

**Data sheet**
**VIPA CPU 115SER - Micro PLC (115-6BL14)**
**Technical data**

|   |   |
|---|---|
| <b>Order no.</b>  | <b>115-6BL14</b>  |
| Type  | VIPA CPU 115SER - Micro PLC   |
| <b>General information</b>                              |   |
| Note  | -   |
| Features  | 16 (20) inputs<br>16 (12) outputs<br>from which are 2 PWM 50 kHz outputs<br>32 kB work memory, 40 kB load memory<br>RS232 interface |
| <b>Technical data power supply</b>                      |   |
| Power supply (rated value)                              | DC 24 V   |
| Power supply (permitted range)                          | DC 20.4...28.8 V  |
| Reverse polarity protection                             | yes   |
| Current consumption (no-load operation)                 | 100 mA  |
| Current consumption (rated value)                       | 1 A   |
| Inrush current  | 58 A  |
| $I^2t$  | 0.38 A <sup>2</sup> s   |
| Max. current drain at backplane bus                     | 0.8 A   |
| Max. current drain load supply                          | -   |
| Power loss  | 9 W   |
| Reverse polarity protection                             | yes   |
| <b>Technical data digital inputs</b>                    |   |
| Number of inputs  | 16 (20)   |
| Cable length, shielded                                  | 1000 m  |
| Cable length, unshielded                                | 600 m   |
| Rated load voltage                                      | DC 24 V   |
| Reverse polarity protection of rated load voltage       | yes   |
| Current consumption from load voltage L+ (without load) | -   |
| Rated value   | DC 24 V   |
| Input voltage for signal "0"                            | DC 0...5 V  |
| Input voltage for signal "1"                            | DC 15...28.8 V  |
| Input current for signal "1"                            | 7 mA  |
| Connection of Two-Wire-BEROs possible                   | yes   |
| Max. permissible BERO quiescent current                 | 1.5 mA  |
| Input delay of "0" to "1"                               | 3 ms  |
| Input delay of "1" to "0"                               | 3 ms  |
| Input characteristic curve                              | IEC 61131-2, type 1   |
| Initial data size                                       | 3 Byte  |
| <b>Technical data digital outputs</b>                   |   |
| Number of outputs                                       | 16 (12)   |
| Cable length, shielded                                  | 1000 m  |
| Cable length, unshielded                                | 600 m   |

|   |                 |
|---|-----------------|
| Rated load voltage                                      | DC 24 V         |
| Reverse polarity protection of rated load voltage       | -               |
| Current consumption from load voltage L+ (without load) | 50 mA           |
| Total current per group, horizontal configuration, 40°C | 4 A             |
| Total current per group, horizontal configuration, 60°C | 4 A             |
| Total current per group, vertical configuration         | 4 A             |
| Output voltage signal "1" at min. current               | L+ (-125 mV)    |
| Output voltage signal "1" at max. current               | L+ (-0.8 V)     |
| Output current at signal "1", rated value               | 0.5 A           |
| Output delay of "0" to "1"                              | max. 100 µs     |
| Output delay of "1" to "0"                              | max. 350 µs     |
| Minimum load current                                    | -               |
| Lamp load   | 5 W             |
| Switching frequency with resistive load                 | max. 1000 Hz    |
| Switching frequency with inductive load                 | max. 0.5 Hz     |
| Switching frequency on lamp load                        | max. 10 Hz      |
| Internal limitation of inductive shut-off voltage       | L+ (-52 V)      |
| Short-circuit protection of output                      | yes, electronic |
| Trigger level   | 1 A             |
| Output data size  | 3 Byte          |

#### Technical data counters

|                          |        |
|--------------------------|--------|
| Number of counters       | 4      |
| Counter width            | 32 Bit |
| Maximum input frequency  | 30 kHz |
| Maximum count frequency  | 30 kHz |
| Mode incremental encoder | yes    |
| Mode pulse / direction   | yes    |
| Mode pulse               | yes    |
| Mode frequency counter   | -      |
| Mode period measurement  | -      |
| Gate input available     | yes    |
| Latch input available    | -      |
| Reset input available    | -      |
| Counter output available | -      |

