

## Data sheet

### SLIO CPU 015N (015-CEFNR00)

#### Technical data

|                  |                    |
|------------------|--------------------|
| <b>Order no.</b> | <b>015-CEFNR00</b> |
| Type             | SLIO CPU 015N      |
| Module ID        | -                  |

#### General information

|          |                                                                                                                                                                                                                                                                                                     |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Note     | -                                                                                                                                                                                                                                                                                                   |
| Features | SPEED7 technology<br>256 kB work memory<br>Memory extension (max. 512 kB) via VIPASetCard<br>PROFIBUS slave/master activatable via VIPASetCard<br>Full-function RS485 interface integrated, switchable MPI/PtP<br>EtherCAT master for up to 128 participants integrated<br>Ethernet PG/OP interface |

#### 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) | 175 mA           |
| Current consumption (rated value)       | 1.1 A            |
| Inrush current                          | 3 A              |
| $I^2t$                                  | 0.1 A²s          |
| Max. current drain at backplane bus     | 3 A              |
| Max. current drain load supply          | 10 A             |
| Power loss                              | 8 W              |

#### Load and working memory

|                                          |                            |
|------------------------------------------|----------------------------|
| Load memory, integrated                  | 512 KB                     |
| Load memory, maximum                     | 512 KB                     |
| Work memory, integrated                  | 256 KB                     |
| Work memory, maximal                     | 512 KB                     |
| Memory divided in 50% program / 50% data | yes                        |
| Memory card slot                         | SD/MMC-Card with max. 2 GB |

#### Hardware configuration

|                                    |    |
|------------------------------------|----|
| Racks, max.                        | 1  |
| Modules per rack, max.             | 64 |
| Number of integrated DP master     | -  |
| Number of DP master via CP         | -  |
| Operable function modules          | 64 |
| Operable communication modules PtP | 64 |
| Operable communication modules LAN | -  |

#### Command processing times

|                                 |         |
|---------------------------------|---------|
| Bit instructions, min.          | 0.01 µs |
| Word instruction, min.          | 0.01 µs |
| Double integer arithmetic, min. | 0.01 µs |

Floating-point arithmetic, min.

0.06 µs

## Timers/Counters and their retentive characteristics

|                                 |                        |
|---------------------------------|------------------------|
| Number of S7 counters           | 512                    |
| S7 counter remanence            | adjustable 0 up to 512 |
| S7 counter remanence adjustable | C0 .. C7               |
| Number of S7 times              | 512                    |
| S7 times remanence              | adjustable 0 up to 512 |
| S7 times remanence adjustable   | not retentive          |

## Data range and retentive characteristic

|                                                  |                         |
|--------------------------------------------------|-------------------------|
| Number of flags                                  | 8192 Byte               |
| Bit memories retentive characteristic adjustable | adjustable 0 up to 8192 |
| Bit memories retentive characteristic preset     | MB0 .. MB15             |
| Number of data blocks                            | 4096                    |
| Max. data blocks size                            | 64 KB                   |
| Number range DBs                                 | 1 ... 8191              |
| Max. local data size per execution level         | 4096 Byte               |
| Max. local data size per block                   | 4096 Byte               |

## Blocks

|                                                     |            |
|-----------------------------------------------------|------------|
| Number of OBs                                       | 24         |
| Maximum OB size                                     | 64 KB      |
| Total number DBs, FBs, FCs                          | 4096       |
| Number of FBs                                       | 4096       |
| Maximum FB size                                     | 64 KB      |
| Number range FBs                                    | 0 ... 8191 |
| Number of FCs                                       | 4096       |
| Maximum FC size                                     | 64 KB      |
| Number range FCs                                    | 0 ... 8191 |
| Maximum nesting depth per priority class            | 16         |
| Maximum nesting depth additional within an error OB | 4          |

## Time

|                                     |              |
|-------------------------------------|--------------|
| Real-time clock buffered            | yes          |
| Clock buffered period (min.)        | 30 d         |
| Type of buffering                   | Goldcap      |
| Load time for 50% buffering period  | 15 min       |
| Load time for 100% buffering period | 1 h          |
| Accuracy (max. deviation per day)   | 10 s         |
| Number of operating hours counter   | 8            |
| Clock synchronization               | yes          |
| Synchronization via MPI             | Master/Slave |
| Synchronization via Ethernet (NTP)  | Slave        |

