

# FL 152

## Multi-channel measuring amplifier



### Description

- **16 input channels for processing of analogue strain gauge measuring signals, easy connection by multi-pin input port**
- **integrated software for evaluation of stress and strain analysis experiments (FL 120, FL 130, FL 140) and experiments relating to forces in trusses (SE 130, SE 110.21, SE 110.22)**

Stresses and strains occurring in components are determined in experimental stress and strain analysis by measuring strain. In industry, strain is often recorded by strain gauges. Since strain gauges deliver only small analogue measuring signals, the signals must be amplified in measuring amplifiers. Then they are converted into digital pulses and displayed as measured strain. These strains may also be evaluated and processed on computer.

FL 152 is a multi-channel measuring amplifier which supplies the strain gauge bridge circuits with power and processes the received measuring signals. The measuring amplifier includes 16 input channels. The strain gauge measuring points are connected to associated balance potentiometers by a 68-pin multiport.

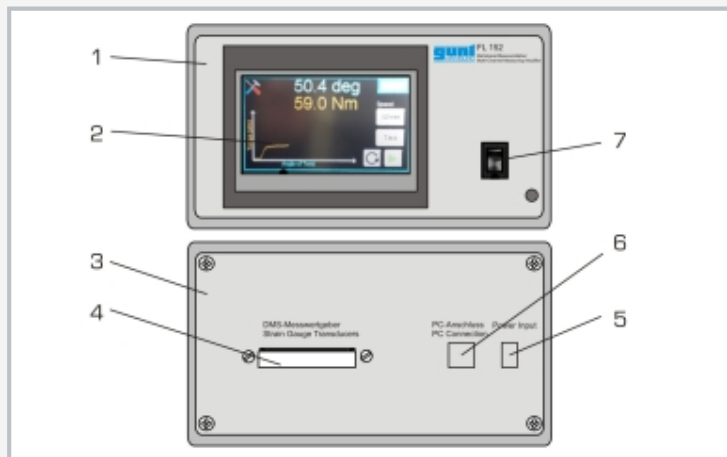
The multi-channel measuring amplifier is operated via touchscreen or via PC using the supplied software. The measured values can be read on the touchscreen and in the software and can be saved and processed on a computer (using an application such as MS Excel).

### Learning objectives/experiments

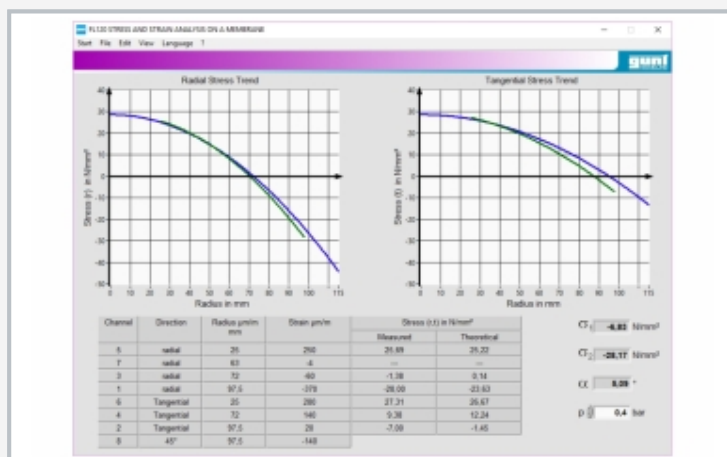
- amplification and display of signals from strain gauge measuring points
- processing of measured values on computer
- evaluation of stress and strain analysis experiments, in conjunction with: FL 120, FL 130, FL 140
- evaluation of experiments relating to forces in trusses, in conjunction with: SE 130, SE 110.21, SE 110.22

# FL 152

## Multi-channel measuring amplifier



1 front view, 2 touchscreen, 3 rear view, 4 connection of strain gauge measuring points, 5 electric supply, 6 USB interface, 7 main switch



Application software for stress and strain analysis based on the example of the FL 120 (stress and strain analysis on a membrane)



Example application: FL 152 in conjunction with FL 140 (stress and strain analysis on a thick-walled cylinder)

### Specification

- [1] multi-channel measuring amplifier for processing of strain gauge signals
- [2] strain gauge connection in half or full bridge configuration
- [3] strain gauge connection via 68-pin input port
- [4] automatic tare of measured values
- [5] processing of measured values directly in the measuring amplifier or using the supplied software on a PC
- [6] integrated touchscreen for operation and display of measured and processed values
- [7] integrated software for experimental units on stress and strain analysis (FL 120, FL 130, FL 140) and on forces in trusses (SE 130, SE 110.21, SE 110.22)
- [8] GUNT software for data acquisition via USB under Windows 10

### Technical data

#### Amplifier

- number of input channels: 16
- integrated touchscreen
  - ▶ 4,3"
  - ▶ 480\*272 Pixel
  - ▶ 16-bit color

#### Strain gauge connection in half or full bridge configuration

- resistance: min. 350 Ohm/strain gauge
- strain gauge supply voltage: ±5VDC

Input voltage: max. ±32mV

230V, 50Hz, 1 phase  
 230V, 60Hz, 1 phase; 120V, 60Hz, 1 phase  
 UL/CSA optional  
 LxWxH: 230x200x120mm  
 Weight: approx. 2kg

### Required for operation

PC with Windows recommended

### Scope of delivery

- 1 multi-channel measuring amplifier
- 1 GUNT software + USB cable
- 1 manual