距离的电耗信息。

Energy trend marks the consumption of electricity of the distance.

VCU应当记录每0.1km的电耗，总共记录50km，用500个点描绘出电耗趋势。

VCU should record the power consumption of every 0.1km, a total of 50km, and draw the trend of power consumption with 500 points.

数据来源同Energy App，具体为FG.02.06.14的2.5.24章节。

Data source is the same as Energy App, that is, section 2.5.24 of FG.02.06.14.

## 车况信息/ Vehicle Status

车况信息应当包含机油寿命、PM2.5滤网寿命、刹车片寿命、发动机空气滤芯寿命、燃油滤清器寿命、发动机冷却液温度、变速箱液温度、蓄电池电压及胎压。不要求在同一模式下显示全部信息。支持通过投屏到仪表显示。

Vehicle statuses shall include the oil life, PM2.5 filter life, brake pad life, engine air filter life, fuel filter life, engine coolant temperature, transmission fluid temperature, battery voltage and tire pressure. It is not required to display all information in the same mode. It supports projection to the instrument cluster.

### 机油寿命/ Oil Life (ICE only)

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

机油寿命为百分比制。精度1%。展现形式可包括具体百分比和图表。

Oil life is calculated in percentage. The accuracy is 1%. Can show as a percent and a chart.

当Warning #165触发时，表示机油寿命低，应特殊显示。

When Warning #165 is triggered, oil life is low and it should be specially displayed.

CLEA参考PIS-2085中3.2.1.14.27 Oil Life Index章节。

CLEA refer to 3.2.1.14.27 Oil Life Index of PIS-2085 for details.

GB参考CTRS中3.1.281 Oil Life Index章节。

GB refer to 3.1.281 Oil Life Index of CTRS for details.

仪表不支持通过SWC按键Reset，Reset操作在中控完成，但Reset信号请见仪表CTRS。与PIS-2052中的3.2.8.1章节对应。

The instrument cluster does not support Reset with SWC button, the reset operation shall be completed on ICS. See CTRS for reset signal. It corresponds to Section 3.2.8.1 of PIS-2052.

### PM2.5滤网寿命/ PM2.5 Filter Life (only 458)

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | No |
| Global B Buick BEV (B233/223) | No |

PM2.5滤网寿命为百分比值。精度1%。仅支持458车型。展现形式可包括具体百分比和图表。

PM2.5 filter life is calculated in percentage. The accuracy is 1%. Only applies to 458. Can show as a percent and a chart.

当前部分车辆配备PM2.5传感器，部分车辆不配备PM2.5传感器。若配备PM2.5传感器，数据来源请参考PIS-2052的3.2.6.1章节，通过传感器数值计算PM2.5滤网寿命；若不配备PM2.5传感器，数据来源请参考PIS-2085中3.2.1.14.107 PM2.5 Filter Life章节，通过里程估算PM2.5滤网寿命。是否配备PM2.5传感器请参考标定*P\_PM2.5\_FILTER\_LIFE\_MENU\_PRESENT*，标为True表示不配备（采用仪表逻辑），标为False表示配备（采用中控逻辑）。

Currently, some vehicles are equipped with PM2.5 sensor, and some others are not. For those with PM2.5 sensor, please refer to Section 3.2.6.1 of PIS-2052 for data source, and calculate PM2.5 filter life with the sensor readings; for those without PM2.5 sensor, refer to Section 3.2.1.14.107 PM2.5 Filter Life of PIS-2085 for data source, and estimate PM2.5 filter life with the mileages; Please refer to Calibration *P\_PM2.5\_FILTER\_LIFE\_MENU\_PRESENT* for whether the PM2.5 sensor is equipped, wherein True means Not Equipped (instrument cluster logic), and False means Equipped (console logic).

仪表不支持通过SWC按键Reset，Reset操作在中控完成。与PIS-2052中的3.2.6.1章节对应。

The instrument cluster does not support Reset with SWC button, the reset operation shall be completed on console. It corresponds to Section 3.2.6.1 of PIS-2052.

### 刹车片寿命/ Brake Pad Life

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

刹车片寿命为百分比制。精度1%。

Brake pad life is calculated in percentage. The accuracy is 1%.

CLEA数据来源具体参考PIS-2052的3.2.4.1章节，PIS-2085无对应。应有正常、寿命低和故障三种状态。

CLEA: refer to Section 3.2.4.1 of PIS-2052 for specific data source, and there is no corresponding section in PIS-2085. Shall have normal, low and fault three statuses.

GB数据来源具体参考CTRS的3.1.722章节，对应PIS-2052的3.2.4.1章节。应有六种状态，如下表。

GB: refer to Section 3.1.722 of CTRS for specific data source. Corresponding to section 3.2.4.1 of PIS-2052. Shall have five statuses as described in the following table.

|  |  |  |
| --- | --- | --- |
| *Brake Pad Life Status Indication Request* | DYN(21, 167) | 含义/Content |
| Not Present or No Action | 0 | 不支持用户查看该页面。  Page not visible. |
| Ok | 1 | 正常。  OK. |
| Change Soon | 2 | 即将需要更换。  Change Soon. |
| Change Now | 3 | 立即更换。  Change Now. |
| Disabled | 4 | 用户关闭该页面（可重新打开）。  Disabled. |
| Service | 5 | 故障。  Service. |

需要区分前后刹车片寿命状态。

Need to separate front/back brake pad life.

仪表不支持通过SWC按键Reset，Reset操作在中控完成，CLEA Reset信号参考PIS-2052的3.2.4.1章节，GB Reset信号请见仪表CTRS，支持分别Reset前后刹车片寿命。

The instrument cluster does not support Reset with SWC button, the reset operation shall be completed on ICS. See section 3.2.4.1 of PIS-2052 for CLEA reset signal, and see CTRS for GB reset signal.

### 变速箱油寿命(Deleted)/ Transmission Fluid Life(Deleted)

Deleted.

### 发动机空气滤芯寿命/ Engine Air Filter Life (ICE only)

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

发动机空气滤芯寿命为百分比制。精度1%。展现形式可包括具体百分比和图表。

Engine air filter life is calculated in percentage. The accuracy is 1%. Can show as a percent and a chart.

存在以下五种状态。表格中为Global B的信号和ODI，CLEA的信号请参考CLEA数据来源。

There are five statuses. The signal and ODI in the following table are for Global B. See CLEA data source.

|  |  |  |
| --- | --- | --- |
| *Engine Air Filter Monitor Status* | DYN(21,166) | 含义/Content |
| $0 = Ok | 0 | 正常。  OK. |
| $1 = Replace Air Filter Soon | 1 | 即将需要更换发动机空气滤芯。  Replace Air Filter Soon. |
| $2 = Replace Air Filter Now | 2 | 需要立即更换发动机空气滤芯。  Replace Air Filter Now. |
| $3 = Fault Present | 3 | 故障/检查系统。  Fault(s) Present/Check system. |
| $4 = Disabled | 4 | 用户关闭该页面（可重新打开）。  Disabled. |

CLEA数据来源具体参考PIS-2052的3.2.8.3章节，PIS-2085无对应。

CLEA: refer to Section 3.2.8.3 of PIS-2052 for specific data source, and there is no corresponding section in PIS-2085.

GB数据来源具体参考CTRS的3.1.718章节，对应PIS-2052的3.2.8.3章节。

GB: refer to Section 3.1.718 of CTRS for specific data source. Corresponding to section 3.2.8.3 of PIS-2052.

仪表不支持通过SWC按键Reset，Reset操作在中控完成，CLEA Reset信号参考PIS-2052的3.2.8.3章节，GB Reset信号请见仪表CTRS。

The instrument cluster does not support Reset with SWC button, the reset operation shall be completed on ICS. See section 3.2.8.3 of PIS-2052 for CLEA reset signal, and see CTRS for GB reset signal.

### 燃油滤清器寿命/ Fuel Filter Life (ICE only)

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

燃油滤清器寿命为百分比制。精度1%。展现形式可包括具体百分比和图表。

Fuel filter life is calculated in percentage. The accuracy is 1%. Can show as a percent and a chart.

