

# IB IL SGI 2/P/EF-PAC - Analog module



2702373

<https://www.phoenixcontact.com/us/products/2702373>

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Inline, Strain gauge measurement terminal, transmission speed in the local bus: 500 kbps, 2 precise and fast inputs, 4-, 6-conductor connection technology, degree of protection: IP20, including Inline connectors and marking fields

## Product description

The terminal is designed for use within an Inline station. This terminal is a precise and fast input module. It is designed to connect load cells, force transducers, mass pressure transducers, and similar devices. The terminal is based on strain gauges. You can connect the strain gauges using 6- or 4-conductor technology. The measured value can be output directly on a weight display via a serial interface. There are two options for data exchange: - via process data - via PCP Compact (both inputs in the "Analog Values" PCP object) The measured values are represented by standardized 16-bit values.

## Your advantages

- 2 high-precision inputs for strain gauges
- Measuring ranges adjusted with nominal characteristic values upon delivery
- Manual entry of characteristic values
- Process data update can be parameterized in increments between 200  $\mu$ s and 100 ms
- Path adjustment in the process environment
- 2-point adjustment
- Connection of strain gauges in 6- and 4-conductor technology
- Advanced wire-break detection
- Sensor supply of up to 115 mA (8 load cells with 350  $\Omega$  per channel)
- Per channel: low-resistance, floating N/O contact
- The channels are parameterized independently of one another via the bus system
- Tara device
- Serial interface for external weight displays
- Status message when zero point is reached and resting of measured value

## Commercial data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 2702373             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Sales key                            | DR01                |
| Product key                          | DRI144              |
| Catalog page                         | Page 139 (C-6-2019) |
| GTIN                                 | 4055626228464       |
| Weight per piece (including packing) | 241 g               |

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|                                      |          |
|--------------------------------------|----------|
| Weight per piece (excluding packing) | 241 g    |
| Customs tariff number                | 85389099 |
| Country of origin                    | DE       |

# IB IL SGI 2/P/EF-PAC - Analog module

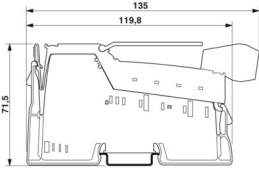
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## Technical data

### Dimensions

|                     |                                                                                    |
|---------------------|------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Width               | 48.8 mm                                                                            |
| Height              | 136 mm                                                                             |
| Depth               | 71.5 mm                                                                            |

### Interfaces

|                       |                                      |
|-----------------------|--------------------------------------|
| Inline local bus      |                                      |
| Connection method     | Inline data jumper                   |
| Transmission speed    | 500 kbps                             |
| Transmission physics  | Copper                               |
| Serial                |                                      |
| Designation           | V.24 (RS-485) serial interface       |
| Addressing            | Address 1 = Measured gross/net value |
|                       | Address 2 = Measured tare value      |
| Termination resistor  | 120 Ω                                |
| Transmission protocol | STX/ETX                              |

### System properties

|                             |         |  |
|-----------------------------|---------|--|
| Module                      |         |  |
| ID code (dec.)              | 223     |  |
| ID code (hex)               | DF      |  |
| Length code (hex)           | 03      |  |
| Length code (dec)           | 03      |  |
| Process data channel        | 48 bit  |  |
| Input address area          | 6 Byte  |  |
| Output address area         | 6 Byte  |  |
| Register length             | 64 bit  |  |
| Required parameter data     | 23 Byte |  |
| Required configuration data | 5 Byte  |  |

### Input data

|                          |                                 |  |
|--------------------------|---------------------------------|--|
| Analog                   |                                 |  |
| Description of the input | Input channels for strain gauge |  |

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|                               |                                                                                                                                                |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of inputs              | 2                                                                                                                                              |
| Connection technology         | 6 or 4-wire, twisted pair shielded cable                                                                                                       |
| Bridge difference $U_d$       | Measuring range specified by selecting the characteristic                                                                                      |
| Bridge voltage $U_0$          | 5 V                                                                                                                                            |
| Measured value representation | 16 bit, 20 bit, ASCII data record                                                                                                              |
| Characteristics               | $\pm 1$ mV/V, $\pm 2$ mV/V, $\pm 3$ mV/V, $\pm 3.33$ mV/V, $\pm 4$ mV/V, $\pm 5$ mV/V, $\pm 6$ mV/V, manual characteristic value specification |