## Address areas (I/O)

|                            |           |
|----------------------------|-----------|
| Input I/O address area     | 2048 Byte |
| Output I/O address area    | 2048 Byte |
| Process image adjustable   | yes       |
| Input process image preset | 128 Byte  |

|                              |           |
|------------------------------|-----------|
| Output process image preset  | 128 Byte  |
| Input process image maximal  | 2048 Byte |
| Output process image maximal | 2048 Byte |
| Digital inputs               | 16384     |
| Digital outputs              | 16384     |
| Digital inputs central       | 512       |
| Digital outputs central      | 512       |
| Integrated digital inputs    | -         |
| Integrated digital outputs   | -         |
| Analog inputs                | 1024      |
| Analog outputs               | 1024      |
| Analog inputs, central       | 256       |
| Analog outputs, central      | 256       |
| Integrated analog inputs     | -         |
| Integrated analog outputs    | -         |

### Communication functions

|                                           |          |
|-------------------------------------------|----------|
| PG/OP channel                             | yes      |
| Global data communication                 | yes      |
| Number of GD circuits, max.               | 8        |
| 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.               | 32       |

### Functionality Sub-D interfaces

|                          |                          |
|--------------------------|--------------------------|
| Type                     | X2                       |
| Type of interface        | RS485                    |
| Connector                | Sub-D, 9-pin, female     |
| Electrically isolated    | yes                      |
| MPI                      | yes                      |
| MP2I (MPI/RS232)         | -                        |
| DP master                | -                        |
| DP slave                 | -                        |
| Point-to-point interface | yes                      |
| 5V DC Power supply       | max. 90mA, isolated      |
| 24V DC Power supply      | max. 100mA, non-isolated |

|                       |                      |
|-----------------------|----------------------|
| Type                  | X3                   |
| Type of interface     | RS485                |
| Connector             | Sub-D, 9-pin, female |
| Electrically isolated | yes                  |
| MPI                   | yes                  |
| MP2I (MPI/RS232)      | -                    |
| DP master             | -                    |

|                          |                          |
|--------------------------|--------------------------|
| DP slave                 | -                        |
| Point-to-point interface | -                        |
| 5V DC Power supply       | max. 90mA, isolated      |
| 24V DC Power supply      | max. 100mA, non-isolated |

#### Functionality MPI

|                             |             |
|-----------------------------|-------------|
| Number of connections, max. | 32          |
| PG/OP channel               | yes         |
| Routing                     | yes         |
| 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.    | 12 Mbit/s   |

#### Functionality PROFIBUS master

|                                                     |   |
|-----------------------------------------------------|---|
| PG/OP channel                                       | - |
| Routing                                             | - |
| S7 basic communication                              | - |
| S7 communication                                    | - |
| S7 communication as server                          | - |
| S7 communication as client                          | - |
| Activation/deactivation of DP slaves                | - |
| Direct data exchange (slave-to-slave communication) | - |
| DPV1                                                | - |
| Transmission speed, min.                            | - |
| Transmission speed, max.                            | - |
| Number of DP slaves, max.                           | - |
| Address range inputs, max.                          | - |
| Address range outputs, max.                         | - |
| User data inputs per slave, max.                    | - |
| User data outputs per slave, max.                   | - |

#### Functionality PROFIBUS slave

|                                                     |   |
|-----------------------------------------------------|---|
| PG/OP channel                                       | - |
| Routing                                             | - |
| S7 communication                                    | - |
| S7 communication as server                          | - |
| S7 communication as client                          | - |
| Direct data exchange (slave-to-slave communication) | - |
| DPV1                                                | - |
| Transmission speed, min.                            | - |
| Transmission speed, max.                            | - |
| Automatic detection of transmission speed           | - |
| Transfer memory inputs, max.                        | - |
| Transfer memory outputs, max.                       | - |
| Address areas, max.                                 | - |
| User data per address area, max.                    | - |

### Point-to-point communication

|                          |                      |
|--------------------------|----------------------|
| PtP communication        | yes                  |
| Interface isolated       | yes                  |
| RS232 interface          | -                    |
| RS422 interface          | -                    |
| RS485 interface          | yes                  |
| Connector                | Sub-D, 9-pin, female |
| Transmission speed, min. | 150 bit/s            |
| Transmission speed, max. | 115.5 kbit/s         |
| Cable length, max.       | 500 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      | -   |