当Warning #264触发时，表示燃油滤清器寿命低，应特殊显示。

When Warning #264 is triggered, fuel filter life is low and it should be specially displayed.

CLEA参考PIS-2085中3.2.1.14.38 Fuel Filter Life章节。

CLEA: refer to 3.2.1.14.38 Fuel Filter Life of PIS-2085 for details.

GB具体参考CTRS中3.1.323章节。

GB: refer to 3.1.323 of CTRS for details.

仪表不支持通过SWC按键Reset，Reset操作在中控完成，但Reset信号请见仪表CTRS。与PIS-2052中的3.2.8.2章节对应。

The instrument cluster does not support Reset with SWC button, the reset operation shall be completed on console. See CTRS for reset signal. It corresponds to Section 3.2.8.2 of PIS-2052.

### 发动机冷却液温度/ Engine Coolant Temperature (ICE only)

发动机冷却液温度分为表盘式和数值式。具体显示~~哪一种~~以UE文档为准。

Engine coolant temperature can be displayed in gauge type and digital type. Refer to UE Interaction Document for the display ~~which to use~~.

#### 发动机冷却液温度表盘/ Coolant Temperature Gauge

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

发动机冷却液温度表盘旁需要配有形状与“发动机冷却液温度”指示灯（PIS-2062的3.23章节）相同的指示灯，用以指示该表为发动机冷却液温度表。

An indicator with the same shape as the " Engine Coolant Temperature" indicator (Section 3.23 of PIS-2062) is required next to the gauge to indicate that the gauge is a coolant temperature gauge. It is suggested that the indicator light be displayed together with the fuel low indicator light.

CLEA发动机冷却液温度表盘参考PIS-2085中3.2.1.9.4 Coolant Temperature Gage。GB发动机冷却液温度表盘参考GB IPC CTRS中的23.154 Delta Content的3.2.3章节和正文的3.1.255 Coolant Temperature Gage。

Refer to Section 3.2.1.9.4 Coolant Temperature Gage of PIS-2085 for CLEA. Refer to Section 3.2.3 of 23.154 Delta Content and 3.1.255 Coolant Temperature Gage of main content of GB IPC CTRS for GB.

冷却液温度表盘不是线性的。刻度线处不显示具体温度，仅显示“C”（Cold）和“H”（Hot）。表盘最大值处的刻度线需要标红（Hot Warning Band）。当冷却液温度指示灯触发（PIS-2062的3.23章节，Indicator #17，含常亮和闪烁），冷却液表盘应用红色用于警告用户。

Coolant Temperature gage is not linear. Not to show numerical numbers at tick marks, only to show “C” for cold and “H” for hot. Red Line/Red Zone of gage: Must show a red tick mark at the max value (Hot Warning Band). When the Coolant Temperature Indicator (Section of 3.23 of PIS-2062, Indicator #17, including solid illumination and flashing) triggers, the gauge shall show in red to warn the driver.

指针实际位置标定参考PIS-2085（CLEA）和GB IPC CTRS中的定义。

For the calibration of actual position of the pointer, refer to PIS-2085 (CLEA) and GB IPC CTRS.

与PIS-2052的3.2.8.4章节对应。

It corresponds to Section 3.2.8.4 of PIS-2052.

#### 数值式发动机冷却液温度/ Digital Coolant Temperature

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

数值式参考CLEA PIS-2085 3.2.1.14.12 Coolant temperature章节和GB IPC CTRS中3.1.317 Coolant temperature章节。

Refer to Section 3.2.1.14.12 Coolant temperature for CLEA and Section 3.1.317 Coolant Temperature of GB IPC CTRS for GB for numerical type.

数值式发动机冷却液温度范围 -40 – 215摄氏度，精度1摄氏度。数值式冷却液温度满足表盘标红条件时也需要以红色显示。

The range of engine coolant temperature displayed in numerical type is -40 – 215℃, accurate to 1℃. Numerical coolant temperature shall also show in red if condition above met.

与PIS-2052的3.2.8.4章节对应。

It corresponds to Section 3.2.8.4 of PIS-2052.

### 变速箱油温度/ Transmission Fluid Temperature

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

数值式变速箱油温度范围-40 – 215摄氏度，精度1摄氏度。展现形式可包括具体温度和图表。

The range of digital transmission fluid temperature is -40 – 215℃, accurate to 1℃. Can show in specific temperature and chart.

CLEA参考PIS-2085中3.2.1.14.41 Transmission fluid temperature章节。

CLEA refer to Section 3.2.1.14.41 Transmission fluid temperature of PIS-2085 for details.

GB参考CTRS中3.1.316 Transmission fluid temperature章节。

GB refer to Section 3.1.316 Transmission fluid temperature of CTRS for details.

与PIS-2052的3.2.8.5章节对应。

It corresponds to Section 3.2.8.5 of PIS-2052.

### 蓄电池电压/ Battery Voltage

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

蓄电池电压分为表盘式和数值式。具体显示以UE文档为准。

Battery Voltage can be displayed in gauge type and digital type. Refer to UE Interaction Document for the display.

与PIS-2052的3.2.7章节对应。

It corresponds to Section 3.2.7 of PIS-2052.

#### 蓄电池电压表盘/ Battery Gauge

CLEA蓄电池电压表盘参考PIS-2085中3.2.1.9.2 Battery Gage。GB蓄电池电压表盘参考GB IPC CTRS中的3.1.777 Arbitrate-Determine-Control Battery Voltage Gage Position。

Refer to Section 3.2.1.9.2 Battery Gage of PIS-2085 for CLEA. Refer to Section 3.1.777 Arbitrate-Determine-Control Battery Voltage Gage Position of GB IPC CTRS for GB.

当蓄电池指示灯（PIS-2062中的3.4章节，Indicator #8）点亮时，蓄电池电压表盘应用红色用于警告用户。

When the battery Indicator light (Indicator #8 in section 3.4 of PIS-2062) is on, the gauge shall show in red to warn the driver.

指针实际位置标定参考PIS-2085（CLEA）和GB IPC CTRS中的定义。

For the calibration of actual position of the pointer, refer to PIS-2085 (CLEA) and GB IPC CTRS.

#### 数值式蓄电池电压/ Digital Battery Voltage

数值式蓄电池电压范围3.0 – 28.5 ~~17.0~~V，精度0.1V。

The range of digital battery voltage is 3.0 – 28.5 ~~17.0~~V, accurate to 0.1V.

当蓄电池指示灯（PIS-2062中的3.4章节，Indicator #8）点亮时，蓄电池电压应当有视觉变化，具体参考UE交互文档。

When the battery Indicator light (Indicator #8 in section 3.4 of PIS-2062) is on, there should be visual changes in battery voltage. Please refer to UE interactive documentation for details.

CLEA参考PIS-2085中3.2.1.14.8 Battery voltage章节。

CLEA refer to Section 3.2.1.14.8 Battery voltage of PIS-2085 for details.

GB参考CTRS中3.1.514 Battery voltage章节。

GB refer to Section 3.1.514 Battery voltage of CTRS for details.

### 胎压/ Tire Pressure

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

胎压包含四个轮胎单独的信息，均需进行展示。显示范围是0-999。

Tire Pressure includes the separate information of four tires, which all need to be displayed. The display range is 0-999.

当相关Warning触发，对应轮胎应特殊~~标黄~~显示，具体Warning参考4.10章节中的胎压故障。~~当胎压指示灯（PIS-2062中的3.18章节，Indicator #43）点亮时，胎压应以红色显示。红色优先级高于黄色，以上颜色仅供紧急程度的参考，~~具体参考UE交互文档。

When one of the relevant Warnings is triggered, the corresponding tire should be shown in special ~~in yellow~~, and the specific Warning should refer to the tire pressure failure in Section 4.10. ~~When the tire pressure Indicator (Section 3.18 in PIS-2062, Indicator #43) is on, the tire pressure should be displayed in red. The priority of red is higher than that of yellow. The above colors are only for emergency level reference, for specific reference,~~ Refer to UE interactive document.

