

# Mackie Transmission

## Data Acquisition and Control Using an Intuitive Display



Established 40 years ago, Glasgow-based Mackie Transmission specialises in the re-manufacturing of automatic and manual transmissions for cars and larger commercial vehicles. Quality bench marking and reducing product failure during re-manufacture are key and so to help set and maintain these, the company developed its own hydraulic test machine to test the integrity of hydraulic circuits on an automatic transmission.

The machine allows the operator to compare the actual values of the transmission they are working on, to the values it should be if in full working order, by pumping automatic transmission fluid into the transmission and providing pressure and flow readings.

These readings indicate whether a hydraulic circuit in the automatic transmission is in a serviceable condition or if there is a potential leak in the circuit.



The company's first test machine was fitted with physical buttons and analogue gauges to show these values but realising technicians needed a faster and easier interface, the machine was recently re-designed using Lascar's 7 inch, capacitive, touchscreen display – the SGD 70-A.

Large and easy to read, the SGD 70-A is used to switch various solenoids and a pump motor through solid state relays and then display data from a flow and pressure transducer, in turn allowing the user to compare those readings with known good values. Clearer and more accurate data allows more precise diagnosis, which in turn leads to a higher product quality and a decreased use in warranty by the end customer.

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Marc McCabe, Quality Test Engineer, explains how the device has also saved them a lot of development time. "This complete testing machine has taken only a few months to get from concept to prototype at less than £12,000 and a key reason for the speed of the project was the ease of display integration. Without

the need for coding, app development on the display was really quick. We are developing an application specific controller and data acquisition device for a previously developed machine, this project has been ongoing for over a year and has so far cost us just under £100,000."



# PanelPilotACE

The SGD 70-A is a PanelPilotACE compatible display designed specifically to run projects created in the PanelPilotACE Design Studio. It features a capacitive touch screen and a wealth of hardware interfaces including four 16-bit bipolar analogue inputs, eight digital input/output pins, two alarm outputs, four PWM outputs, RS232 and RS485 comms, CANbus and FTP transfer of logged data via Ethernet.

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.

*"The flexibility of the SGD 70-A is a key feature for me when it comes to prototyping. It is extremely easy to adapt if changes need to be made to the project at hand. The Design Studio software was also exceptionally easy to use and very intuitive."*

**Marc McCabe, Mackie Transmission**