#### Status information, alarms, diagnostics

|                                  |            |
|----------------------------------|------------|
| Status display                   | yes        |
| Interrupts                       | yes        |
| Process alarm                    | yes        |
| Diagnostic interrupt             | yes        |
| Diagnostic functions             | no         |
| Diagnostics information read-out | possible   |
| Supply voltage display           | green LED  |
| Group error display              | red SF LED |
| Channel error display            | none       |

#### Isolation

|                                    |     |
|------------------------------------|-----|
| Between channels of groups to      | 8   |
| Between channels and backplane bus | yes |

Insulation tested with DC 500 V

**PWM data**

|                     |  |
|---------------------|--|
| PWM channels        | 2  |
| PWM time basis      | PWM 0.1ms/1ms / HF-PWM 2.5...50kHz             |
| Period length       | -  |
| Minimum pulse width | PWM 1...60000 * Time base / HF-PWM 4...60000µs |
| Type of output      | Highside                                       |

**Load and working memory**

|  |                           |
|--|---------------------------|
| Load memory, integrated                  | 40 KB                     |
| Load memory, maximum                     | 40 KB                     |
| Work memory, integrated                  | 32 KB                     |
| Work memory, maximal                     | 32 KB                     |
| Memory divided in 50% program / 50% data | -                         |
| Memory card slot                         | MMC-Card with max. 512 MB |

**Hardware configuration**

|                                    |   |
|------------------------------------|---|
| Racks, max.                        | 1 |
| Modules per rack, max.             | 4 |
| Number of integrated DP master     | - |
| Number of DP master via CP         | 4 |
| Operable function modules          | 4 |
| Operable communication modules PtP | 4 |
| Operable communication modules LAN | - |

**Command processing times**

|                                 |         |
|---------------------------------|---------|
| Bit instructions, min.          | 0.25 µs |
| Word instruction, min.          | 1.2 µs  |
| Double integer arithmetic, min. | 2.6 µs  |
| Floating-point arithmetic, min. | 50 µs   |

**Timers/Counters and their retentive characteristics**

|                                 |                        |
|---------------------------------|------------------------|
| Number of S7 counters           | 256                    |
| S7 counter remanence            | adjustable 0 up to 64  |
| S7 counter remanence adjustable | C0 .. C7               |
| Number of S7 times              | 256                    |
| S7 times remanence              | adjustable 0 up to 128 |
| S7 times remanence adjustable   | not retentive          |

**Data range and retentive characteristic**

|  |                        |
|--|------------------------|
| Number of flags                                  | 8192 Bit               |
| Bit memories retentive characteristic adjustable | adjustable 0 up to 256 |
| Bit memories retentive characteristic preset     | MB0 .. MB15            |
| Number of data blocks                            | 2047                   |
| Max. data blocks size                            | 16 KB                  |
| Number range DBs                                 | 1 ... 2047             |
| Max. local data size per execution level         | 1024 Byte              |
| Max. local data size per block                   | 1024 Byte              |

**Blocks**

|   |            |
|---|------------|
| Number of OBs                                       | 14         |
| Maximum OB size                                     | 16 KB      |
| Total number DBs, FBs, FCs                          | -          |
| Number of FBs                                       | 1024       |
| Maximum FB size                                     | 16 KB      |
| Number range FBs                                    | 0 ... 1023 |
| Number of FCs                                       | 1024       |
| Maximum FC size                                     | 16 KB      |
| Number range FCs                                    | 0 ... 1023 |
| Maximum nesting depth per priority class            | 8          |
| Maximum nesting depth additional within an error OB | 1          |

**Time**

|                                     |                                       |
|-------------------------------------|---------------------------------------|
| Real-time clock buffered            | yes                                   |
| Clock buffered period (min.)        | 30 d                                  |
| Type of buffering                   | Vanadium Rechargeable Lithium Battery |
| Load time for 50% buffering period  | 20 h                                  |
| Load time for 100% buffering period | 48 h                                  |
| Accuracy (max. deviation per day)   | 10 s                                  |
| Number of operating hours counter   | 8                                     |
| Clock synchronization               | -                                     |
| Synchronization via MPI             | -                                     |
| Synchronization via Ethernet (NTP)  | -                                     |