CLEA参考PIS-2085中3.2.1.14.29 Tire Pressure章节。GB参考CTRS的3.1.10章节。与PIS-2052的3.2.3.1章节对应，PIS-2052其他胎压功能不在仪表显示。

CLEA: refer to Section 3.2.1.14. 29 Tire Pressure of PIS-2085 for details. GB: refer to section 3.1.10 of CTRS. It corresponds to Section 3.2.3.1 of PIS-2052. Other tire pressure functions of PIS-2052 are not displayed on the cluster.

### 发动机运转和怠速时间/ Hourmeter and Idlemeter (ICE only)

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

仪表应当支持显示发动机运转和怠速时间，单位是小时，精确到0.1小时。仪表能够显示的运行时间最大为99999.9小时。当发动机运行时间超过99999.9小时，计时器需要重置, 当发动机怠速时间超过99999.9小时，计时器需要停留在最大值。

Cluster shall support hourmeter and idlemeter. The unit shall be hour, and shall be accurate to 0.1 hour. Cluster shall be able to present the engine run time up to 99999.9 hours. When the engine running elapsed time is larger than 99999.9, the elapsed time-timer shall reset. When the idle meter elapsed time is larger than 99999.9, the elapsed time-timer shall stay at the maximum value (no rollover).

CLEA参考PIS-2085的3.2.1.14.43 Hourmeter and Idlemeter章节。

CLEA: Refer to Section 3.2.1.14.43 Hourmeter and Idlemeter of PIS-2085.

GB参考CTRS 3.1.320 章节。

GB: refer to CTRS Section 3.1.320.

与PIS-2052的3.2.8.7章节对应。

Corresponding to Section 3.2.8.7 of PIS-2052.

### 机油压力/Oil Pressure

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

机油压力分为表盘式和数值式。具体显示以UE文档为准。

Oil Pressure can be displayed in gauge type and digital type. Refer to UE Interaction Document for the display.

与PIS-2052的3.2.8.6章节对应。

Corresponding to Section 3.2.8.6 of PIS-2052.

机油压力也属于性能信息，与本Spec的5.3.5章节对应。

Corresponding to Section 5.3.5 of this spec since oil pressure is also one of the performance monitor.

#### 机油压力表盘/ Oil Pressure Gauge

CLEA机油压力表盘参考PIS-2085中3.2.1.9.6 Oil Pressure Gage。GB机油压力表盘参考GB IPC CTRS中的3.1.258 Arbitrate-Determine-Control Oil Pressure Gage Position。

Refer to Section 3.2.1.9.6 Oil Pressure Gage of PIS-2085 for CLEA. Refer to Section 3.1.258 Arbitrate-Determine-Control Oil Pressure Gage Position of GB IPC CTRS for GB.

当机油压力指示灯（PIS-2062的3.13章节，Indicator #30）点亮时，机油压力表盘应用红色用于警告用户。

When the Oil Pressure Indicator (Section of 3.13 of PIS-2062, Indicator #30) is on, the gauge shall show in red to warn the driver.

指针实际位置标定参考PIS-2085（CLEA）和GB IPC CTRS中的定义。

For the calibration of actual position of the pointer, refer to PIS-2085 (CLEA) and GB IPC CTRS.

#### 数值式机油压力/ Digital Oil Pressure

~~机油压力以数字形式展现。~~

~~Oil Pressure is presented in digital.~~

数值式机油压力范围0.0-1020.0kPa，精确到0.1kPa。

The scope of digital oil pressure is 0.0-1020.0kPa, accurate to 0.1kPa.

当机油压力指示灯（PIS-2062中的3.13章节，Indicator #30）点亮时，机油压力应当有视觉变化，具体参考UE交互文档。

When the Engine Oil Pressure Indicator (Indicator #30 in section 3.13 of PIS-2062) is on, there should be visual changes in Oil Pressure. Please refer to UE interactive documentation for details.

CLEA信号具体参考PIS-2085的3.2.1.14.48 Performance Page章节中的Oil Pressure。

CLEA: Please refer to Oil Pressure in Section 3.2.1.14.48 Performance Page of PIS-2085 for signal details.

GB信号具体参考CTRS的3.1.315 Performance Page章节中的Oil Pressure。

GB: Please refer to Oil Pressure in Section 3.1.315 Performance Page of CTRS.

### 机油温度/Oil Temperature [Only GB]

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | No |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

机油温度范围为-40-215℃，精确到1℃。展现形式可包括具体温度和图表。

The range of oil temperature is -40-215℃, accurate to 1℃. Can show in specific temperature and chart.

GB信号具体参考CTRS的3.1.315 Performance Page章节中的Oil Temperature。

GB: Please refer to Oil Temperature in Section 3.1.315 Performance Page of CTRS.

具体参考PIS-2052的3.2.8.8章节。

Please refer to Section 3.2.8.8 of PIS-2052 for details.

## 性能信息/ Performance Monitor [Only GB]

性能信息应当包含动态加速度、涡轮压力、发动机扭矩、踏板行程、机油压力~~及机油温度~~。

The performance information shall include G-Force, turbo pressure, engine torque display page, pedal stroke, oil pressure ~~and oil temperature~~.

相关定义请参考PIS-2056 Performance Monitor。~~支持投屏到仪表显示。~~

For relevant definitions, please refer to PIS-2056 Performance Monitor. ~~It supports projection to the instrument cluster.~~

### 动态加速度/G-Force

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | No |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

动态加速度G-Force用以显示车辆横向与纵向加速度，单位为重力加速度g。

G-Force is used to display the vehicle's transverse and longitudinal accelerations in g, the unit of acceleration of gravity.

以图表形式表现，具体参考PIS-2056的3.3章节。

It is presented in graph, please refer to Section 3.3 of PIS-2056 for details.

### 涡轮压力/Turbo Pressure

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | No |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

涡轮压力以数字或图表展现，单位百分比，精度1%。

Turbo Pressure is presented in digital or graphical form, in percentage, accurate to 1%.

具体参考PIS-2056的3.4章节。

Please refer to Section 3.4 of PIS-2056 for details.

### 发动机扭矩/Engine Torque Display Page

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | No |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

发动机扭矩可以以数字或图表展现，单位N·m。具体参考PIS-2056的3.5章节。

Engine Torque Display Page can be presented in digital or graphical form, in N·m. Please refer to Section 3.5 of PIS-2056 for details.

### 踏板行程/ Pedal Stroke

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | No |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

踏板行程以数字或图表展现，单位百分比，精度1%，具体参考PIS-2056的3.6章节。

Pedal Stroke is presented in digital or graphical form, in percentage, accurate to 1%. Please refer to Section 3.6 of PIS-2056 for details.

### 机油压力/Oil Pressure

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | No (only ‘Yes’ in vehicle status) |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | No |

机油压力以数字形式或图表形式展现。

Oil Pressure is presented in digital or graphical form.

参考PIS-2056的3.7章节。

Please refer to Section 3.7 of PIS-2056.

机油压力也属于车况信息，与本Spec的5.2.11章节对应。

Corresponding to Section 5.2.11 of this spec since oil pressure is also one of the vehicle status.

### 机油温度/Oil Temperature(~~TBD~~ Deleted)

~~适配情况/Equipped or not：~~

|  |  |
| --- | --- |
| ~~CLEA (458)~~ | ~~No~~ |
| ~~Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2)~~ | ~~TBD~~ |
| ~~Global B Buick BEV (B233/223)~~ | ~~No~~ |

~~机油温度以数字形式或图表形式展现。~~

~~Oil Temperature is presented in digital or graphical form.~~

~~具体参考PIS-2056的3.8章节（TBD）。~~

~~Please refer to Section 3.8 of PIS-2056 (TBD) for details.~~

## 驾驶辅助（ADAS）相关信息/ ADAS Related Information

驾驶辅助相关指示灯请参考PIS-2062，驾驶辅助相关Warning请参考PIS-2069，驾驶辅助视图显示内容请参考PIS-2081，其他驾驶辅助显示内容见本章节。

Please refer to PIS-2062 for ADAS indicator light, PIS-2069 for ADAS Warning, PIS-2081 for ADAS view display content, and this section for other ADAS display contents.

