

Migration from the LCA15 to LCA20

Introduction

The LCA20's predecessor, the LCA15 was designed in 1992 with over 10,000 units now sold. It has a well-earned reputation for being a reliable, easy to use and adaptable instrument.

The LCA15 has been redesigned as the LCA20 taking advantage of new technology with **improved performance and increased functionality**. The external appearance and dimensions of the LCA20 will remain the same as the LCA15

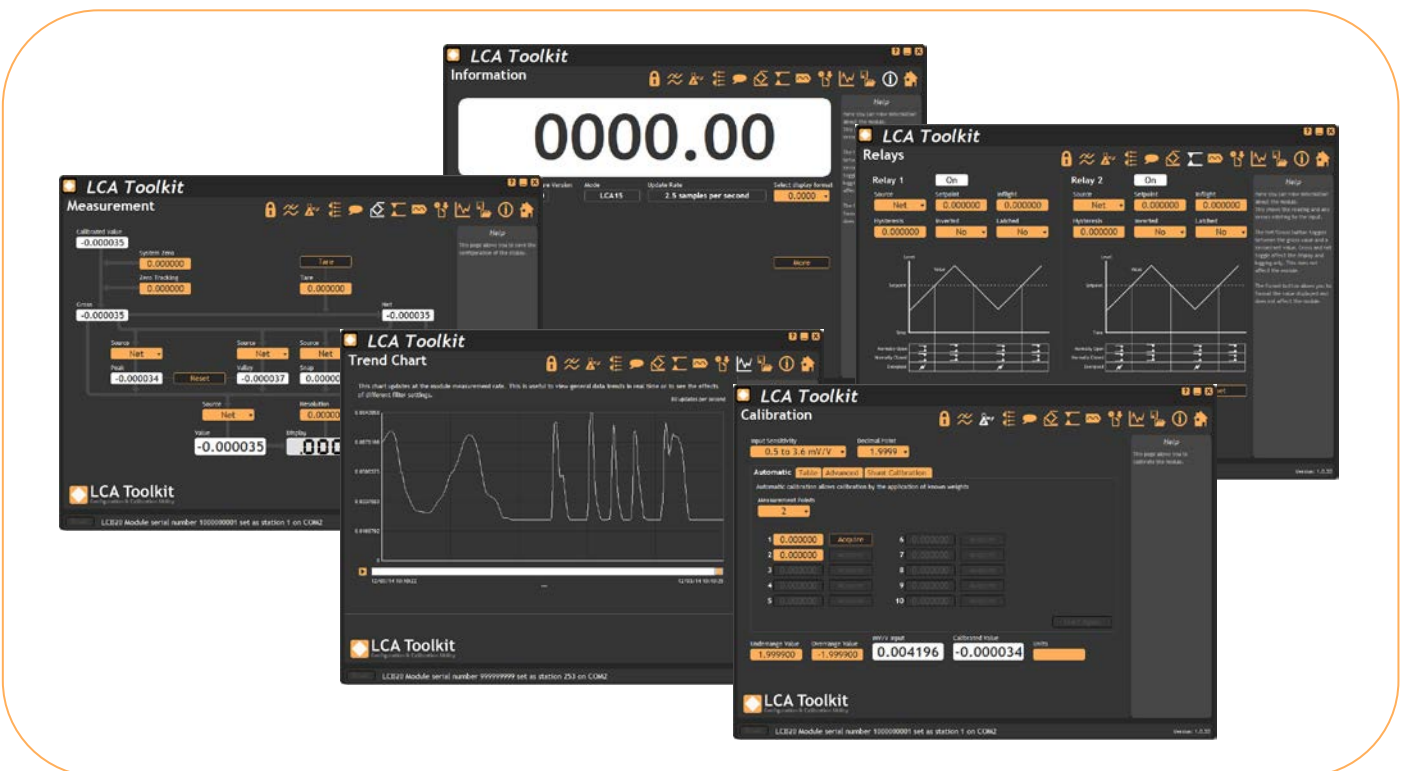
The main change is the introduction of a new microprocessor using the latest RISC technology, along with a number of new features including the selection of device parameters via the keypad rather than on-PCB switches. A PCB only version, which can be DIN rail mounted, is also available as the LCB20



