

Data sheet

CPU 114R (114-6BJ54)

Technical data

| | |
|---|---|
| Order no. | 114-6BJ54 |
| Type | CPU 114R |
| General information | |
| Note | - |
| Features | 16 inputs 8 relay outputs AC 230 V/ DC 30 V 32 kB work memory, 40 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 | ✓ |
| Current consumption (no-load operation) | 150 mA |
| Current consumption (rated value) | 1 A |
| Inrush current | 58 A |
| I^2t | 0.38 A ² s |
| Max. current drain at backplane bus | 0.8 μ A |
| Power loss | 7 W |
| Reverse polarity protection | ✓ |
| 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 | ✓ |
| 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 | ✓ |
| 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. 10 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 | ✓ |
| Mode pulse / direction | ✓ |
| Mode pulse | ✓ |
| Mode frequency counter | - |
| Mode period measurement | - |
| Gate input available | ✓ |
| 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



| | |
|------------------------|----------|
| Insulation tested with | DC 500 V |
|------------------------|----------|

PWM data

| | |
|---------------------|---|
| PWM channels | - |
| PWM time basis | - |
| Period length | - |
| Minimum pulse width | - |
| PtP communication | - |

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 μ s |
| Word instruction, min. | 1.2 μ s |
| Double integer arithmetic, min. | 2.6 μ s |
| Floating-point arithmetic, min. | 50 μ s |

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

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

Functionality Sub-D interfaces

| | |
|-------------------------------|----------------------|
| Type | MP ² I |
| Type of interface | RS485 |
| Connector | Sub-D, 9-pin, female |
| Electrically isolated | - |
| MPI | ✓ |
| MP ² I (MPI/RS232) | ✓ |
| Point-to-point interface | - |

Functionality MPI

| | |
|-----------------------------|--------------|
| Number of connections, max. | 16 |
| PG/OP channel | ✓ |
| Routing | - |
| Global data communication | ✓ |
| S7 basic communication | ✓ |
| S7 communication | ✓ |
| S7 communication as server | ✓ |
| 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

| | |
|---------------------|-----|
| UL508 certification | yes |
|---------------------|-----|