### 跟车距离和时间指示/ Following Distance and Time Indication

适配情况/Equipped or not：

|  |  |
| --- | --- |
| CLEA (458) | Yes |
| Global B Buick ICE (E2LB-2,E2UB/YB,C1YB-2) | Yes |
| Global B Buick BEV (B233/223) | Yes |

该功能指示从主机车辆到前方车辆的距离和时间。帮助驾驶员了解它们向前行驶的车辆有多近。该页面同时支持显示Gap Setting。

This feature indicates the distance and time from the host vehicle to the vehicle ahead. It helps the driver understand how near the vehicle is with the vehicle ahead. The page also supports the display of Gap Setting.

CLEA具体参考PIS-2085中3.2.1.14.51 Following Distance and Time Indication章节。GB参考CTRS的3.1.277 Driver Assistance Page章节。

CLEA: Please refer to 3.2.1.14.51 Following Distance and Time Indication of PIS-2085 for details. GB: Refer to section 3.1.277 Driver Assistance Page of CTRS.

### ACC自动设定速度/ ACC Auto Set Speed (Deleted)

——该功能无需执行——

——No need to implement——

对于支持ACC自适应巡航的车辆，当ADAS系统识别到新的限速，支持弹出Warning提示用户更改ACC设定速度（仅自动模式，手动模式无此功能）。

For vehicles supporting ACC, when ADAS has identified a new speed limit, it will support the pop up of Warning to prompt the user to change ACC set speed (for auto mode only, and unavailable in manual mode).

该功能被PIS-2051的第5章内容替代。

The function is replaced by the content in section 5 of PIS-2051.

## 其他信息/ Other Information

### 单位/ Unit

VCU不支持公制和英制的单位切换。仅支持公制。

VCU does not support the unit switchover between metric system and British system. It only supports the unit of metric system.

CLEA对应PIS-2085中的3.2.1.14.17章节Display Units，需要VCU发送以下信号值：

CLEA corresponds to Section 3.2.1.14.17 Display Units of PIS-2085, and VCU has to send the following signal values:

* *Display Measurement System Extended* = $0 = Metric
* *Display Measurement System* = $0 = Metric

GB参考CTRS中的3.1.550和3.1.749章节，对应信号发送公制值。

GB refer to Section 3.1.550 and 3.1.749 of CTRS, sending metric value for signals.

另外，针对Global B BEV与电车相关的单位，详见FG.02.06.13的2.5.6章节。

In addition, see section 2.5.6 of FG.02.06.13 for electrical units used for Global B BEV.

### 语言/ Language

VCU支持多种语言，语言切换在中控完成。仪表的显示语言与中控保持一致，具体参考PIS-2046的3.4章节。

VCU supports multiple languages, which will be switched on console. The display language of instrument cluster shall be consistent with that of console, refer to Section 3.4 of PIS-2046 for details.

# 多屏互动/ Multi-screen Interaction

多屏互动仅指VCS内将中控内容映射到仪表上的一系列功能。

Multi-screen interaction only refers to a set of functions within the VCS that map the contents of console to the instrument cluster.

多屏互动的实现可以通过语音实现，具体实现内容和方式参考PIS-2030。

Multi-screen interaction may be realized by voice, please refer to PIS-2030 for specific contents and methods.

多屏互动的内容应当与中控保持一致，展现形式可以有所不同，内容传输的延迟应当小于100ms。本章节中某些内容支持飞屏，关于飞屏操作请参考PIS-2011的第5章。

The contents of multi-screen interaction shall be consistent with that of console, except for the presentation form, and the transmission delay of contents shall be less than 100ms. Some features in this section support Flying Screen, please refer to Section 5 of PIS-2011 for the operation of Flying Screen.

中控应用中的输入、翻页、搜索等操作均不应当影响仪表显示当前占位内容（6.1-6.3章节定义的功能）。例如用户在音乐APP中进行音乐搜索应当不影响当前音乐播放。

The operations in the console application, such as input, page turning, search, etc., shall not affect the display of current placeholder content by the instrument cluster (features defined in Sections 6.1-6.3). For example, the action that the user searches music in Music APP shall not affect the play of current music.

当仪表启动完毕而中控仍在启动中，不支持用户切换到多屏互动相关页面，若当前模式有相关页面，显示内容参见UE交互文档。以上状态持续到中控启动完毕。

When the instrument cluster is started but the console is still starting, it will not support the user to switch to multi-screen interactive related pages. If there are related pages in the current mode, please refer to UE interaction design document for the displayed content. The above status will last until the console is started.

## 多媒体/ Multimedia

VCS支持将中控多媒体内容传输到仪表上进行显示。支持音源包括蓝牙、USB、手机互联（CarPlay&CarLife）、Tuner、SD卡及网络应用音源，完整的音源参考PIS-2023。仪表应当能够正确接收到音源类型并进行展示，支持通过SWC切换音源。对于网络应用音源需细分到具体APP，如网易云音乐。

VCS supports to transmit the multimedia content of console to the instrument cluster for display. The supported sound sources include Bluetooth, USB, mobile phone interconnection (CarPlay&CarLife), Tuner, SD card and network app; please refer to PIS-2023 for complete sound sources. The instrument cluster shall be able to receive and present the sound source type correctly and support switching of source through SWC. Network App ~~sound~~ sources have to be subdivided into specific APPs, such as NetEase CloudMusic.

除音源外，还需要显示以下内容（以下如有获取不到的内容，可不显示）：

The cluster shall show the following content besides the sound source type (The following content may not be displayed if it cannot be obtained):

* 音乐（各音源）：歌曲名、艺术家、专辑封面和播放状态（播放/暂停及进度）
* Music (all kinds of source): Song name, artist, album cover and the status (play/pause and progress)
* 有声（网络应用音源）：专辑名、节目名、创作人、专辑封面和播放状态（播放/暂停及进度）
* Audio (Network app): Album name, program name, artist, album cover and the status (play/pause and progress)
* 新闻（网络应用音源）：新闻标题、来源、新闻封面和播放状态（播放/暂停及进度）
* News (Network app): News title, news source, news cover and the status (play/pause and progress)
* 电台（Tuner广播或网络应用音源）：电台名、电台频率、节目名、电台封面或台标、播放状态（播放/暂停及进度）
* Radio (Tuner or network app): Radio name, band frequency, program name, radio cover or station logo, and the status (play/pause and progress)

此外，仪表需要支持显示音源列表和当前播放列表（歌曲列表、新闻列表、有声专辑列表或电台列表）。针对配置有HUD的车型，是否显示由用户设置，参考PIS-2068的4.4.4章节。

In addition, the instrument cluster needs to support the display of sound source lists and current play list (song list, news list, audio list or station list). For vehicles with HUD, the display is set by the user. Please refer to Section 4.4.4 of PIS-2068.

应显示静音状态和音量调节状态。

Mute status and volume adjustment status shall be displayed.

关于各个音源的详细定义，请参考各Spec。蓝牙音源对应PIS-2038；USB音源对应PIS-2025；广播音源对应PIS-2024；手机互联（CarPlay&CarLife）对应PIS-2004。

Please refer to the Specs for the detailed definition of each sound source. Bluetooth corresponds to PIS-2038; USB corresponds to PIS-2025; broadcast corresponds to PIS-2024; mobile phone interconnection (CarPlay&CarLife) corresponds to PIS-2004.

