

## Data sheet

### CPU 114R (114-6BJ53)

#### Technical data

|                  |                  |
|------------------|------------------|
| <b>Order no.</b> | <b>114-6BJ53</b> |
| Type             | CPU 114R         |

#### General information

|          |   |
|----------|---|
| Note     | -   |
| Features | 16 inputs<br>8 relay outputs<br>AC 230 V/ DC 30 V<br>24 kB work memory, 32 kB load memory |

#### 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) | 150 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 $\mu$ A           |
| Max. current drain load supply          | -                     |
| Power loss                              | 7 W                   |
| Reverse polarity protection             | yes                   |

#### Technical data digital inputs

|   |                     |
|---|---------------------|
| Number of inputs  | 16                  |
| 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              |

#### Technical data digital outputs

|                          |        |
|--------------------------|--------|
| Number of outputs        | 8      |
| Cable length, shielded   | 1000 m |
| Cable length, unshielded | 600 m  |

|   |                   |
|---|-------------------|
| Rated load voltage                                      | DC 30 V/ AC 230 V |
| Reverse polarity protection of rated load voltage       | -                 |
| Current consumption from load voltage L+ (without load) | -                 |
| Total current per group, horizontal configuration, 40°C | 8 A               |
| Total current per group, horizontal configuration, 60°C | 8 A               |
| Total current per group, vertical configuration         | 8 A               |
| Output voltage signal "1" at min. current               | -                 |
| Output voltage signal "1" at max. current               | -                 |
| Output current at signal "1", rated value               | 5 A               |
| Output delay of "0" to "1"                              | 10 ms             |
| Output delay of "1" to "0"                              | 5 ms              |
| Minimum load current                                    | -                 |
| Lamp load   | -                 |
| Switching frequency with resistive load                 | max. 0.33 Hz      |
| Switching frequency with inductive load                 | -                 |
| Switching frequency on lamp load                        | -                 |
| Internal limitation of inductive shut-off voltage       | -                 |
| Short-circuit protection of output                      | -                 |
| Trigger level   | -                 |
| 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        | - |
| PWM time basis      | - |
| Period length       | - |
| Minimum pulse width | - |
| Type of output      | - |

### Load and working memory

|  |                           |
|--|---------------------------|
| Load memory, integrated                  | 32 KB                     |
| Load memory, maximum                     | 32 KB                     |
| Work memory, integrated                  | 24 KB                     |
| Work memory, maximal                     | 24 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       | 144       |
| Digital outputs central      | 136       |
| Integrated digital inputs    | 16        |
| Integrated digital outputs   | 8         |
| 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                  |
| Point-to-point interface      | -                    |

### 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 |

### Housing

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

### Mechanical data

|                    |                          |
|--------------------|--------------------------|
| Dimensions (WxHxD) | 152.4 mm x 76 mm x 48 mm |
| Weight             | 280 g                    |

### Environmental conditions

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

### Certifications

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