

# SIEMENS

## Product data sheet

## 6AG1214-1BE30-2XB0



SIPLUS S7-1200 CPU 1214C AC/DC/RLY -25 ... +70 DEGREES C WITH CONFORMAL COATING BASED ON 6ES7214-1BE30-0XB0 . COMPACT CPU, AC/DC/RLY, ONBOARD I/O: 14 DI 24V DC; 10 DO RELAY 0,5A; 2 AI 0 - 10V DC, POWER SUPPLY: AC 85 - 264 V AC @ 47 - 63 HZ, PROGRAM/DATA MEMORY: 50 KB

| General information                 |                    |
|-------------------------------------|--------------------|
| Engineering with                    |                    |
| Programming package                 | STEP 7 Basic V10.5 |
| Display                             |                    |
| integrated                          | No                 |
| Supply voltage                      |                    |
| 120 V AC                            | Yes                |
| 230 V AC                            | Yes                |
| permissible range, lower limit (AC) | 85 V               |
| permissible range, upper limit (AC) | 264 V              |
| Line frequency                      |                    |
| Frequency of the supply voltage     | 47 Hz              |
| Frequency of the supply voltage     | 63 Hz              |
| Load voltage L+                     |                    |
| Rated value (DC)                    | 24 V               |

|                                                |                                                                                                                                                                     |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| permissible range, lower limit (DC)            | 5 V                                                                                                                                                                 |
| permissible range, upper limit (DC)            | 250 V                                                                                                                                                               |
| <b>Input current</b>                           |                                                                                                                                                                     |
| Current consumption (rated value)              | 100 mA @ 120 VAC 50 mA @ 240 VAC                                                                                                                                    |
| Current consumption, max.                      | 300 mA @ 120 VAC 150 mA @ 240 VAC                                                                                                                                   |
| Inrush current, max.                           | 20 A ; at 264 V                                                                                                                                                     |
| <b>Encoder supply</b>                          |                                                                                                                                                                     |
| 24 V encoder supply                            |                                                                                                                                                                     |
| 24 V                                           | Permissible range: 20.4 to 28.8 V                                                                                                                                   |
| <b>Output current</b>                          |                                                                                                                                                                     |
| Current output to backplane bus (DC 5 V), max. | 1600 mA ; 5 VDC max. for SM and CM                                                                                                                                  |
| <b>Power losses</b>                            |                                                                                                                                                                     |
| Power loss, typ.                               | 14 W                                                                                                                                                                |
| <b>Memory</b>                                  |                                                                                                                                                                     |
| Usable memory for user data                    | 50 kbyte                                                                                                                                                            |
| <b>Work memory</b>                             |                                                                                                                                                                     |
| integrated                                     | 50 kbyte                                                                                                                                                            |
| expandable                                     | No                                                                                                                                                                  |
| <b>Load memory</b>                             |                                                                                                                                                                     |
| integrated                                     | 2 Mbyte                                                                                                                                                             |
| expandable, max.                               | 24 Mbyte ; with SIEMENS Memory Card                                                                                                                                 |
| <b>Backup</b>                                  |                                                                                                                                                                     |
| present                                        | Yes ; Entire project maintenance-free in the integral EEPROM                                                                                                        |
| without battery                                | Yes                                                                                                                                                                 |
| <b>CPU processing times</b>                    |                                                                                                                                                                     |
| for bit operations, min.                       | 0.1 $\mu$ s ; / Operation                                                                                                                                           |
| for word operations, min.                      | 12 $\mu$ s ; / Operation                                                                                                                                            |
| for floating point arithmetic, min.            | 18 $\mu$ s ; / Operation                                                                                                                                            |
| <b>CPU-blocks</b>                              |                                                                                                                                                                     |
| Number of blocks (total)                       | DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used |

|                                                                   |                                                                        |
|-------------------------------------------------------------------|------------------------------------------------------------------------|
| <b>OB</b>                                                         |                                                                        |
| Number, max.                                                      | Limited only by RAM for code                                           |
| <b>Data areas and their retentivity</b>                           |                                                                        |
| retentive data area in total (incl. times, counters, flags), max. | 2048 byte                                                              |
| <b>Flag</b>                                                       |                                                                        |
| Number, max.                                                      | 8 kbyte ; Size of bit memory address area                              |
| <b>Address area</b>                                               |                                                                        |
| <b>I/O address area</b>                                           |                                                                        |
| I/O address area, overall                                         | 1024 bytes for inputs / 1024 bytes for outputs                         |
| Inputs                                                            | 1024 byte                                                              |
| Outputs                                                           | 1024 byte                                                              |
| <b>Process image</b>                                              |                                                                        |
| Inputs, adjustable                                                | 1 kbyte                                                                |
| Outputs, adjustable                                               | 1 kbyte                                                                |
| <b>Hardware configuration</b>                                     |                                                                        |
| Number of modules per system, max.                                | 3 communication modules, no signal board can be used, 8 signal modules |
| <b>Time of day</b>                                                |                                                                        |
| <b>Clock</b>                                                      |                                                                        |
| Hardware clock (real-time clock)                                  | Yes                                                                    |
| Deviation per day, max.                                           | +/- 60 s/month at 25 °C                                                |
| Backup time                                                       | 240 h ; Typical                                                        |
| <b>Digital inputs</b>                                             |                                                                        |
| Number/binary inputs                                              | 14                                                                     |
| of which, inputs usable for technological functions               | 6 ; HSC (High Speed Counting)                                          |
| integrated channels (DI)                                          | 14                                                                     |
| m/p-reading                                                       | Yes                                                                    |
| <b>Input voltage</b>                                              |                                                                        |
| Rated value, DC                                                   | 24 V                                                                   |
| for signal "0"                                                    | 5 V DC at 1 mA.                                                        |
| for signal "1"                                                    | 15 VDC at 2.5 mA.                                                      |
| <b>Input current</b>                                              |                                                                        |
| for signal "1", typ.                                              | 1 mA                                                                   |