## 导航/ Navigation

VCS支持将中控导航内容传输到仪表上进行显示。CarPlay/CarLife导航显示全集对应PIS-2004的第一章节和第六章节，具体显示的内容参考UE交互文档。以下内容针对车载导航。导航支持飞屏操作，只要地图在中控前台显示，就需要支持飞屏，当用户飞屏时，仪表进入地图模式。

VCS supports to transmit the navigation content of console to the instrument cluster for display. The complete set of CarPlay / CarLife navigation display corresponds to the first and sixth chapters of PIS-2004. Please refer to the UE interactive document for the specific display content. The specific requirements will not be covered in this Spec. The followings are specific to onboard navigation. The navigation supports Flying Screen. As long as the map is displayed in the ICS foreground, it needs to support the flying screen. When user activates Flying Screen, the instrument cluster will enter map mode.

关于以下功能的详细定义请参考PIS-2070 Location Based Service。

Please refer to PIS-2070 Location Based Service for the detailed definition of the following features.

### 地图展示/ Map Presentation

仪表应当支持显示导航地图。地图显示形式永远保持车头向上且保持自动比例尺，不跟随中控变化。用户在中控对地图本身进行的操作均不迁移到仪表上，如缩放和旋转。俯仰角（2D/3D或其他角度）跟随导航应用。白天黑夜模式跟随导航应用。

The instrument cluster shall support the display of navigation map. In the map, the vehicle head is always kept upward for display with automatic scale, without changing with the console. None of the operations performed by the user on the map itself in the console will be migrated to the instrument cluster, such as scale up/down and rotation. Pitch angle (2D/3D or other angles) follows the navigation application. Day/night mode follows the navigation application.

导航需适配个性化车标，具体参考PIS-2070的4.2.8章节。

Navigation should be adapted to personalized vehicle logo. Refer to section 4.2.8 of PIS-2070 for details.

### 信息展示/ Information Presentation

仪表导航的信息展示请见PIS-2070的4.3.5.5章节。

Please see section 4.3.5.5 of PIS-2070 for the elements of navigation shown on cluster.

### 仪表控制/ Instrument cluster Control

Deleted

## 电话/ Call

仪表应当支持系统电话功能，需要显示以下信息：

The instrument cluster shall support the system call features and shall display the following information:

* 当前通话状态，包括通话中、来电中和拨出中。
* Current call statuses, including On the Line, Calling In and Dialing Out.
* 来电联系人，蓝牙电话（含CarLife电话）显示方式参考PIS-2036中的3.4.1章节。安吉星电话区分A-Call及E-Call。
* Please refer to Section 3.4.1 of PIS-2036 for the display mode of Call contact, Bluetooth call (including CarLife call). OnStar calls are divided into A-Call and E-Call.
* 通话时长。
* Call duration.

此外，仪表需要支持显示蓝牙通话的最近通话列表，参考PIS-2036中的3.2章节；需要支持通过SWC选择通话记录拨出电话，参考PIS-2036中的3.4.2章节。仪表若能获取到CarPlay的最近通话列表，则也需要支持显示，关联PIS-2004。针对配置有HUD的车型，是否显示由用户设置，参考PIS-2068的4.4.4章节。

In addition, the instrument cluster needs to support the display of the latest call list of Bluetooth calls, please refer to Section 3.2 of PIS-2036; and needs to support dialing out via SWC by selecting from call records, please refer to Section 3.4.2 of PIS-2036. If the instrument cluster can get the latest call list of CarPlay, it also needs to support the display, with reference to PIS-2004. For vehicles with HUD, the display is set by the user. Please refer to Section 4.4.4 of PIS-2068.

蓝牙电话（含CarLife电话）信息来源参考PIS-2036中的3.4章节。

Please refer to Section 3.4 of PIS-2036 for the data source of Bluetooth calls (including CarLife call).

CarPlay&CarLife电话显示需求同蓝牙电话。关联PIS-2004。

Same requirement as Bluetooth phone for CarPlay&CarLife Phone. Linked to PIS-2004.

## 天气/ Weather

仪表支持显示今日天气信息，包含城市信息、晴雨情况、当前气温和当天最高最低温度、极端天气预警和空气质量。

The instrument cluster supports the displays of today's weather information, including city, sunny or rainy condition, current and maximum or minimum temperature of the day, and extreme weather warnings.

城市信息请参考百度天气限行接口文档的3.1章节。

Please refer to Section 3.1 of Baidu weather Traffic Control interface document for city.

晴雨情况请参考百度天气限行接口文档的3.9章节（数据）和4.1章节（对应表），需要区分白天和夜晚。

Please refer to Section 3.9 (data) and Section 4.1 (corresponding table) of Baidu weather Traffic Control interface document for sunny and rainy conditions. It is necessary to distinguish between day and night.

当前气温请参考百度天气限行接口文档的3.9章节（数据）。

Please refer to section 3.9 (data) of Baidu weather traffic Control interface document for the current temperature.

当天最高最低温度参考百度天气限行接口文档的3.14章节。

Refer to the 3.14 of Baidu weather Traffic Control interface document for the highest and lowest temperature of the day.

极端天气预警参考百度天气限行接口文档的3.23章节（数据）和4.10章节（对应表）。

Extreme weather warning refers to section 3.23 (data) and section 4.10 (corresponding table) of Baidu weather restrictions interface document.

空气质量应显示“优”、“良”、“轻度污染”、“中度污染”、“重度污染”、“严重污染”或“爆表”。AQI指数参考百度天气限行接口文档的3.3章节，对应表见4.9章节。

Air quality should show "excellent", "good", "mild pollution", "moderate pollution", "severe pollution" or "serious pollution". Refers to Section 3.3 of Baidu weather Traffic Control interface document for AQI, and section 4.9 for table.

一般来说，在VCU启动后还未获取到最新天气时，若后台存储的天气信息是3天以内的（距离上次更新72小时以内），则先显示当前时间后台保存的天气信息；若后台存储的天气信息是3天以上的（距离上次更新72小时以上），则先显示未获取到（具体参考UE交互文档），直到获取到最新天气后显示最新天气。

In general, when the latest weather is not obtained after VCU is started, if the weather information stored in the background is less than 3 days (within 72 hours from the last update), the weather information saved in the background at the current time will be displayed first. If the weather information stored in the background is more than 3 days (more than 72 hours from the last update), the weather information not obtained will be displayed first (refer to UE interactive document for details) until the latest weather is obtained.

## Reminder提醒（Deleted）

Deleted.

## 驾驶行为评价/ Driving Behavior Analysis

仪表支持显示驾驶行为评价，具体显示内容如下：

The instrument cluster supports the display of driving behavior analysis. Specific content are as follows:

* 击败用户百分比/Percentage of Users Defeated
* 评分/评级/Trip Score and Ranking
* 驾驶时长/Trip Duration Time
* 驾驶里程/Trip Mileage
* 平均速度/Average Speed
* 最高车速/Maximum Speed
* 平均油耗（ICE only）/Average Oil Consumption (ICE only)或平均电耗（EV only）/Average Power Consumption (EV only)
* 拥堵时长/Congestion Duration Time
* 自适应巡航里程/ACC Mileage

以上内容信息具体参考PIS-2033的4.1章节。

Please refer to section 4.1 of PIS-2033 for the content above.

驾驶行为评价触发时间和消失时间请参考UE交互文档。

Please refer to UE interactive document for trigger time and disappearance time of driving behavior evaluation.

## HUD调节指引/ HUD Adjustment Guidance

仪表支持显示HUD调节指引，与PIS-2068的4.4.2章节对应。

The instrument cluster supports the display of HUD adjustment guidance, corresponding to Section 4.4.2 of PIS-2068.

具体分为亮度、高度、角度三个指引，当用户选中相应调节项时，仪表弹出相应指引。

Specially, it has three guidances: brightness, height and angle. When one of the adjustment option is selected by the user, the corresponding guidance will pop up from the instrument cluster.

# 其他功能/ Other Features

## 仪表视觉/ Visual Features of Instrument cluster

仪表视觉与驾驶模式联动，参考PIS-2077的3.1章节。

The visual features of instrument cluster are linked with the driving mode, please refer to Section 3.1 of PIS-2077.