### Functionality RJ45 interfaces

|                             |                             |
|-----------------------------|-----------------------------|
| Type                        | X1                          |
| Type of interface           | Ethernet 10/100 MBit Switch |
| Connector                   | RJ45                        |
| Electrically isolated       | yes                         |
| PG/OP channel               | yes                         |
| Number of connections, max. | 4                           |
| Productive connections      | -                           |

|                             |                             |
|-----------------------------|-----------------------------|
| Type                        | X5                          |
| Type of interface           | Ethernet 10/100 MBit Switch |
| Connector                   | RJ45                        |
| Electrically isolated       | yes                         |
| PG/OP channel               | yes                         |
| Number of connections, max. | 4                           |
| Productive connections      | -                           |

|                             |                   |
|-----------------------------|-------------------|
| Type                        | X4                |
| Type of interface           | Ethernet 100 MBit |
| Connector                   | RJ45              |
| Electrically isolated       | yes               |
| PG/OP channel               | -                 |
| Number of connections, max. | -                 |
| Productive connections      | -                 |

|      |    |
|------|----|
| Type | X6 |
|------|----|

|                             |                      |
|-----------------------------|----------------------|
| Type of interface           | Ethernet 10/100 MBit |
| Connector                   | RJ45                 |
| Electrically isolated       | yes                  |
| PG/OP channel               | yes                  |
| Number of connections, max. | 8                    |
| Productive connections      | yes                  |

#### Ethernet communication CP

|                                                          |                                                                       |
|----------------------------------------------------------|-----------------------------------------------------------------------|
| Number of productive connections, max.                   | 8                                                                     |
| Number of productive connections by Siemens NetPro, max. | 8                                                                     |
| S7 connections                                           | BSEND, BRCV, GET, PUT, Connection of active and passive data handling |
| User data per S7 connection, max.                        | 32 KB                                                                 |
| TCP-connections                                          | FETCH PASSIV, WRITE PASSIV, Connection of passive data handling       |
| User data per TCP connection, max.                       | 64 KB                                                                 |
| ISO-connections                                          | -                                                                     |
| User data per ISO connection, max.                       | -                                                                     |
| ISO on TCP connections (RFC 1006)                        | FETCH PASSIV, WRITE PASSIV, Connection of passive data handling       |
| User data per ISO on TCP connection, max.                | 32 KB                                                                 |
| UDP-connections                                          | -                                                                     |
| User data per UDP connection, max.                       | -                                                                     |
| UDP-multicast-connections                                | -                                                                     |
| UDP-broadcast-connections                                | -                                                                     |

#### Ethernet open communication

|                                           |           |
|-------------------------------------------|-----------|
| Number of connections, max.               | 8         |
| User data per ISO on TCP connection, max. | 8 KB      |
| User data per native TCP connection, max. | 8 KB      |
| User data per ad hoc TCP connection, max. | 1460 Byte |
| User data per UDP connection, max.        | 1472 Byte |

#### EtherCAT Master

|                             |                |
|-----------------------------|----------------|
| Number of EtherCAT-slaves   | 128            |
| Update time                 | 1 ms .. 512 ms |
| Address range inputs, max.  | 2 KB           |
| Address range outputs, max. | 2 KB           |
| EoE support                 | yes            |
| FoE support                 | yes            |
| Distributed Clock support   | yes            |
| Hotconnect Slaves           | yes            |
| Isochronous mode            | yes            |

#### Management & diagnosis

|                     |             |
|---------------------|-------------|
| Protocols           | ICMP<br>DCP |
| Web based diagnosis | -           |
| NCM diagnosis       | -           |

#### Housing

|          |                |
|----------|----------------|
| Material | PPE / PPE GF10 |
|----------|----------------|

Mounting

Profile rail 35 mm

#### Mechanical data

|                    |                           |
|--------------------|---------------------------|
| Dimensions (WxHxD) | 131.5 mm x 109 mm x 83 mm |
| Weight             | 325 g                     |

#### Environmental conditions

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

#### Certifications

|                  |                |
|------------------|----------------|
| UL certification | in preparation |
| KC certification | in preparation |