|                                                 |                                                                                         |
|-------------------------------------------------|-----------------------------------------------------------------------------------------|
| Input delay (for rated value of input voltage)  |                                                                                         |
| for standard inputs                             |                                                                                         |
| Parameterizable                                 | 0.2, 0.4, 0.8, 1.6, 3.2, 6.4, and 12.8 ms, selectable in groups of four                 |
| at "0" to "1", min.                             | 0.2 ms                                                                                  |
| at "0" to "1", max.                             | 12.8 ms                                                                                 |
| for interrupt inputs                            |                                                                                         |
| Parameterizable                                 | Yes                                                                                     |
| for counter/technological functions             |                                                                                         |
| Parameterizable                                 | Single phase: 3 @ 100 kHz & 3 @ 30 kHz differential:<br>3 @ 80 kHz & 3 @ 30 kHz         |
| Cable length                                    |                                                                                         |
| Cable length, shielded, max.                    | 500 m ; 50 m for technological functions                                                |
| Cable length unshielded, max.                   | 300 m ; For technological functions: No                                                 |
| Digital outputs                                 |                                                                                         |
| Number/binary outputs                           | 10 ; Relay; > + 60 °C Number of simultaneously controllable inputs and outputs max. 50% |
| integrated channels (DO)                        | 10                                                                                      |
| Functionality/short-circuit strength            | No ; to be provided externally                                                          |
| Switching capacity of the outputs               |                                                                                         |
| with resistive load, max.                       | 2 A                                                                                     |
| on lamp load, max.                              | 30 W DC; 200 W AC                                                                       |
| Output delay with resistive load                |                                                                                         |
| "0" to "1", max.                                | 10 ms ; max.                                                                            |
| "1" to "0", max.                                | 10 ms ; max.                                                                            |
| Switching frequency                             |                                                                                         |
| of the pulse outputs, with resistive load, max. | 1 Hz                                                                                    |
| Relay outputs                                   |                                                                                         |
| Number of relay outputs                         | 10                                                                                      |
| Number of operating cycles, max.                | mechanically 10 million, at rated load voltage 100,000                                  |
| Cable length                                    |                                                                                         |
| Cable length, shielded, max.                    | 500 m                                                                                   |
| Cable length unshielded, max.                   | 150 m                                                                                   |
| Analog inputs                                   |                                                                                         |

|                                                                 |                                                                                  |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------|
| Integrated channels (AI)                                        | 2                                                                                |
| Number of analog inputs                                         | 2 ; ; > +60 °C Number of simultaneously controllable inputs and outputs max. 50% |
| <b>Input ranges</b>                                             |                                                                                  |
| Voltage                                                         | Yes                                                                              |
| <b>Input ranges (rated values), voltages</b>                    |                                                                                  |
| 0 to +10 V                                                      | Yes                                                                              |
| Input resistance (0 to 10 V)                                    | ≥100k ohms                                                                       |
| <b>Cable length</b>                                             |                                                                                  |
| Cable length, shielded, max.                                    | 100 m ; twisted and shielded                                                     |
| <b>Analog outputs</b>                                           |                                                                                  |
| Integrated channels (AO)                                        | 0                                                                                |
| <b>Cable length</b>                                             |                                                                                  |
| Cable length, shielded, max.                                    | 100 m ; Shielded, twisted wire pair                                              |
| <b>Analog value creation</b>                                    |                                                                                  |
| <b>Integrations and conversion time/ resolution per channel</b> |                                                                                  |
| Resolution with overrange (bit including sign), max.            | 10 bit                                                                           |
| Integration time, parameterizable                               | Yes                                                                              |
| Conversion time (per channel)                                   | 625 μs                                                                           |
| <b>Encoder</b>                                                  |                                                                                  |
| <b>Connectable encoders</b>                                     |                                                                                  |
| 2-wire sensor                                                   | Yes                                                                              |
| <b>1st interface</b>                                            |                                                                                  |
| Type of interface                                               | PROFINET                                                                         |
| Physics                                                         | Ethernet                                                                         |
| Isolated                                                        | Yes                                                                              |
| Automatic detection of transmission speed                       | Yes                                                                              |
| Autonegotiation                                                 | Yes                                                                              |
| Autocrossing                                                    | Yes                                                                              |
| <b>Functionality</b>                                            |                                                                                  |
| PROFINET IO Controller                                          | Yes                                                                              |
| <b>Communication functions</b>                                  |                                                                                  |
| <b>S7 communication</b>                                         |                                                                                  |

