Display Solutions
Accelerate your design.
Get your project off the ground quickly with a choice of two development kits. No need to create your own wiring loom and test rig. SGD 43-A DK+ and SGD 70-A DK+ are the best choice if you are starting to develop on the PanelPilotACE platform. They include all you need to begin: a PanelPilotACE display module, a development board and a USB cable. The board itself provides switches, dials, LEDs and screw terminal connections for all the input and output functionality of your PanelPilotACE.

**Specifications**

<table>
<thead>
<tr>
<th>SGD 43-A</th>
<th>SGD 70-A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Display</strong></td>
<td>4.3&quot; TFT with 262k colours</td>
</tr>
<tr>
<td>Touch screen</td>
<td>Capacitive touch screen</td>
</tr>
<tr>
<td>Resolution</td>
<td>480 x 272 px</td>
</tr>
<tr>
<td>Processor</td>
<td>Freescale i.MX283 (454 MHz, 32-bit, ARM 9)</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0 to 40°C (32 to 104°F)</td>
</tr>
<tr>
<td>Supply</td>
<td>5 to 30 V dc (500 mA typical at 5 V dc)</td>
</tr>
<tr>
<td>Outside dimensions</td>
<td>119 x 80 x 20 mm (4.69&quot; x 3.14&quot; x 0.78&quot;)</td>
</tr>
<tr>
<td>Ethernet for FTP (Win)</td>
<td>Requires add-on board S43-ENET</td>
</tr>
<tr>
<td>CAN bus</td>
<td>Not available</td>
</tr>
<tr>
<td>Thermostat</td>
<td>Requires add-on board S43-TP</td>
</tr>
</tbody>
</table>

**Development kits**

EL-SGD 43-ATP and EL-SGD 70-ATP are four-channel temperature data loggers based on PanelPilotACE technology. Both the 4.3" and 7" panel mounted display modules include a four-channel thermistor temperature board and four compatible temperature probes. Both displays are pre-loaded with an advanced logging application which shows real-time readings for all four temperature channels, live trend graphs and access to a suite of real-time data analysis information. The loggers can store up to 100,000 readings per channel at sample rates from 5 seconds to 12 hours.

[www.lascarelectronics.com/panelpilot](http://www.lascarelectronics.com/panelpilot)
Ace your next display with the PanelPilotACE Design Studio.

Software solutions
From background images to text elements, analogue style meters, touch screen navigation, complex logic statements, PID control, serial communications, multi-channel data logging, Ethernet FTP for logged data transfer, trend graphs and maths functionality, PanelPilotACE Design Studio software allows users to build multi-screen interfaces without writing a line of code. Check PanelPilot.com for the very latest software and hardware developments for the PanelPilotACE range.

Create your new application in 5 easy steps

1. Design your interface
Add graphical elements to create a unique looking project with navigation, animation and images.

2. Configure your hardware
Assign behaviours to the graphical elements to interface with the hardware inputs and outputs.

3. Emulate in the software
Test your project in software to see the graphical and hardware elements working together.

4. Upload to your display
Connect your display via USB and upload your project.

5. Mount, connect and complete
Fix in your panel and wire to the display using screw terminals and dual-in-line pins. Your PanelPilotACE is now ready to use.

PanelPilotACE Design Studio
Design Studio includes a library of meters, buttons and switches. You can also create your own content by combining behaviour and graphical elements.

Code-free development of advanced touch screen display applications
Hardware elements are dragged from the library into a function builder where associations with graphical elements (such as a needle on a meter) can be defined. Set scaling for analogue inputs, define alarm triggers and behaviours for digital I/O.

Design Studio includes a 'Preview in Emulator' function which emulates the hardware inputs/outputs allowing you to test projects prior to their upload to the PanelPilotACE display via USB.

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PanelPilotACE add-on boards

**S43-RS485**
Compatible with the 4.3" PanelPilotACE display module (SGD 43-A), the S43-RS485 mounts on its rear and provides a 3-wire RS485 interface as well as an optional 120 Ω terminator. The software currently supports ASCII based serial communication as well as the MODBUS (RTU) protocol.

**S43-TP & S70-TP**
The S43-TP and S70-TP mount onto the rear of the 4.3” and 7” PanelPilotACE displays providing up to four thermistor inputs which can then be utilized within the free PanelPilotACE Design Studio software to measure, display, log and graph temperature readings.

**S43-ENET**
Add-on board for the 4.3” PanelPilotACE display providing a wired Ethernet port to enable transmission of logged data via FTP.

