# Details of the Lilliputian-Sized Operator's Panels with 15 Keys

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1. Mounting of the Lilliputian-Sized Operator's Panel

1.1 Device Views

Pict. 2-1 and 2-2: Non-illuminated key panel with horizontal and vertical orientation

Pict. 2-3: Illuminated key panel

The smallest ones among the operator’s panels dispose about the same features as their bigger counterparts as there are an all-surrounding mounting frame on which the compact device block is suspended and an easy-to-handle inscription frame.
Pict. 3-4: View of the device tub

Pict. 3-5: Another glance on the same device tub through a slightly shifted perspective
1.2 Mounting Procedure

No other part as the mounting frame must be untied from the compact device block, when the mounting of the keyboard on locker or pulpit is started. It is placed in front of the aperture, whilst the device block is placed from behind. Everything is fixed with the hexagonal bolts.

Pict. 3-4: Size of the aperture inside the metal plate and location of the holes
1.3 Characteristic Values

- Dust and Humidity Protection
  Front side inclusive of transition to tub: IP 65
  Rear side with connectors: IP 54

- Atmospheric Data
  Operating temperature: 0 ... +50° C
  Storage temperature: -20 ... +70° C
  Relative humidity: 60%

- Key Panel
  Mounting frame outline: 198 x 150 mm²
  Mounting frame interior: 152 x 104 mm²
  Inscription frame outline: 151 x 103 mm²
  Inscription frame interior: 131 x 83 mm²
  Rectangular Aperture Inside Locker or Pulpit
  Necessary aperture: 152 x 104 mm²
  Presumed sheet metal thickness: 2 ... 3 mm
  Intrusion Depth: 105 mm measured from the upper side of the mounting grid downwards

- Weight
  Complete device: 1,5 kg

1.4 Sealing Measures

- Mounting Frame
  Execution: Self-adhesive EPDM rubber, 2 mm
  Functioning: Sealing of the mounting holes inside locker or pulpit

- Key Panel
  Execution: Polyester foil, 130 µm
  Measure: Sticking to the complete outward face of the mounting grid

- Tub Contact to Grid
  Execution: Self-adhesive EPDM rubber, 3 mm, stamped in one piece
  Functioning: Sealing between mounting grid and device tub

- Connectors
  Profibus connector P1: SUB D 9 flange connector
  Service connector S1: SUB D 15 flange connector
  Execution: IP 67 sealing flange

- Tub Fastening
  Execution: M3 fiber washer

- Cable Fitting
  Execution: Polyamid membrane fitting
  Functioning: Atmospheric pressure equalization between the interior and the exterior
  Protection: IP 68

- Power Supply
  Execution: Acrylate resin coating
  Functioning: Humidity protection for avoiding electric flashover such as caused by condensate

- Overall Device Protection
  Front side inclusive of transition to tub: IP 65
  Rear side with connectors: IP 54
  Sealing materials: The materials used for sealing the device case neither contain silicon nor teflon.
2. Means of Input and Output

2.1 Key Panel

- Switching Matrix
  - Designation: Lilliputian size
  - Number of keys: 15
  - Arrangement: 3 lines x 5 columns

- Switching Cells
  - Key chamber (own product): ibpro20
  - Switching contacts: 2 x 2
  - Length of actuation path: 0.25 mm
  - Key chamber aperture: 20 x 20 mm²
  - Distance from center to center: 24 mm

- Illuminating Cells
  - Illuminable area: 20 x 20 mm²
  - Basic colour 1: green: 571 nm
  - Basic colour 2: red: 631 nm
  - Composite colour: yellow

- Inscription Frame
  - Uncovered inscription area: 131 x 83 mm²
  - Fastening: 6x T10-M3x8mm torx countersunk screws, A2 stainless steel

- Foil Layers
  - Key cover: 1st transparent foil sticking to the mounting grid which intercepts the keys
  - Middle layer: Colour foil with project-specific inscriptions and graphical symbols (a coloured foil will only be mounted, if explicitly ordered by the customer)
  - Fixing: 2nd transparent foil laid upon the colour foil to prevent it from mechanical abrasion and dazzling effects

- Project-Specific Colour Foils
  - Source: Colour foils may be designed and printed by ibpro on customer's demand. If the colour foil is ordered with the device, it will be fixed by ibpro without causing additional cost.

2.2 Hooter

- Built-in Hooter
  - Designation: Beeper
  - Place of installation: Sound opening on the device bottom
  - Frequency range: 50 Hz ... 15 kHz
  - Internal device usage: Acoustical acknowledgement or refusal of key entries
    - Loudness adaptation: Adaptation of the parameters for the positive or negative acknowledgement sound
      - a) via the manual parameter selection, b) by changing the gsd file entries
    - External hooter control: Alert sounds depending on the capabilities of the transmission procedure
      - Loudness adaptation: Alert sounds are always generated at the maximum loudness level, reduced loudness level for acknowledgement sounds
      - Reset of the alert sounds: a) elapse of pre-fixed time interval, b) via the reset code of the transmission procedure, c) by pushing an arbitrary key
3. **Range of Variations**

3.1 **Ordering Information**

PCF 0512 F – V15 T1 N230 Zxxx  
Example

- PCF 0512  
  - Product family
- 0512  
  - Product number
- F  
  - Case execution
- –  
  - Separation mark between basic and special features
- V15  
  - Number of keys
- T1  
  - Interface description
- N230  
  - Power connection
- Zxxx  
  - Z number

Up to the number of keys, the ordering designation of all operator’s panels with 15 keys is invariable. The disposable interface types are described in section 3.2, whereas section 3.3 summarizes the different types of power connections.

The Z number designates the project-specific particularities. Each variation of the keyboard functions is assigned to a unique Z number which will appear in the order confirmation and on the dispatch note. By using it for re-ordering, the customer may be assured to get the same device, once again. The Z number assigned to the device is transferred to the keys’ functioning resulting in a full code number like PCF 0512 – X15 Zxxx.

3.2 **Interfaces**

- **Pure Profibus Devices**
  - **T1**  
    Single Profibus interface equipped with the standardized 9-pin SUB D connector P1, usual Z number of this device type: Z150.

Operator’s panels are designed for accommodating a single Profibus interface.

3.3 **Mains Adaptation**

- **Connected Load**
  - **Power supply**  
    Power supply for printed circuit boards
  - **Large input voltage range**  
    85 ... 264 V~
  - **Inrush current, typically**  
    15 A at 100 V~, 30 A at 200 V~
  - **Frequency range**  
    47 ... 440 Hz
  - **Nominal power**  
    10 W
  - **Awaited maximal power**  
    7 W  
    (with full yellow illumination)
  - **Stand-by power, maximally**  
    1,5 W  
    (with only the operating control lamp being illuminated)

- **Cable Variants**
  - **N230**  
    Power cord with European style plug, about 3 m long

As this is the standard execution, the designation N230 is normally not used.
N110  Power cord with US American style plug, about 2 m long

N22C  Power cord with Chinese style plug, about 2 m long

L230  3 m long power cord with multicore cable ends fixed to terminal box

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