## ~~Early HMI、~~欢迎动画及开机动画/ ~~Early HMI,~~ Welcome Animation and Boot Animation

~~仪表Early HMI需要显示功能安全元素和车辆全生命周期的行驶里程。其中，功能安全元素请参考本文档7.5章节；车辆全生命周期的行驶里程请参考本文档的4.4章节。~~

~~The instrument cluster Early HMI shall display function safety elements and vehicle’s season odometer. Wherein, for function safety elements, please refer to Section 7.5 herein; and for vehicle’s season odometer, please refer to Section 4.4 herein.~~

仪表欢迎动画参考PIS-2032。

For instrument cluster’s welcome animation, please refer to PIS-2032.

开机动画即表盘扫表（Gages WOW）和Bulb Check。

The boot animation is Gages WOW and Bulb Check.

仪表表盘扫表可以被其他动画替代，若采用扫表，CLEA可具体参考PIS-2085的3.2.1.9.18 Gages WOW章节，GB可具体参考GB IPC CTRS的3.1.532章节。是否采用扫表以UE交互文档为准。

Gages WOW can be replaced with other animations, please refer to Section 3.2.1.9.18 Gages WOW of PIS-2085 for CLEA and Section 3.1.532 of GB IPC CTRS for GB if such feature is used. The adoption of Gages WOW is subject to UE interaction design document.

Bulb Check必须显示，CLEA具体参考PIS-2085的3.2.1.10.8 Bulb Check章节，GB具体参考GB IPC CTRS的3.1.585.3章节。支持Bulb Check的指示灯见PIS-2062，存在标定标明指示灯是否需要Bulb Check。

Bulb Check must be displayed, please refer to Section 3.2.1.10.8 Bulb Check of PIS-2085 for CLEA and Section 3.1.585.3 of GB IPC CTRS for GB. The indicator light supporting Bulb Check is shown in PIS-2062, and there is Calibration indicates that whether the indicator light needs to support Bulb Check.

仪表Early HMI、欢迎动画及开机动画播放时机与中控保持一致，与PIS-2032对应，具体参考《Determine Infotainment System State\_Specification》。

The play time of Early HMI, Welcome Animation and Boot Animation on the instrument cluster shall be consistent with that on console, corresponding to PIS-2032. Please refer to *Determine Infotainment System State\_Specification* for details.

BEV车型应有关机动画，具体参考动效设计。

Exit screen shall exist on BEV. Please refer to animation design for more.

## 异常处理/ Exception Handling

由于仪表为驾驶安全高相关系统，对于仪表功能实现应当尽可能满足以下要求：

Since the instrument cluster is a system highly related to driving safety, the realization of the instrument cluster features shall meet the following requirements as far as possible:

* 系统应当有能力检测到仪表中单项软件功能的失效，并对失效软件功能进行Reset，从检测直至Reset完成应当不超过3000ms
* The system shall be able to detect the failure of single software function in the instrument cluster and Reset the failed software function. The interval shall not exceed 3000ms from the detection to the completion of Reset
* 整车Power Mode=Run状态下的任意时刻仪表不应当出现黑屏情况
* The instrument cluster shall not have black screen at any time under the Power Mode=Run state of the vehicle
* 若极端情况下仪表全局失效，系统应当有能力检测到仪表全局失效的发生并进行全局Reset，从检测直至Reset完成应当不超过3000ms。
* If the instrument cluster fails globally in extreme case, the system shall be able to detect the global failure of the instrument cluster and Reset globally. The interval shall not exceed 3000ms from the detection to the completion of Reset.
* 失效及重置过程中，仪表应当显示“仪表系统正在恢复，抬头显示替代工作”的提示（具体请以交互设计为准）。仪表全局失效将会自动打开抬头显示（若此前抬头显示系统关闭）。
* During failure and reset, the instrument cluster shall display the prompt of “System is recovering, HUD to replace work”(specially subject to interaction design) Global failure of instrument cluster will automatically turn on HUD (if the HUD system is off previously)

## 仪表设置项/ Instrument cluster Settings

### 仪表限速开关及限速来源与限速重置/ Instrument cluster Speed Limit Switch and Reset of Speed Limit

针对CLEA 458：

For CLEA 458:

仪表应当支持限速开关及限速来源设置，限速开关可同时控制HUD限速显示，相关设置项如下：

The instrument cluster shall support speed limit switch and speed limit source setting. The speed limit switch can control HUD speed limit display at the same time. The relevant setting items are as follows:

|  |  |
| --- | --- |
| ~~交通标志~~限速识别  Traffic Sign Memory | 关闭/OFF |
| 交通标志/TSR/TSM |
| 智能限速/Navigation+V2X+ADAS Map |

该设置项实现逻辑在PIS-2051中。交通标志（TSR/TSM）应为默认。

The implementation logic for this setting entry is in PIS-2051. TSR/TSM should be the default.

当设为“关闭”，仪表和HUD不显示限速标志。

When set to "Off", cluster and HUD does not display the speed limit sign.

当设为“交通标志”和“智能限速”，数据来源都是PIS-2062中3.51章节，但两种来源在仪表上的显示应当区分，在HUD上的显示可不区分。

When set as TSR/TSM or intelligent speed limit (Navigation+V2X+ADAS Map), the data are from section 3.51 of PIS-2062, but the two displays should be distinguished on cluster, not on HUD.

针对GB，仪表应支持限速开关，同时可同时控制HUD限速显示，默认开启。仅当用户打开限速开关时，仪表应支持TSM限速开关，当TSM限速开关打开，仪表和HUD限速采用TSM限速；当TSM限速开关关闭，仪表和HUD限速采用智能限速。默认TSM限速开关开启。

For GB, the cluster shall support speed limit switch, on by default. This can also control the speed limit on HUD. Only when the user turns on the speed limit switch, the instrument shall support the TSM speed limit switch. When the TSM speed limit switch is turned on, the instrument and HUD speed limit adopts the TSM speed limit; when the TSM speed limit switch is turned off, the instrument and HUD speed limit adopts the intelligent speed limit. TSM speed limit shall be on by default.

针对CLEA&GB：

For CLEA&GB:

限速重置参考PIS-2046的3.8.3章节，仅支持对TSM限速重置。

Refer to section 3.8.3 of PIS-2046 for reset of Speed Limit. Only support reset TSM speed limit.

与本文档4.9.1章节对应。

Corresponding to Section 4.9.1 herein.

### 超速警示开关/ Overspeed Warning Switch

仪表支持超速警示开关，默认为开。该开关可同时控制HUD的超速警示。

The instrument cluster supports overspeed warning switch. The switch can simultaneously control the HUD overspeed warning.

超速警示开关对应PIS-2046的3.8.3章节。

Corresponding to section 3.8.3 in PIS-2046 for overspeed warning switch.

与本文档4.9.2章节对应。

Corresponding to Section 4.9.2 herein.

### 仪表模式的切换/ Mode Switching of cluster

针对燃油车（CLEA 458、Global B E2LB-2,E2UB/YB,C1YB-2）：

For ICE (CLEA 458、Global B E2LB-2,E2UB/YB,C1YB-2):

仪表应支持四种模式的切换，分别为标准、地图、驾驶辅助和极简。默认为标准。

The instrument cluster should support the switching of four modes, namely gauge, map, ADAS and stealth. Default is gauge.

针对电动车（Global B B233/223）：

For BEV (Global B B233/223):

仪表应支持五种模式的切换，分别为BEV视图、标准、地图、驾驶辅助、极简。默认为BEV视图。

The instrument cluster should support the switching of five modes, namely BEV View, gauge, map, ADAS and stealth. Default is BEV View.

### 车速的显示方式/ Display mode for vehicle speed

应支持用户选择车速的显示方式为表盘指针或数字，速度表对应4.1.1章节，速度值对应4.1.2章节。默认为数字。具体哪些仪表模式支持该设置项，请参考UE交互文档。

Support to choose the display mode of speed as dial pointer or number. The speed gage corresponds to section 4.1.1 and the speed value corresponds to section 4.1.2. Number by default. Refer to the UE interaction documentation for specific instrument modes that support this setting item.