**Address areas (I/O)**

|                              |           |
|------------------------------|-----------|
| Input I/O address area       | 1024 Byte |
| Output I/O address area      | 1024 Byte |
| Process image adjustable     | -         |
| Input process image preset   | 128 Byte  |
| Output process image preset  | 128 Byte  |
| Input process image maximal  | 128 Byte  |
| Output process image maximal | 128 Byte  |
| Digital inputs               | 8192      |
| Digital outputs              | 8192      |
| Digital inputs central       | 148       |
| Digital outputs central      | 144       |
| Integrated digital inputs    | 16 (20)   |
| Integrated digital outputs   | 16 (12)   |
| Analog inputs                | 512       |
| Analog outputs               | 512       |
| Analog inputs, central       | 32        |
| Analog outputs, central      | 16        |
| Integrated analog inputs     | -         |
| Integrated analog outputs    | -         |

**Communication functions**

|                           |     |
|---------------------------|-----|
| PG/OP channel             | yes |
| Global data communication | yes |

|   |          |
|---|----------|
| Number of GD circuits, max.               | 4        |
| Size of GD packets, max.                  | 22 Byte  |
| S7 basic communication                    | yes      |
| S7 basic communication, user data per job | 76 Byte  |
| S7 communication                          | yes      |
| S7 communication as server                | yes      |
| S7 communication as client                | -        |
| S7 communication, user data per job       | 160 Byte |
| Number of connections, max.               | 16       |

### Functionality Sub-D interfaces

|                          |                          |
|--------------------------|--------------------------|
| Type                     | MP2I                     |
| Type of interface        | RS485                    |
| Connector                | Sub-D, 9-pin, female     |
| Electrically isolated    | -                        |
| MPI                      | yes                      |
| MP2I (MPI/RS232)         | yes                      |
| DP master                | -                        |
| DP slave                 | -                        |
| Point-to-point interface | -                        |
| 5V DC Power supply       | max. 90mA, non-isolated  |
| 24V DC Power supply      | max. 100mA, non-isolated |

|                          |                    |
|--------------------------|--------------------|
| Type                     | COM                |
| Type of interface        | RS232              |
| Connector                | Sub-D, 9-pin, male |
| Electrically isolated    | -                  |
| MPI                      | -                  |
| MP2I (MPI/RS232)         | -                  |
| DP master                | -                  |
| DP slave                 | -                  |
| Point-to-point interface | yes                |
| 5V DC Power supply       | -                  |
| 24V DC Power supply      | -                  |

### Functionality MPI

|                             |              |
|-----------------------------|--------------|
| Number of connections, max. | 16           |
| PG/OP channel               | yes          |
| Routing                     | -            |
| Global data communication   | yes          |
| S7 basic communication      | yes          |
| S7 communication            | yes          |
| S7 communication as server  | yes          |
| S7 communication as client  | -            |
| Transmission speed, min.    | 19.2 kbit/s  |
| Transmission speed, max.    | 187.5 kbit/s |

### Point-to-point communication

|                   |     |
|-------------------|-----|
| PtP communication | yes |
|-------------------|-----|

|                          |                    |
|--------------------------|--------------------|
| Interface isolated       | -                  |
| RS232 interface          | yes                |
| RS422 interface          | -                  |
| RS485 interface          | -                  |
| Connector                | Sub-D, 9-pin, male |
| Transmission speed, min. | 150 bit/s          |
| Transmission speed, max. | 115.2 kbit/s       |
| Cable length, max.       | 15 m               |

#### Point-to-point protocol

|                        |     |
|------------------------|-----|
| ASCII protocol         | yes |
| STX/ETX protocol       | yes |
| 3964(R) protocol       | yes |
| RK512 protocol         | -   |
| USS master protocol    | yes |
| Modbus master protocol | yes |
| Modbus slave protocol  | yes |
| Special protocols      | -   |

#### Housing

|          |                    |
|----------|--------------------|
| Material | PPE / PA 6.6       |
| Mounting | Profile rail 35 mm |

#### Mechanical data

|                              |                          |
|------------------------------|--------------------------|
| Dimensions (WxHxD)           | 152.4 mm x 76 mm x 48 mm |
| Net weight                   | 302 g                    |
| Weight including accessories | -                        |
| Gross weight                 | -                        |

#### Environmental conditions

|                       |                 |
|-----------------------|-----------------|
| Operating temperature | 0 °C to 60 °C   |
| Storage temperature   | -25 °C to 70 °C |

#### Certifications

|                  |     |
|------------------|-----|
| UL certification | yes |
| KC certification | -   |