## Contacts

|                       |                                                 |
|-----------------------|-------------------------------------------------|
| Description           | Floating N/O contact                            |
| Quantity              | 2 ( $K_{a1}$ - $K_{b1}$ , $K_{a2}$ - $K_{b2}$ ) |
| Contact resistance    | < 1 $\Omega$ (typical)<br>3 $\Omega$ (maximum)  |
| Typical response time | typ. 0.2 ms (opening)<br>typ. 2 ms (close)      |

## Output data

### Analog

|                    |                             |
|--------------------|-----------------------------|
| Output description | Jumper supply               |
| Number of outputs  | 2                           |
| Impedance          | > 43 $\Omega$ (per channel) |
| Output voltage     | typ. 5 V                    |
| Output current     | max. 115 mA (per channel)   |

## Product properties

|                      |                                                                                                                                                                                                                              |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product type         | I/O component                                                                                                                                                                                                                |
| Product family       | Inline                                                                                                                                                                                                                       |
| Type                 | modular                                                                                                                                                                                                                      |
| Scope of delivery    | including Inline connectors and marking fields                                                                                                                                                                               |
| Operating mode       | Process data operation with 3 words, PCP with 1 word                                                                                                                                                                         |
| Special properties   | 2 precise and fast inputs<br>4-, 6-conductor connection technology                                                                                                                                                           |
| Diagnostics messages | Failure of the power supply at $U_{ANA}$ Error message in the process data<br>Failure of or insufficient communications power $U_L$ I/O error message sent to the bus coupler<br>I/O error Error message in the process data |

## Electrical properties

### Potentials

|                   |                                                                                   |
|-------------------|-----------------------------------------------------------------------------------|
| Power consumption | typ. 1.4 W (Device in nominal operation)<br>max. 3.5 W (Device with maximum load) |
|-------------------|-----------------------------------------------------------------------------------|

### Potentials: Communications power ( $U_L$ )

|                |                               |
|----------------|-------------------------------|
| Supply voltage | 7.5 V DC (via voltage jumper) |
|----------------|-------------------------------|

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|              |            |
|--------------|------------|
| Current draw | max. 95 mA |
|              | typ. 80 mA |

## Potentials: Supply of analog modules ( $U_{ANA}$ )

|                      |                                                                    |
|----------------------|--------------------------------------------------------------------|
| Supply voltage       | 24 V DC (via voltage jumper)                                       |
| Supply voltage range | 19.2 V DC ... 30 V DC (including all tolerances, including ripple) |
| Current draw         | typ. 32 mA (in case of typical load of 350 Ohm per channel)        |
|                      | 115 mA (with maximum load of 43 $\Omega$ and display)              |
|                      | 14 mA (for no-load operation without strain gauge or display)      |

## Electrical isolation/isolation of the voltage ranges

|                                               |                         |
|-----------------------------------------------|-------------------------|
| Test voltage: Logic                           | 500 V AC, 50 Hz, 1 min. |
| Test voltage: Analog I/O                      | 500 V AC, 50 Hz, 1 min. |
| Test voltage: RS-485                          | 500 V AC, 50 Hz, 1 min. |
| Test voltage: N/O contact $K_{a1}$ - $K_{b1}$ | 500 V AC, 50 Hz, 1 min. |
| Test voltage: N/O contact $K_{a2}$ - $K_{b2}$ | 500 V AC, 50 Hz, 1 min. |
| Test voltage: Functional ground               | 500 V AC, 50 Hz, 1 min. |

## Connection data

### Connection technology

|                 |                  |
|-----------------|------------------|
| Connection name | Inline connector |
|-----------------|------------------|

### Conductor connection

|                                  |                                              |
|----------------------------------|----------------------------------------------|
| Connection method                | Spring-cage connection                       |
| Conductor cross section rigid    | 0.08 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross section flexible | 0.08 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross section AWG      | 28 ... 16                                    |
| Stripping length                 | 8 mm                                         |

