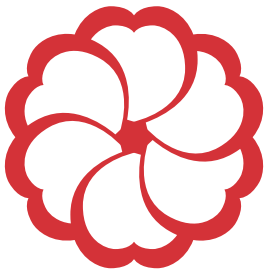


Digital instrument cluster
VIC
Lomonosov Z

specification

version alpha

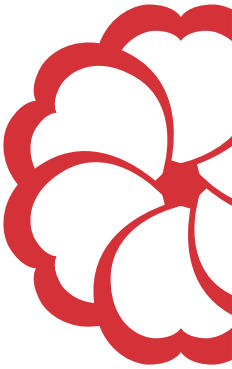
1
General description

VIC Lomonosov Z is a digital instrument cluster for public transportation. This high-performance embedded graphics processor features high-brightness display, avionic aluminum housing and aerospace interface connector.

Fig. 1. VIC Lomonosov Z.

Cluster hardware is optimized for ultimate graphics performance and instant startup time — it has 60 *Hz* both display refresh rate and graphics frame rate, loads graphics and starts up in a fraction of a second.

2
Display



VIC Lomonosov Z is equipped with a rugged, high-brightness and high-contrast display of 800×600 resolution and classical 4:3 aspect ratio.

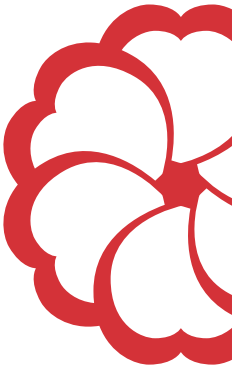
Display data

view area size	211.2 *mm*×158.4 *mm*
resolution	800×600
aspect ratio	4:3
color resolution	18 *bit*
brightness	1000 cd/m^2
contrast ratio	400
refresh rate	60 *Hz*
operating temperature	−30°*C*–80°*C*

Table 1. VIC Lomonosov Z display data.

The display diagonal is 264 *mm* or 10.5″.

3
Hardware



At its core VIC Lomonosov Z has Arm architecture plus 2D and 3D graphics engines capable of 60 *fps* frame rate for mixed scenes.

Hardware data

core frequency	400 *MHz*
graphics engine	2D and 3D
frame rate	60 *Hz*
flash memory	64 *MB*
DDR memory	128 *MB*
MRAM memory	256 *kB*
operating temperature	–40°*C*–85°*C*

Table 2. VIC Lomonosov Z hardware data.

The cluster has on-board three types of memory:

flash — for storing the graphics and code in off state
DDR — dynamic memory for graphics processing
MRAM — magnetoresistive memory for storing temporary data

Like *flash*, *MRAM* can store data in off state. But unlike *flash*, *MRAM* has unlimited resource of rewrite cycles, which makes it a perfect choice for frequently saved data storage like odometer, trip counter and settings.

4
Connector

VIC Lomonosov Z has the only aerospace subminiature connector of *Tri-Start* series. The connector features high-performance gold plated pins.

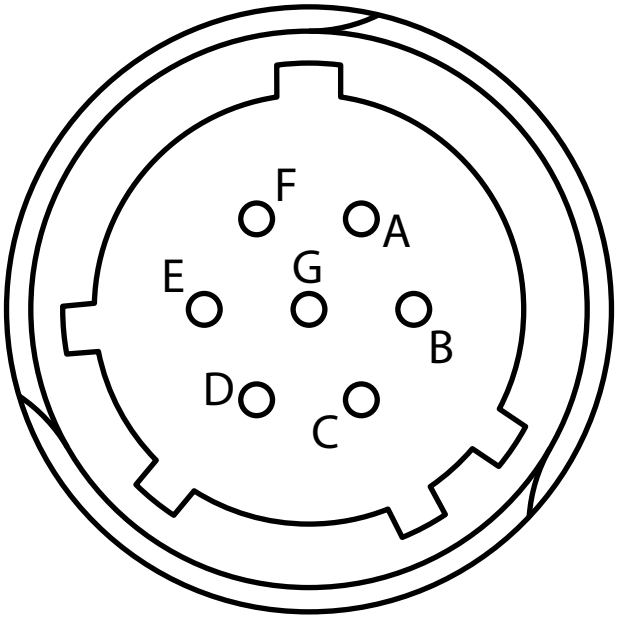


Fig. 2. VIC Lomonosov Z connector.

The mating plug is *D38999/26Z-B99SN*.

5
Interface

VIC Lomonosov Z has a digital interface — two *CAN* buses and an *Enable* line.

Pinout	
A	CAN2–
B	CAN2+
C	Enable
D	Power +24 *V*
E	CAN1+
F	CAN1–
G	Power –24 *V*

Table 3. VIC Lomonosov Z pinout.

The bus *CAN1* usually is used as the main data bus — for instance, standard *J1939*. The bus *CAN2* usually is programmed as custom control bus for instrument cluster control — brightness adjusting, mode switching and trip counter resetting. The buses are capable of up to 1 *Mb/s* transfer rate.