**S70-CAN**
Add-on board for the 7” PanelPilotACE display providing a CAN bus interface.

Displays & accessories

- **SGD 43-A**
  4.3” Display with analogue, digital, PWM and serial interfaces
- **SGD 70-A**
  7” Display with analogue, digital, PWM, serial and wired Ethernet for transmission of logged data via FTP
- **SGD 43-A DK+**
  Development kit for SGD 43-A
- **SGD 70-A DK+**
  Development kit for SGD 70-A
- **EL-SGD 43-ATP**
  4.3" four-channel temperature data logger
- **EL-SGD 70-ATP**
  7" four-channel temperature data logger
- **S43-RS485**
  Add-on board allowing RS485 comms for SGD 43-A
- **S43-ENET**
  Add-on board providing a wired Ethernet port for SGD 43-A enabling transmission of logged data via FTP
- **S43-TP**
  Four-channel thermistor add-on board for SGD 43-A
- **S70-TP**
  Four-channel thermistor add-on board for SGD 70-A
- **S70-CAN**
  Add-on board providing a CAN bus interface for SGD 70-A

PanelPilotACE University

Whether you’ve already chosen the PanelPilotACE platform for your next display project, have used its software suite before or are still evaluating its development potential, the PanelPilotACE University is your one-stop shop for all the tools needed to turn your display design concept into a fully-functioning App.

The PanelPilotACE University has a multitude of resources to make your screen design experience as quick and efficient as possible, from How To Guides and Frequently Asked Questions to an ever growing number of pre-configured ACE Templates and an Icon and Graphic Library.

Let Lascar Do the Hard Work For You
Our PanelPilotACE software platform gives users the ability to dramatically reduce design time for display applications by eliminating the need for complex code. But if you’re really under pressure to finish a design, why not make use of Lascar’s Custom Design Service for PanelPilotACE to deliver your solution? Provide us with a description of your display requirements and we can complete the design for you.

www.lascarelectronics.com/panelpilotace-university
If you’re really under pressure to finish an application interface design, why not make use of Lascar’s Custom App Design Service for PanelPilotACE to deliver your solution?

Provide us with a description of your display requirements and we can complete the app design for you. Forget months of coding and an enormous development bill. Lascar’s unique PanelPilotACE software turns months of work into weeks, days or even hours giving you the quickest route to your new display at a fraction of the cost of typical custom design.
M-Series

Introducing our range of 8 low cost TFT displays with dual-analogue input, touch-screen, I2C and SPI capabilities.*

Connect any of the meters to a PC and using our PanelPilot M software select an app from more than 50 meter styles including many touch screen options. Choose custom display colour, text labels and scaling options before saving and uploading your custom app to your display via USB.

*Touch screen not available with IP models.

Easy to use

1. Configurations
Choose from an ever-increasing library of configurations including analogue, digits and bar graph styles with single or dual analogue inputs.

2. Customisation
Colours and text labels are fully editable. Voltage input levels can also be set in software, removing the need for scaling resistors on input voltages up to 40 V dc.

3. Start-up screen
On power-up a PanelPilot display can be set to show an image of your choice, such as a logo.

4. Upload & ready to go!
Connect your display to a PC and upload the configuration via USB. Your display configuration is now saved and can be added to your application. Reconfigure your display at any time.

Displays & accessories

- SGD 24-M
  - 2.4” PanelPilot compatible smart graphics display

- SGD 24-M-IP
  - 2.4” PanelPilot compatible 4-20 ma display

- SGD 24-M-IP420
  - 2.4” PanelPilot compatible 4-20 ma display

- SGD 28-M
  - 2.8” PanelPilot compatible smart graphics display

- SGD 28-M-IP
  - 2.8” PanelPilot compatible 4-20 ma display

- SGD 28-M-IP420
  - 2.8” PanelPilot compatible 4-20 ma display

- SGD 35-M
  - 3.5” PanelPilot compatible smart graphics display

- SGD 35-M-IP
  - 3.5” PanelPilot compatible 4-20 ma display

- SGD 35-M-IP420
  - 3.5” PanelPilot compatible 4-20 ma display

- SGD ADPT-420
  - Dual channel 4-20 ma isolation module for PanelPilot compatible displays

- SGD ADPT-TC
  - Thermoelectric conditioning module for PanelPilot compatible displays

www.lascarelectronics.com/panelpilot
Our PanelPilot B range can be quickly configured and customised at the click of a mouse, with easy to use Windows™ software.

Connect the display to the computer via a USB cable and select a display configuration from a choice of various analogue, digital and bar graph meter styles. Then choose your own display colours, text labels and scaling options. Once all selections have been made using this simple click-through software, save the custom configuration and upload it to the display.

