

**Data sheet**  
 VIPA CPU 115SER (115-6BL14)

## Technical data

|                  |                  |
|------------------|------------------|
| <b>Order no.</b> | <b>115-6BL14</b> |
|------------------|------------------|

|      |                 |
|------|-----------------|
| Type | VIPA CPU 115SER |
|------|-----------------|

**General information**

|      |   |
|------|---|
| Note | - |
|------|---|

|          |   |
|----------|---|
| Features | Work memory [KB]: 32<br>Onboard 16x DI / 12x DO / 4x DIO / 2x Counter / 2x PWM<br>Interface [MP <sup>2</sup> I]: MPI<br>Interface [RS232/PtP]: ASCII, STX/ETX, 3964R, Modbus<br>master/slave, USS master<br>MMC card slot, up to 4 modules stackable (100V or 200V)<br>Programmable with WinPLC7(lite) and SIMATIC Manager<br>WinPLC7(lite) please order separate SW211K2OD |
|----------|---|

**Technical data power supply**

|                            |         |
|----------------------------|---------|
| 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 <sup>2</sup> t | 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 |
|-----------------------------|-----|

**Technical data digital inputs**

|                  |         |
|------------------|---------|
| 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 |
|------------------------------|----------------|

|                    |               |
|--------------------|---------------|
| Signal logic input | Sinking input |
|--------------------|---------------|

|                              |      |
|------------------------------|------|
| 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 |
|-------------------|--------|

**Technical data digital outputs**

|                   |         |
|-------------------|---------|
| 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                                       |
| <b>PWM data</b>  |  |
| 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                                       |
| <b>Load and working memory</b>                             |  |
| 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                      |
| <b>Hardware configuration</b>                              |  |
| 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                         | -  |
| <b>Status information, alarms, diagnostics</b>             |  |
| 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   |
| <b>Command processing times</b>                            |  |
| 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  |
| <b>Timers/Counters and their retentive characteristics</b> |  |
| 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                                  |
| <b>Data range and retentive characteristic</b>             |  |

|  |                        |
|--|------------------------|
| 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                          | MP <sup>2</sup> I        |
| Type of interface             | RS485                    |
| Connector                     | Sub-D, 9-pin, female     |
| Electrically isolated         | -                        |
| MPI                           | yes                      |
| MP <sup>2</sup> I (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                           | -                  |
| MP <sup>2</sup> I (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 | -   |