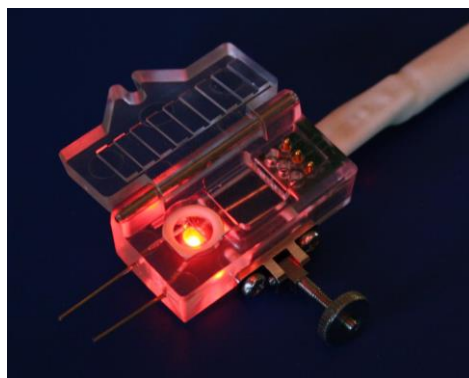


## LED FLOW CELL

Type: FC3.TL.\*

### Description

The flow cell enables the use of AC1, CC1 sensor in a flow through arrangement in optoelectrochemical measurements<sup>1,2</sup>. The sensor is inserted into the slit of cell and tightened by closing of the door. The cell ensures the thin layer flow around the working electrode and it is optimised so that no air bubbles cumulate in the cell. The cell contains also the contact and output cable.



### Physical Parameters

Dimensions:

Weight: 11 gms  
 Length: 42 mm  
 Width: 24 mm  
 Thickness: 16 mm

The volume which is in contact with sensor: 5.4 microliter  
 The volume of input/output tubes: 3.5 microliter  
 Total FC2 flow cell volume: 9 microliter

### LED Specification

Diameter: 3 mm  
 Wave length: 350 - 2000 nm (If special laser LED is used the band width and other parameters can be specified on demand)  
 Emitting angle: 27 deg

### Flow Arrangement

#### Cell Material

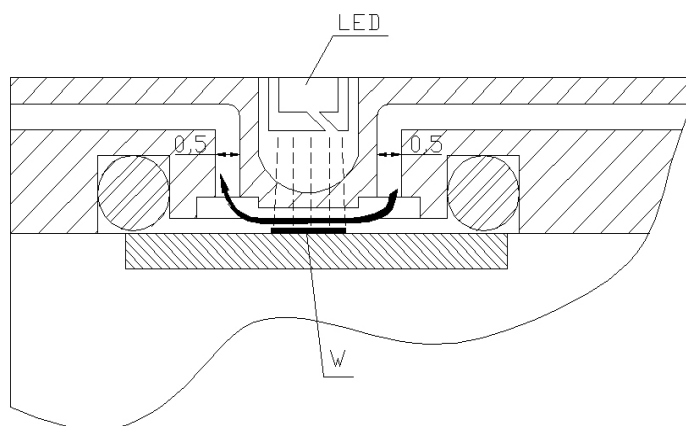
- Polymethylmethacrylate

#### Experimental Accessories

- Peristaltic Pump
- Linear Pump

#### Cell Usage

- Flow measurement
- Flow-injection analysis<sup>3</sup>
- Detection of herbicides<sup>2</sup>
- Spectroelectrochemical measurements<sup>1</sup>



## References

1. N. Bistolas, A. Christenson, T. Ruzgas, Ch. Jung, F. W. Scheller, U. Wollenberger, Spectroelectrochemistry of cytochrome P450cam, *Biochemical and Biophysical Research Communications* 314 (2004) 810-816
2. R. Dworak, H. Wendt, Hydrodynamics and Mass Transfer within the Cylindrical Capillary Gap Electrolysis Cell, *Berichte der Bunsen-Gesellschaft* 80 (1976) 77-82
3. J. Krejci, L. Jezova, R. Kucerova, R. Plicka, S. Broza, D. Krejci, The measurement of small flow, *Sensors and Actuators A* 266 (2017) 308-313

### Flow cell ordering formula

FC3.TL.\* (Flow cell)

|                                  |                                      |
|----------------------------------|--------------------------------------|
| F - Flow                         | 2 - 7 poles BVT connector            |
| C - Cell                         | 3 TRIAD - (Triad01 PalmInstruments)  |
| 3 - Cell reference number (PMMA) | 3 LEMO4 - (4 pins PalmInstruments)   |
| TL - Thin layer                  | 3 LEMO5 - (5 pins PalmInstruments)   |
| * - Termination                  | 4 - BNC connectors                   |
| S - Single conductors            | 5 - Banana plugs (2 mm), 1.5 m cable |
| 1 - Banana plugs                 | 6 - Banana plugs (2 mm), 0.2 m cable |

### Types of Termination (Three shielded core cable)

| Model          | Termination                 | Evaluating Units                              |
|----------------|-----------------------------|---|
| FC3.TL.S       | Single conductors           | any device                                    |
| FC3.TL.1       | Banana plugs 4mm            | any device                                    |
| FC3.TL.2       | 7 poles BVT connector       | any device                                    |
| FC3.TL.3 TRIAD | Triad01 PalmInstruments     | Palmsens, EmStat2                             |
| FC3.TL.3 LEMO4 | LEMO 4 pins PalmInstruments | Palmsens3, EIS, EmStat3, 3+                   |
| FC3.TL.3 LEMO5 | LEMO 5 pins PalmInstruments | Palmsens4                                     |
| FC3.TL.4       | BNC connectors              | any device                                    |
| FC3.TL.5       | Small banana plugs 2mm      | any device                                    |
| FC3.TL.6       | Small banana plugs 2 mm     | BVT Electrochemical workstation<br>any device |

