

## Load Transducer for 3-phase AC Loads

An ultra-fast measurement and ultra precise transducer specifically developed for Machine Tool Monitoring applications. The LCU920 is a unique design based on the fastest available 32 bit Microcontroller and **18 bit** successive approximation AD Converters. A sampling rate of **150kHz** ensure precise and correct measurement even when used with Frequency Inverters with 20kHz PWM base frequencies and higher.

**LCU920 measures true motor power [kW].**

### ♦ micBUS Output

Proprietary RS485 type Sensor Bus

### ♦ Shunt Sensors

6 Amp. or 30 Amp. unit available as standard.

Custom ranges available upon request.

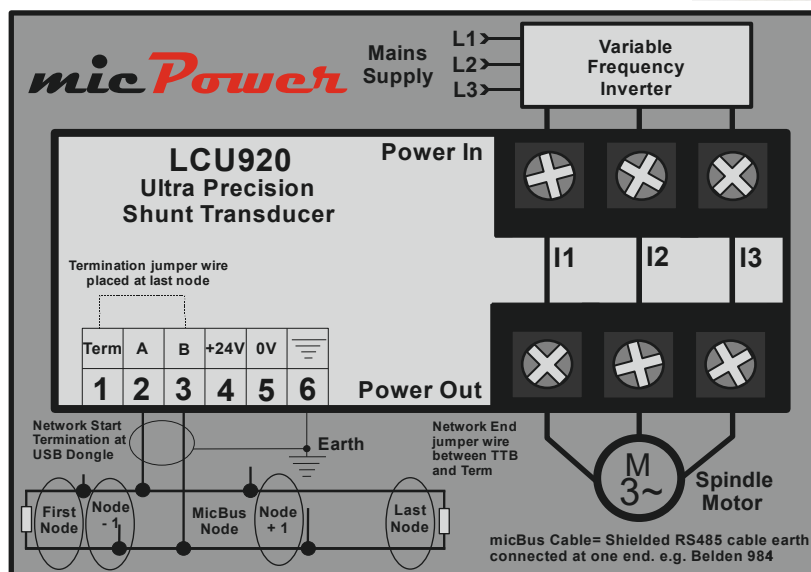
## Technical Specification

### Mechanical

Housing: Polycarbonate.  
Mounting: 35 mm DIN-rail.  
Protection Class: IP40.  
Temp. Range: -15 to + 50 C.  
Weight: App. 125g.  
Dimensions: D 118 x B 45 x H 137,5 mm.

### Electrical

Voltage Input: 3 x 0-500 VAC max.  
Current Input: 3 x 6 Amp or 3 x 30 Amp  
0 Hz - 60kHz  
Power Range: 0 - 4.780 kW AC (6A, 460 V)  
0 - 23.902 kW AC (30A, 460V)  
Supply: 18-36 V DC max. 4.0 Watt.  
micBUS: RS485 - proprietary protocol.



## Features

The LCU920 is designed primarily for measuring AC power consumed by motors driven by Variable Frequency Inverters. AC power is measured from the formula:

$$P_T = \frac{1}{T} \int_0^T (V(t) \times I(t)) dt$$

Where:  $T$  = period,  $V(t)$  = voltage and  $I(t)$  = current.

The LCU920 Power Transducer is specifically developed to function as a load transducer for the **micPower** Range of Machine Tool Monitors.

A Power Transducer for Tool-Monitoring must be fast and accurate. Sometimes the measurement speed is as high as one half period, unlike commercial power-meters, which measure power averaged over several seconds. The symmetric 3-phase measurement is necessary for the high accuracy measurement needed for Tool Monitoring applications.

Please note that most commercial Power Meters will not even be able to measure Power correctly after a Variable Frequency Inverter. The transducer interfaces to Tool Monitor Applications via the proprietary micBUS interface.

The shunts (resistors actually) used by this device represents the most accurate, linear and insensitive to external electromagnetic fields sensor available (unlike Hall Sensors and Current Transformers).