The *Enable* input is used for the instrument cluster startup and shutdown and could be connected to the ignition line of the vehicle. Its operating range is 4 *V*–80 *V*.

6
Electrical data

Digital instrument cluster VIC Lomonosv Z is designed to be used in 24 *V* systems and features the highest level of protection. Due to robust power stage it could be used in 12 *V* systems as well.

Electrical data

nominal power	24 *V*
operating range	8 *V*–80 *V*
reverse battery protection	*yes*
double battery protection	*yes*
power transient protection	IV level of *ISO 7673-2*
power dump protection	IV level of *ISO 16750-2*

Table 4. VIC Lomonosov Z electrical data.

As extra VIC Lomonosov Z features soft startup and gracious shutdown.

7
Dimensions

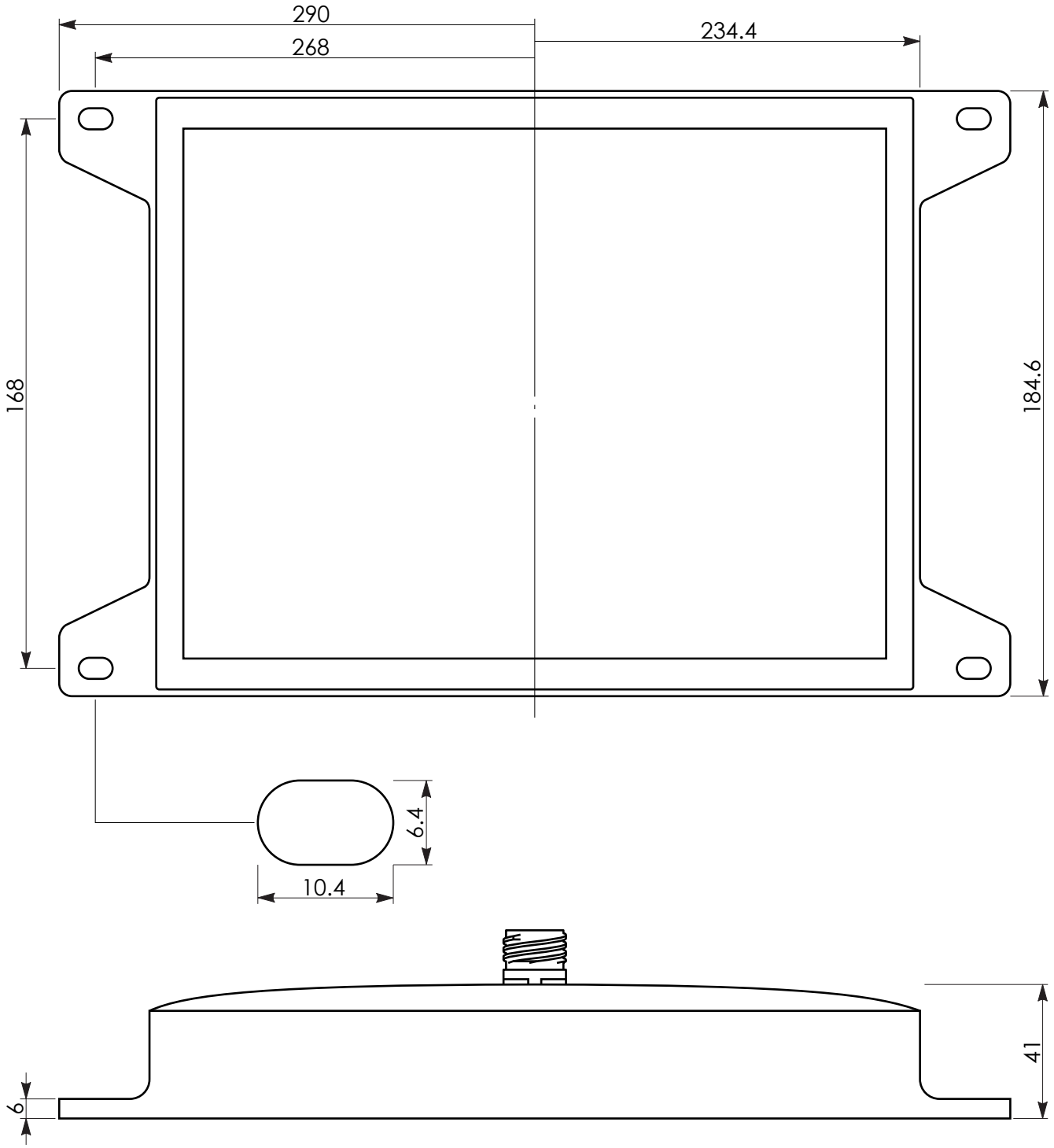


Fig. 3. VIC Lomonosov Z dimensions.

8
Options

Custom options for digital instrument cluster VIC Lomonosov Z:

custom graphical design
custom housing
custom programming
ambient light stereo sensing — used for automatic brightness adjusting

If your project requires options beyond listed here, write us to create a new device from scratch.

Our address

inquiry@librow.com