### Inline connector

|                                   |                                              |
|-----------------------------------|----------------------------------------------|
| Connection method                 | Spring-cage connection                       |
| Conductor cross section, rigid    | 0.08 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross section, flexible | 0.08 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross section AWG       | 28 ... 16                                    |
| Stripping length                  | 8 mm                                         |

## Environmental and real-life conditions

### Ambient conditions

|                                          |                                                   |
|------------------------------------------|---------------------------------------------------|
| Ambient temperature (operation)          | -25 °C ... 55 °C                                  |
| Degree of protection                     | IP20                                              |
| Air pressure (operation)                 | 70 kPa ... 106 kPa (up to 3000 m above sea level) |
| Air pressure (storage/transport)         | 70 kPa ... 106 kPa (up to 3000 m above sea level) |
| Ambient temperature (storage/transport)  | -25 °C ... 85 °C                                  |
| Permissible humidity (operation)         | 10 % ... 95 % (non-condensing)                    |
| Permissible humidity (storage/transport) | 10 % ... 95 % (non-condensing)                    |

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## Standards and regulations

|                  |                                       |
|------------------|---------------------------------------|
| Protection class | III (IEC 61140, EN 61140, VDE 0140-1) |
|------------------|---------------------------------------|

## Mounting

|               |                   |
|---------------|-------------------|
| Mounting type | DIN rail mounting |
|---------------|-------------------|

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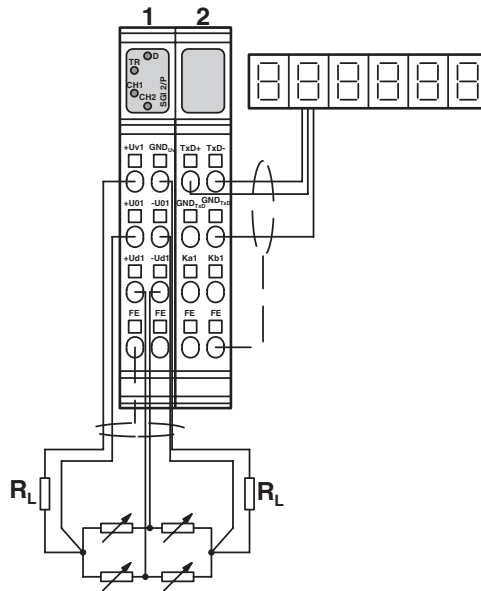
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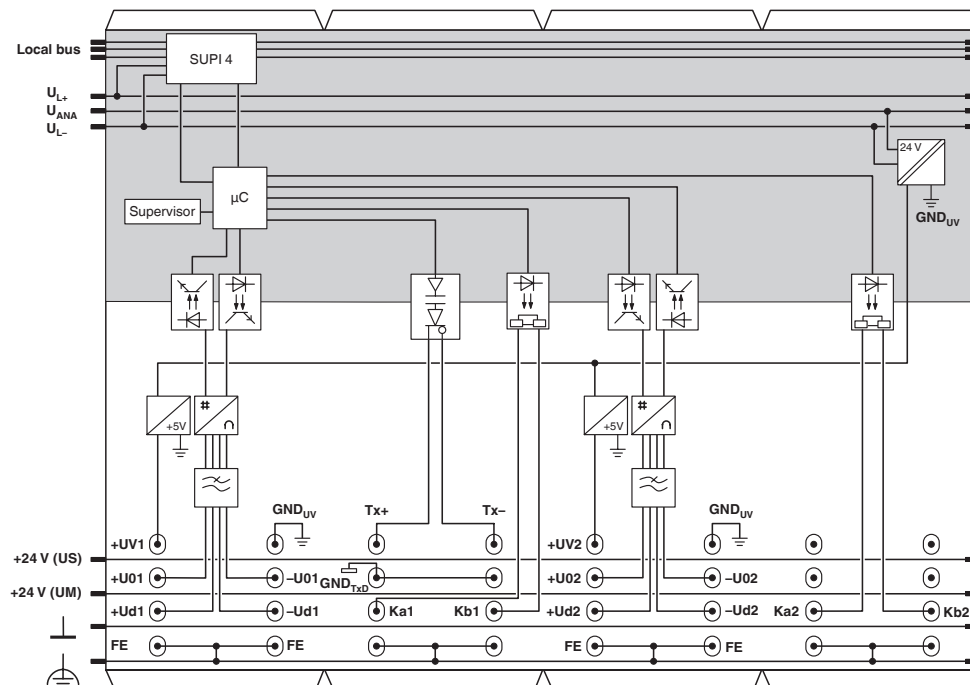