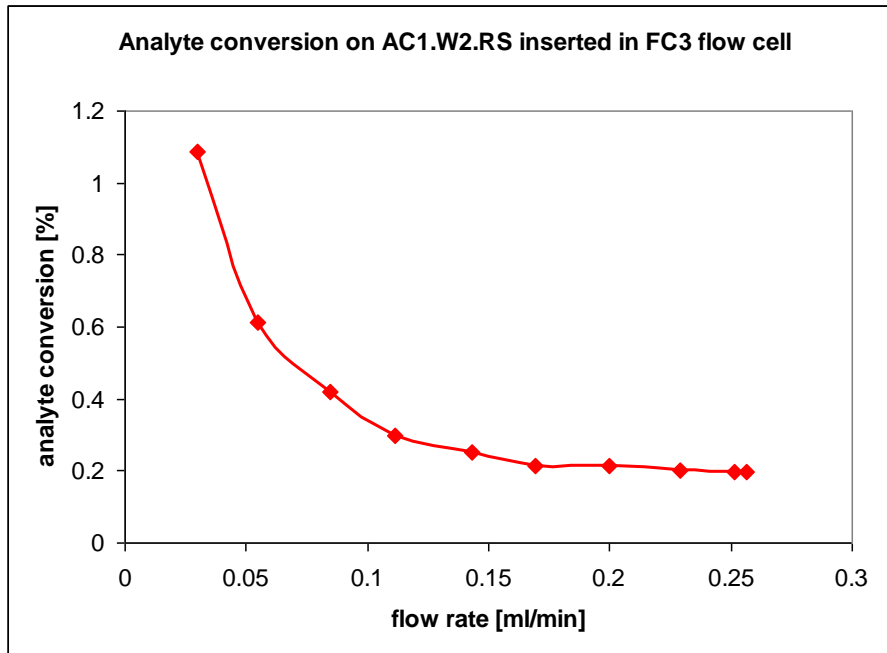
### Example of Order

- 5 pieces - FC3.TL.S

### Ordering Information

- The order is specified by whole product code
- Minimum order quantity - 1 flow cell
- Delivery time for standard FC3.TL cell is 4 weeks from receipt of order
- Delivery time for non-standard FC3.TL cell depends on final technical specification of order

**Analyte conversion on AC1 electrochemical sensor using FC3.TL cell at different flow rates**

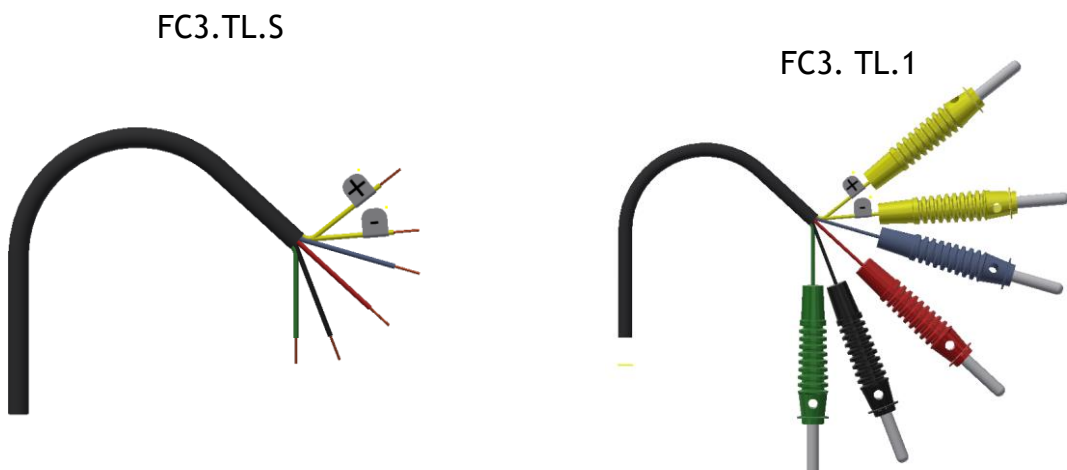


**Warnings**

The parts of device which are in contact with analyzed solutions are made from PMMA - polymethylmethacrylate. Some solution components can damage the device. Following solutions were proved to damage it:

- Solutions containing chloroform
- Solutions of p-benzoquinone cause the induced creep of PMMA (aproximately after 6 month of use)
- Solutions of HCl with tetraethyl orthosilicate causes induced creep of PMMA and metal parts corrosion.

**Internal Wiring**



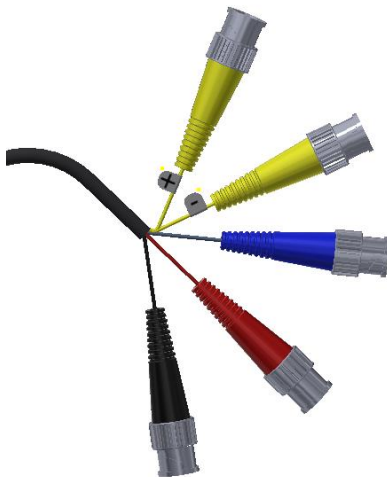
FC3.TL.2



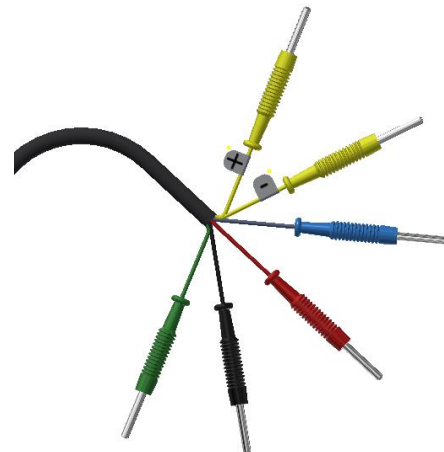
FC3.TL.3 TRIAD  
 FC3.TL.3 LEMO4, FC3.TL.3 LEMO5



FC3.TL.4



FC3.TL.5



FC3.TL.6