B-Series
Low-cost configurable e-paper voltmeter

Lascar's SGD 21-B is a low-cost, ultra low-power single channel voltmeter with a sleek, monochrome, e-paper voltmeter, dot-matrix, display. Using Lascar's simple PanelPilotB software, choose from a selection of analogue and digital voltmeter apps and customise labels, scaling and alarms for your own specific application.

Specifications

<table>
<thead>
<tr>
<th>SGD 21-B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display</td>
</tr>
<tr>
<td>Resolution</td>
</tr>
<tr>
<td>Operating temperature</td>
</tr>
<tr>
<td>Supply</td>
</tr>
<tr>
<td>Outside dimensions</td>
</tr>
</tbody>
</table>

Create your application in 4 easy steps

1. Application Selection
Choose from 6 popular configurations including analogue and bar graph styles.

2. Appearance & Splash Screen
Select colour style, either black on white or inverted, add custom text labels. Also choose an image of your choice, such as a logo, that can be set-up to appear on power-up.

3. Scaling & Alarms
Select custom scaling options and alarm settings.

4. Set-up is Complete
Connect your display to the PC and upload your configuration.
Lascar has an extensive range of LCD and LED voltmeters, 4-20 mA indicators, temperature indicators, data displays and graphics modules for use in sensors, process and test & measurement applications.

**SPS & SP Series**
Low profile, splashproof displays

The SPS Series includes 3-digit, 2-wire signal powered voltmeters, and a 128 x 64 pixel graphic dot matrix display.

The SP Series voltmeters are available in LCD and LED format with 12-pin modules. 9-pin versions are lower cost, easier to use and more suited to new designs. All modules are splashproof protected from the front when fitted with the rubber seal supplied.

- **SP 300**
  - 3½ digit 200 mV LED voltmeter, 9 pin

- **SP 100**
  - 3½ digit 200 mV dc LED voltmeter, 12 pin

- **SP 200**
  - 200 mV dc full scale, LED backlit, 12 pin DIL connection

- **SP 300-BLUE**
  - 3½ digit 200 mV blue LED voltmeter

- **SP 400**
  - 3½ digit 200 mV backlit LCD voltmeter

- **EM Series Round hole fitting**
EM Series meters are fitted with a threaded stud which allows mounting through a 3.5 mm hole. A rubber seal (supplied) provides splashproof protection when fitted between the meter and the mounting panel.

- **EMV 1125**
  - 200 mV dc full scale, round hole mounted, wire connections

- **EMC 1100**
  - Elapsed hour LCD digital panel meter

- **EMT 1900**
  - Internal NTC thermistor LCD thermometer with external thermistor option

- **EMV 1200 / EMV 1200-40**
  - 3 digit, 4-25 V or 4-40 V signal powered LCD digital panel meters

- **EMA 1710**
  - Analogue style 1 V LCD voltmeter

- **EMV 1025S-01**
  - 200 mV full scale, round hole mounted, wire connections

- **EM32-1B**
  - Waterproof, 3½ digit, 200 mV LCD voltmeter

- **EM32-1B-LED**
  - Waterproof, 3½ digit, 200 mV LED voltmeter

- **EM32-1900**
  - Waterproof, 3 digit, LCD thermometer

- **NTC Probe-1900**
  - 104 NTC thermistor probe for use with EM32-1900 and EMT 1900
Large displays with waterproof options
This range of LCD and LED instruments includes 3½ digit, ±200 mV dc full scale reading LED voltmeters, a 500 V ac voltmeter, a 4-20 mA loop powered meter and LED voltmeter. Optional NEMA 4X / IP67 rated alloy bezels fit all meters.

Snap-in sub-miniature digital panel meters
A range of snap-in, sub-miniature digital panel instruments with LED backlighting for low light conditions and single or dual rail operations for ease of use. LED and 4-20 mA versions of the range are also available.

Low cost voltmeters for OEMs
The V 1, V 25 and V 60 modules are very low cost, 3½ digit LCD voltmeters with ±220 mV dc full scale reading and typical accuracy of 0.25% of FS (5 counts).

Indicators red/green status
Ideal for go-stop applications. During standard operation the backlight is green. As a reading moves outside programmable thresholds, the backlight turns red.

LCD voltmeters for low light conditions
Enhanced black LCD with white LED backlighting ensures excellent readability in low light conditions. Three sizes available.

These ultra-miniature, component-style LCD and LED voltmeters are ideal for applications where space is at a premium.
Turn your new product concept into reality with Lascar.

With over 40 years’ experience in delivering cutting edge technology, we’re leading designers and manufacturers of data capture, touch screen and wireless products.