## Drawings

### Connection diagram



### Block diagram



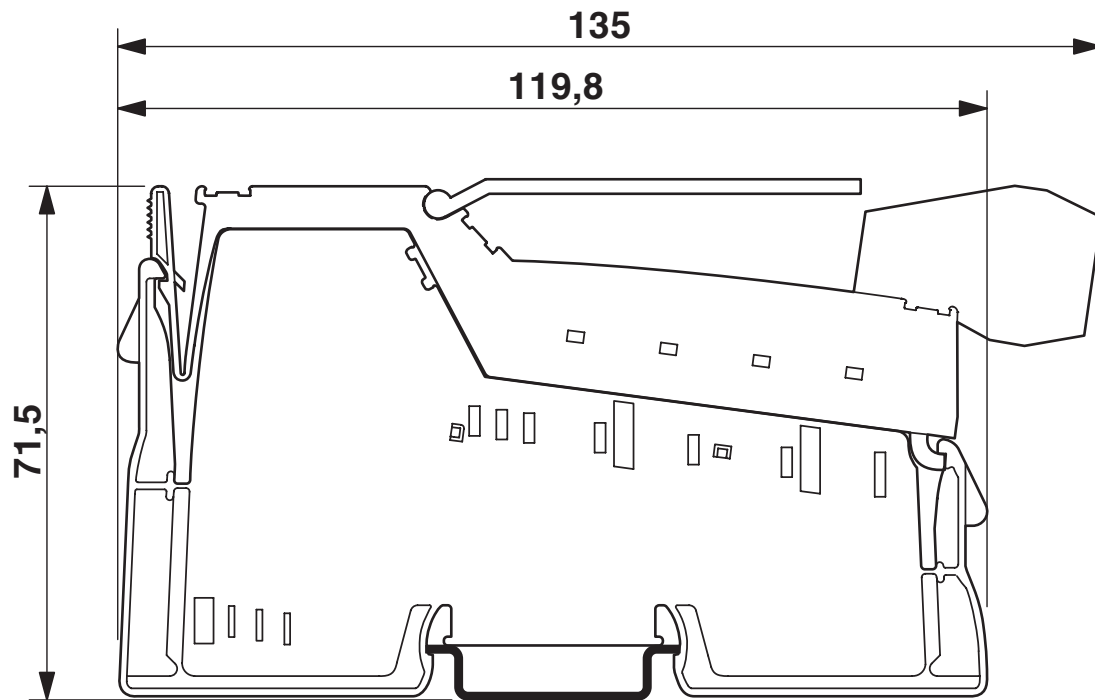
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Dimensional drawing



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2702373>



**UL Listed**  
Approval ID: FILE E 140324



**cUL Listed**  
Approval ID: FILE E 140324

**cULus Listed**

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27242601 |
| ECLASS-12.0 | 27242601 |
| ECLASS-13.0 | 27242601 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC001596 |
|----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 32151600 |
|-------------|----------|

Environmental product compliance

|                                         |                                                                                                                                                                                                                                   |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EU RoHS                                 |                                                                                                                                                                                                                                   |
| Fulfills EU RoHS substance requirements | Yes                                                                                                                                                                                                                               |
| Exemption                               | 7(a), 7(c)-I                                                                                                                                                                                                                      |
| China RoHS                              |                                                                                                                                                                                                                                   |
| Environment friendly use period (EFUP)  | EFUP-50                                                                                                                                                                                                                           |
|                                         | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |
| EU REACH SVHC                           |                                                                                                                                                                                                                                   |
| REACH candidate substance (CAS No.)     | Lead(CAS: 7439-92-1)                                                                                                                                                                                                              |
| SCIP                                    | 7d76b1d0-aa25-4208-b081-52777d7f7519                                                                                                                                                                                              |