### 导航信息显示开关/ Navi info switch

仪表应支持导航信息显示开关，默认为开。具体哪些仪表模式支持该设置项，请参考UE交互文档。

Instrument cluster should support navigation information display switch, default is on. Refer to the UE interaction documentation for specific instrument modes that support this setting item.

## 功能安全/Function Safety

仪表需要遵照功能安全的要求，相关要求涉及UE和软件。各元素要求具体参考SFS-110。

Cluster shall observe function safety requirement. This is related to UE and Software. Please refer to SFS-110 for details for function safety requirements of each element.

以下定义CLEA 458的功能安全元素。

Function safety elements of CLEA 458 are defined as follows.



## 不同整车Power Mode下仪表的显示内容/Content shown on cluster in different Power Mode

* + 1. 针对燃油车ICE（458, E2LB-2, E2UB/YB, C1YB-2），当整车Power Mode为Off，VCU屏幕处于点亮状态、不处于播放任何动画的状态下，仪表需要显示以下内容：

For Gasoline vehicles (458, E2LB-2, E2UB/YB, C1YB-2), when the vehicle's power mode is off, the VCU screen is on, and no animation is played, the cluster needs to display the following contents

* 全生命周期的行驶里程（4.4.1章节）

Odometer (Section 4.4.1)

* 指示灯（以信号/ODI为准）

Indicator (according to signal/ODI)

* Warning（以信号/ODI为准）

Warning (according to signal/ODI)

* + 1. 针对燃油车ICE（458, E2LB-2, E2UB/YB, C1YB-2），当整车Power Mode为ACCY，VCU屏幕处于点亮状态、不处于播放任何动画的状态下，仪表需要根据不同车型配置、不同视图选取以下部分内容显示：

For Gasoline vehicles (458, E2LB-2, E2UB/YB, C1YB-2), when the vehicle's power mode is ACCY, the VCU screen is on, and no animation is played, the following parts can be selected for display according to different vehicle configurations and different views:

* 全生命周期的行驶里程（4.4.1章节）（必须显示）

Odometer (Section 4.4.1) (Must be shown)

* 指示灯（以信号/ODI为准）

Indicator (according to signal/ODI)

* Warning（以信号/ODI为准）

Warning (according to signal/ODI)

* 挡位（4.5章节）

Gear (Section 4.5)

* 速度（4.1章节）

Speed (Section 4.1)

* 转速（4.2章节）

Tachometer (Section 4.2)

* 油表（4.3.1章节）

Fuel Level Gage

* 时间和日期（4.6章节）

Time and Date (Section 4.6)

* 航向/罗盘（4.7章节）

Heading/Compass (Section 4.7)

* 车外温度（4.8章节）

Exterior Temperature (Section 4.8)

* 3D小车模型（4.10章节）

3D Car Model (Section 4.10)

* 多屏互动信息（第6章节）

Multi-screen Interaction (Section 6)

* + 1. 针对电动车BEV（B233/B223），当整车Power Mode为Off及ACCY，VCU屏幕处于点亮状态、不处于播放任何动画的状态下，仪表需要显示以下内容：

For BEV (B233/B223), when the vehicle's power mode is Off & ACCY, the VCU screen is on, and no animation is played, the cluster needs to display the following contents:

* 全生命周期的行驶里程（4.4.1章节）

Odometer (Section 4.4.1)

* 充电页面（仅BEV车，4.11章节）

Peek-in Screen (Section 4.11)

* 指示灯（以信号/ODI为准）

Indicator (according to signal/ODI)

* Warning（以信号/ODI为准）

Warning (according to signal/ODI)

* 挡位（4.5章节）

Gear (Section 4.5)

* + 1. 当整车Power Mode为RUN或Propulsion (GB)，应支持显示除充电页面（4.11章节）外的所有内容。

When the power mode of the whole vehicle is RUN or Propulsion (GB), all contents except charging page (Section 4.11) shall be displayed.

# 系统需求/System Requirements

## 账号相关/Account

NA

## 应用内设置/In-application Setting

NA

## 外部调用/External Call

NA

## 数据维护/Data Maintenance

NA

## 版本升级/Version Upgrade

软件能力应当支持OTA升级，且跟随系统升级。

The software capabilities shall support OTA upgrade and upgrade with the system.

## 埋点需求/Event Tracking Requirements

NA

## 相关CAN信号/Related CAN Signals

CLEA 458：

具体请参考PIS-2085中的各章节。

Please refer to PIS-2085 for details.

无ODI的信号如下：

Signals without ODI are as follows:

|  |
| --- |
| **Signals, Rx** |
| *Brake Lights Active* |
| *Reversing Lamp* |
| *Low Beam Active* |
| *PPEI Steering Wheel Angle Signal Group 2 : Steering Wheel Angle* |
| *Front Left Park Light Failed* |
| *Left Brake Light Failed* |
| *Rear Left Park Light Failed* |
| *Front Right Park Light Failed* |
| *Right Brake Light Failed* |
| *Rear Right Park Light Failed* |
| *Daytime Running Lamps Active* |

Global B：参考GB IPC CTRS各章节。

Global B: Refer to GB IPC CTRS.

## 相关标定项/Related Calibration Items

参考VCU IPC Calibrations (CLEA)和GB标定文档。

Please refer to VCU IPC Calibrations (CLEA) document and GB Calibration.

以下仅列明定义在本Spec中的标定，不包括定义在PIS-2085/GB IPC CTRS的标定。

Only define the calibration mentioned in this spec, not including the ones defined in PIS-2085/GB IPC CTRS.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 标定名称  Calibration Name | 类型  Type | 描述  Description | 默认值  Default | 最小值  Min | 最大值  Max |
| *P\_VEHICLE\_PROPULSION\_TYPE* | Enumeration | 车辆驱动类型。  Type of fuel vehicle uses for propulsion  具体值：Gas, LPG, CNG, BEV, Ext. Range Electric, PHEV, HEV  Value: Gas, LPG, CNG, BEV, Ext. Range Electric, PHEV, HEV  此标定定义在VCU VIP侧，Global Common。  The calibration is in VCU VIP, Global Common. | 0 | 0 | 6 |