Improvements at a Glance

- ◆ Improved stability of load cell input
- ◆ Improved analogue output response time
- ◆ Easy load cell sensitivity selection: now set via keypad
- ◆ ROHS Compliant
- ◆ New Comms Module
- ◆ Easy configuration using Toolkit
- ◆ Updates increased from 10 to 80 per sec
- ◆ Factory calibration in mV/V
- ◆ Supports up to 10 x 350 R load cells
- ◆ Firmware now supports Mantrabus 1 & 2, MANTRA ASCII 2 & MODBUS RTU

LCA Toolkit



So What's the Main Difference?

The main change is the introduction of a RISC technology based microprocessor which allows faster processing speeds and more processing power. The number of support components required by the processor is also reduced. This enables new features such as setting the Baud rate by means of the keypad or the comms interface instead of manually changing jumper links.

A faster clock rate means that higher PWM frequencies are available which, in turn, speeds up the response of the analogue output. Other benefits of the new processor are in-field re-programming of the LCA20 and on-site firmware upgrades (removing the previous requirement to return the unit).

An increase in code space and memory provides much more functionality such as nine-point linearisation, recursive filtering, programmable digital inputs, 'zero' tracking, shunt cal, peak and valley values and self-diagnostics.

The load cell input design has also taken advantage of new technology in the form of a delta-sigma 20 bit ADC. This device has a built-in low temperature drift, low noise amplification stage with switchable gain leading to a much improved measurement performance over the LCA15.

Physical access to the electronics for mV/V selection is no longer required as the two ADC gain ranges cover from 0.5 mV/V to 7.5 mV/V. The appropriate range is now selected from the keypad or the comms interface.

In line with the majority of Mantracourt's instrument range the LCA20 excitation voltage has been decreased

to 5 V thus allowing for easier ATEX barrier selection and a drive capability for up to ten 350 ohm load cells.

The LCA20 will be factory calibrated in mV/V terms to within 0.05% of FS. This will allow table entry of calibration data straight from a load cell test certificate. Factory calibration also has the advantage of allowing units to be swapped in the field by copying across the calibration from one unit to another whilst still maintaining the calibration accuracy at 0.05% of FS.

The LCA15 had a variant, the LCA15F, with a 'fast' 100 samples per second (SPS) measurement rate. The LCA20 has two measurement speeds, 10 SPS and 80 SPS. This means that the new version can be used in more dynamic applications and removes the requirement to stock two variants.

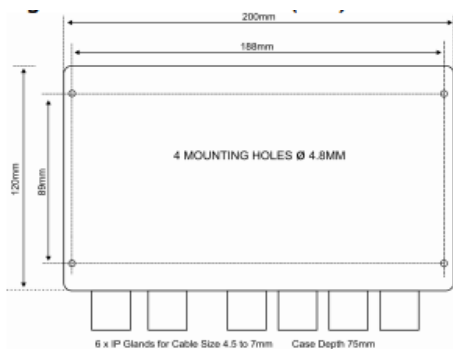
On a manufacturing note, the design uses a high percentage of Surface Mount (SM) components allowing a more significant volume discount. The use of new components also means that the LCA20 is now ROHS compliant.

The LCA20 supports the legacy Mantrabus 1 protocol and the newer protocols such as Mantrabus 2, Mantra ASCII 2 and Modbus RTU.

What's the Same?

The casing size of the LCA20 is identical to the LCA15. Existing users will also find the same basic menu structure, overall functionality and plug-in modules (with the exception of the comms module) that they are familiar with.

Mechanical Dimensions of Case



LCA20 Optional Modules

- LCA20 Load Cell Amplifier with Analogue Output (cased)
- LCB20 PCB without enclosure
- LC4 Comms Module
- LR1 Relay Output Module 2 Set Points (2 x SPCO 5A 240V AC)
- LS1 AC Power Supply 110/120V, or 220/230V AC
- LS3 DC Power Supply 9-32V DC
- LP1 On Board Programmer
- LP2 Remote Hand Held Programmer
- LTL Transparent Plastic Case Lid
- PGM1 Comms Cable

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