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## Accessories

### IB IL SCN-6 SHIELD - Inline shield connector

2726353

<https://www.phoenixcontact.com/us/products/2726353>

Inline shield connector



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### IB IL SCN-8 - Inline connector

2726337

<https://www.phoenixcontact.com/us/products/2726337>

Connector, for digital 1, 2 or 8-channel Inline terminals



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## IB IL FIELD 2 - Marking field

2727501

<https://www.phoenixcontact.com/us/products/2727501>

Marking field, width: 12.2 mm



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## ESL 62X10 - Insert strip

0809492

<https://www.phoenixcontact.com/us/products/0809492>

Insert strip, Sheet, white, unlabeled, can be labeled with: Office printing systems, CMS-P1-PLOTTER, mounting type: insert, lettering field size: 62 x 10 mm, Number of individual labels: 72



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## SK 8 - Shield connection clamp

3025163

<https://www.phoenixcontact.com/us/products/3025163>



Shield connection clamp, for shield on busbars, contact resistance  $< 1 \text{ m}\Omega$

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## SK 14 - Shield connection clamp

3025176

<https://www.phoenixcontact.com/us/products/3025176>



Shield connection clamp, for shield on busbars, contact resistance  $< 1 \text{ m}\Omega$

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## SK 20 - Shield connection clamp

3025189

<https://www.phoenixcontact.com/us/products/3025189>



Shield connection clamp, for shield on busbars, contact resistance  $< 1 \text{ m}\Omega$

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## SK 35 - Shield connection clamp

3026463

<https://www.phoenixcontact.com/us/products/3026463>



Shield connection clamp, for shield on busbars, contact resistance  $< 1 \text{ m}\Omega$

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## AB-SK - Support bracket

3025341

<https://www.phoenixcontact.com/us/products/3025341>

Support bracket for busbars



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## AB-SK 65 - Support bracket

3026489

<https://www.phoenixcontact.com/us/products/3026489>

Support bracket, Bracket for busbars, set every 20 cm, width: 6.2 mm, height: 95.5 mm, number of positions: 1, color: gray, mounting type: DIN rail mounting



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## AB-SK/E - Support bracket

3026476

<https://www.phoenixcontact.com/us/products/3026476>

Support bracket, Bracket for busbars, set every 20 cm, depth: 20 mm, width: 56 mm, height: 10 mm, diameter: 4.5 mm, number of positions: 2, color: silver, mounting type: Direct mounting



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## NLS-CU 3/10 SN 1000MM - Neutral busbar

0402174

<https://www.phoenixcontact.com/us/products/0402174>

Neutral busbar, DIN VDE 0611-4: 1991-02, color: silver



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## AK 4 - Connection terminal block

0404017

<https://www.phoenixcontact.com/us/products/0404017>



Connection terminal block, connection method: Screw connection, Rated cross section: 4 mm<sup>2</sup>, cross section: 0.5 mm<sup>2</sup> - 6 mm<sup>2</sup>, mounting: Neutral busbar, color: silver

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## AKG 4 GNYE - Connection terminal block

0421029

<https://www.phoenixcontact.com/us/products/0421029>



Connection terminal block, nom. voltage: 300 V, nominal current: 41 A, connection method: Screw connection, Rated cross section: 4 mm<sup>2</sup>, cross section: 0.5 mm<sup>2</sup> - 6 mm<sup>2</sup>, mounting: Neutral busbar, color: green-yellow

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## AKG 4 BK - Connection terminal block

0421032

<https://www.phoenixcontact.com/us/products/0421032>



Connection terminal block, nom. voltage: 300 V, nominal current: 41 A, connection method: Screw connection, Rated cross section: 4 mm<sup>2</sup>, cross section: 0.5 mm<sup>2</sup> - 6 mm<sup>2</sup>, mounting: Neutral busbar, color: black

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## AX+ BASIC - Software

2985068

<https://www.phoenixcontact.com/us/products/2985068>



Software CD for FDT container for integrating device DTMs (free download)

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## AX DTM LIB - Programming software

2988065

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DTM library

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