**Revision Log**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Version** | **Date** | **CR** | **Section** | **Description** | **Author** |
| 0.0.1.6 | Mar. 11th, 2021 | 94996 | 2/3/4/5/6.4/7/8.8 | 澄清适配情况应通过标定控制—2  源数据见各功能描述—3  每个功能都应考虑故障显示，指示灯触发需特殊显示应不包括Bulb Check情况—4  电量颜色与Warning的关系澄清—4.3.2  电量表可标识低电量位置—4.3.2.1  剩余里程低时需要警告用户，BEV完全没电时应显示剩余里程为0km—4.3.3  删除行驶里程简介，通过各子章节叙述—4.4  旅行里程电耗增加范围—4.4.2  BEV增加当前里程—4.4.3  BEV只有PRND四个挡位—4.5  限速标志设置以7.4.1章节为准，数据源以PIS-2062的3.51章节为准—4.9.1  3D小车元素整理至表格中—4.10  位置灯与近光灯状态合并且以位置灯为准—4.10  增加GB刹车灯和前车轮转角信号—4.10  胎压故障更新GB部分Warning—4.10  是否插上电可不显示—4.11  充电状态判断依据澄清—4.11  预计充电完成时间显示见UE文档—4.11  功率表包括表和值，增加二者范围—4.12  瞬时油耗在Auto Stop显示Auto Stop，非Auto Stop且速度很低/车辆静止时显示L/hr，并更新GB章节号—5.1.1  删除Eco Index，Efficiency Display适用GB所有车型，增加Efficiency Display的范围—5.1.5  BEV增加电量消耗—5.1.9  BEV增加电耗趋势—5.1.10  机油寿命展现形式包括百分比和图表，机油寿命低需要特殊显示—5.2.1  PM2.5滤网寿命展现形式包括百分比和图表—5.2.2  刹车片寿命有多种状态—5.2.3  发动机空气滤芯寿命有多种状态—5.2.5  燃油滤清器寿命展现形式包括百分比和图表，燃油滤清器寿命低需要特殊显示—5.2.6  变速箱油温度展现形式包括具体温度和图表—5.2.8  蓄电池电压分为表盘式和数值式，增加表盘式的参考文档，更改数值式电压范围—5.2.9  胎压Warning触发应特殊显示，与Indicator无关—5.2.10  机油压力包括表盘式和数值式，增加表盘式的参考文档，增加数值式范围和精度—5.2.12  在车况信息中增加机油温度，以代替性能信息中的机油温度—5.2.13&5.3.6  天气也需标明城市—6.4  删除Early HMI，BEV有关机动画—7.2  增加GB仪表限速开关和限速来源设置项—7.4.1  增加不同整车power mode下仪表的显示内容—7.6  更新相关标定项—8.8 | Xiong Jiawen |
| 0.0.1.5 | Feb. 10th, 2021 | 92284 | 2/4/5/6.4/7.4.1/8.8 | 明确本Spec适用车型—2  增加BEV视图—4  增加基础信息和深度信息适配情况—4/5  明确车速表最高车速和标度值策略并增加相关车型最高车速—4.1.1  油表小箭头增加注释—4.3.1  增加电量表和电量信息—4.3.2  剩余里程增加BEV车—4.3.3  全生命周期里程Odometer增加GB更新章节—4.4.1  旅行里程（小计里程）增加电车部分—4.4.2  航向增加校准中状态—4.7  超速警示更新GB部分—4.9.2  电车增加充电页面—4.11  电车增加功率表—4.12  瞬时油耗范围更新—5.1.1  ECO Index—仅油车；Efficiency Display—仅电车—5.1.5  最高耗能设备范围更新，增加OFF条件—5.1.6  删除最佳油耗中不支持L/hr的描述—5.1.8  发动机冷却液温度增加GB CTRS更新章节+指示表盘的灯—5.2.7.1  删除胎压学习页面—5.2.10  跟车距离和时间指示都适配—5.4.1  单位增加电车单位—5.5.1  天气更新启动时的情况—6.4  更新GB限速开关—7.4.1  仪表模式电动车增加BEV视图—7.4.3  相关标定项增加GB文档—8.8 | Xiong Jiawen |
| 0.0.1.4 | Jan. 4th, 2021 | 83029 | 4/4.10/5.1.5/5.1.8/6.1/6.2/6.3/7.4.4 | 速度需显示单位“km/h”—4.1  转速需显示单位RPM和系数—4.2  车外温度低对应Warning触发时应显示雪花—4.8  3D小车增加倒车灯—4.10  彩蛋增加“头等舱模式”的说明—4, 4.10  ECO INDEX /Efficiency不适用于458—5.1.5  最佳油耗增加Reset—5.1.8  明确手机互联为CarPlay&CarLife，支持通过SWC切换音源—6.1  CarPlay&CarLife导航显示内容全集链接PIS-2004，具体显示参考UE交互文档—6.2  导航需适配个性化车标—6.2.1  CarPlay&CarLife电话显示需求同蓝牙电话—6.3  澄清DBA具体显示内容—6.6  增加扫表和Bulb Check的GB对应—7.2  仪表限速开关&超速警示开关同时控制HUD—7.4.1&7.4.2  增加默认显示车速为数字模式—7.4.4  更新功能安全文档—7.5 | Xiong Jiawen |
| 0.0.1.3 | Nov 20th, 2020 | 73704 | 2/4/5/6.2  /6.4/7.4/  8.7 | 定义范围明确只包括显示要求—2  驾驶辅助视图参考PIS-2081—4  仪表需配合彩蛋显示—4  增加GB对应—4/5.1/5.2/5.4/5.5  车速分拆为车速表和车速值，车速表增加显示要求—4.1  增加转速显示要求，包括启停状态的显示、转速范围等—4.2  剩余能量分拆为油表、电量、剩余里程，油表增加显示要求，例如红线值等，电量TBD，剩余能量增加范围和显示要求—4.3  行驶里程分拆为全生命周期生命里程和小计里程，明确只在中控reset—4.4  挡位增加显示所有挡位的要求—4.5  限速信息增加限速标志和超速警示—4.9  3D小车内容以表格展现—4.10  3D小车增加日间行车灯状态和维修前摄像头的提示—4.10  部分3D小车Warning需配合彩蛋显示—4.10  删除能耗信息、车况信息、性能信息飞屏的要求，增加相关reset等操作仅支持中控，不支持仪表SWC—5.1/5.2/5.3  瞬时油耗增加范围—5.1.1  平均油耗增加范围，删除全生命周期要求—5.1.2  平均车速删除全生命周期要求—5.1.3  增加效率显示—5.1.5  最高能耗设备明确显示的优先级顺序—5.1.6  最佳油耗增加中控切换距离的要求—5.1.8  刹车片需区分前后—5.2.3  发动机冷却液温度分拆为表盘和数值式，并增加表盘显示要求—5.2.7  蓄电池电压增减显示要求—5.2.9  胎压增减显示要求—5.2.10  增加发动机运转和怠速时间—5.2.11  增加车辆信息中的机油压力—5.2.12  性能信息仅GB适用—5.3  补充单位GB发送信号—5.5.1  明确导航支持飞屏要求—6.2  导航显示内容参见导航Spec –6.2.2  天气对应百度接口文档，增加空气质量显示—6.4  增加仪表设置项（限速开关限速来源、超速警示、仪表模式、车速显示方式、导航信息）—7.4  CLEA增加日间行车灯信号，GB信号参考GB IPC CTRS—8.7 | Xiong Jiawen |
| 0.0.1.2 | Sept 9th, 2020 | 63111 | 4.1-4.8/5/6/7 | 细化速度--4.1  细化转速--4.2  细化剩余能量--4.3  细化行驶里程--4.4  细化挡位--4.5  细化时间和日期--4.6  细化航向--4.7  细化车外温度--4.8  增加3D小车故障显示的信号适用规则—4.10  细化能耗信息具体要显示的内容--5.1  细化车况信息具体要显示的内容--5.2  细化性能信息具体要显示的内容--5.3  增加ADAS相关显示信息--5.4  增加其他信息，包括单位和语言--5.5  细化多屏联动ICS未启动时IPC显示策略--6  根据百度回复细化多媒体显示内容--6.1  CarLife导航遵循百度协议--6.2  电话增加HUD相关设置项--6.3  天气信息明确供应商--6.4  细化仪表视觉对应章节号--7.1  细化Early HMI、欢迎动画及开机动画--7.2  增加仪表设置项作预留--7.4  增加功能安全要求--7.5  增加CAN信号列表 –8.7 | Xiong Jiawen |
| 0.0.1.1 | Jul 14th, 2020 | 5859 | 4/4.1/4.2/4.9/4.10/5.2/5.3/6/6.1/6.2/6.2.3/6.3/6.4/7.1/7.2/8 | 根据UE评估，去除第一层级显示要求，不做强制，增加仪表支持的四种视图—4  增加任何视图都要显示车速值的要求—4.1  更改转速显示要求—4.2  增加限速信息—4.9  增加3D小车模型—4.10  根据UE评估，删除车况信息相关Reset功能—5.2  更新性能信息显示内容—5.3  增加多屏互动可支持语音完成—6  增加飞屏功能—6  删除多媒体中对音频文件显示时间的要求以及Tuner的节目名称—6.1  增加导航的应用区分—6.2  导航地图展示俯仰角跟随导航应用—6.2.1  删除仪表控制导航的相关要求—6.2.3  更新电话显示要求—6.3  增加仪表显示天气的要求—6.4  增加仪表显示Reminder提醒—6.5  增加仪表显示驾驶行为评价提醒 – 6.6  增加仪表显示HUD调节指引 – 6.7  更改仪表视觉各模式显示要求—7.1  更改开机动画要求—7.2  增加系统需求—8 | Jie Gu  Xiong Jiawen |
| 0.0.1.0 | Aug 27th, 2019 | 5114 | All | New creation | Jie Gu |