|                                           |                                                                      |
|-------------------------------------------|----------------------------------------------------------------------|
| supported                                 | Yes                                                                  |
| as server                                 | Yes                                                                  |
| <b>Open IE communication</b>              |                                                                      |
| TCP/IP                                    | Yes                                                                  |
| ISO-on-TCP (RFC1006)                      | Yes                                                                  |
| <b>Web server</b>                         |                                                                      |
| supported                                 | Yes                                                                  |
| User-defined websites                     | Yes                                                                  |
| <b>Number of connections</b>              |                                                                      |
| overall                                   | 15 ; dynamically                                                     |
| <b>Test commissioning functions</b>       |                                                                      |
| <b>Status/control</b>                     |                                                                      |
| Status/control variable                   | Yes                                                                  |
| Variables                                 | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters |
| <b>Forcing</b>                            |                                                                      |
| Forcing                                   | Yes                                                                  |
| <b>Integrated Functions</b>               |                                                                      |
| Number of counters                        | 6                                                                    |
| Counter frequency (counter) max.          | 100 kHz                                                              |
| Frequency meter                           | Yes                                                                  |
| controlled positioning                    | Yes                                                                  |
| PID controller                            | Yes                                                                  |
| Number of alarm inputs                    | 4                                                                    |
| <b>Galvanic isolation</b>                 |                                                                      |
| <b>Galvanic isolation digital inputs</b>  |                                                                      |
| Galvanic isolation digital inputs         | No                                                                   |
| between the channels, in groups of        | 1                                                                    |
| <b>Galvanic isolation digital outputs</b> |                                                                      |
| Galvanic isolation digital outputs        | Relay                                                                |
| between the channels                      | No                                                                   |
| between the channels, in groups of        | 2                                                                    |
| <b>Permissible potential difference</b>   |                                                                      |
| between different circuits                | 500 V DC between 24 V DC and 5 V DC                                  |

|                                                                                     |                                                                                                                         |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>EMC</b>                                                                          |                                                                                                                         |
| <b>Interference immunity against discharge of static electricity</b>                |                                                                                                                         |
| Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 | Yes                                                                                                                     |
| Test voltage at air discharge                                                       | 8 kV                                                                                                                    |
| Test voltage at contact discharge                                                   | 6 kV                                                                                                                    |
| <b>Interference immunity to cable-borne interference</b>                            |                                                                                                                         |
| on the supply lines acc. to IEC 61000-4-4                                           | Yes                                                                                                                     |
| Interference immunity on signal lines acc. to IEC 61000-4-4                         | Yes                                                                                                                     |
| <b>Surge immunity</b>                                                               |                                                                                                                         |
| on the supply lines acc. to IEC 61000-4-5                                           | Yes                                                                                                                     |
| <b>Immunity against conducted interference induced by high-frequency fields</b>     |                                                                                                                         |
| Interference immunity against high-frequency radiation acc. to IEC 61000-4-6        | Yes                                                                                                                     |
| <b>Emission of radio interference acc. to EN 55 011</b>                             |                                                                                                                         |
| Emission of radio interferences acc. to EN 55 011 (limit class A)                   | Yes ; Group 1                                                                                                           |
| Emission of radio interference acc. to EN 55 011 (limit class B)                    | Yes ; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011         |
| <b>Degree and class of protection</b>                                               |                                                                                                                         |
| IP20                                                                                | Yes                                                                                                                     |
| <b>Standards, approvals, certificates</b>                                           |                                                                                                                         |
| CE mark                                                                             | Yes                                                                                                                     |
| UL approval                                                                         | Yes                                                                                                                     |
| cULus                                                                               | Yes                                                                                                                     |
| <b>Ambient conditions</b>                                                           |                                                                                                                         |
| <b>Operating temperature</b>                                                        |                                                                                                                         |
| vertical installation, min.                                                         | -25 °C ; = Tmin                                                                                                         |
| vertical installation, max.                                                         | 45 °C ; = Tmax                                                                                                          |
| horizontal installation, min.                                                       | -25 °C ; = Tmin                                                                                                         |
| horizontal installation, max.                                                       | 70 °C ; = Tmax; > +60 °C Number of simultaneously controllable inputs and outputs max. 50%; no signal board can be used |

| Vibrations                                                                 |                                                                                                                                                                                                         |
|----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Vibrations                                                                 | 2G panel mount, 1G DIN rail mount                                                                                                                                                                       |
| Operation, checked according to IEC 60068-2-6                              | Yes                                                                                                                                                                                                     |
| Shock test                                                                 |                                                                                                                                                                                                         |
| checked according to IEC 60068-2-27                                        | Yes ; 15 G, 11 ms pulse, 6 shocks in each of 3 axes                                                                                                                                                     |
| Extended ambient conditions                                                |                                                                                                                                                                                                         |
| Relative to ambient temperature-atmospheric pressure-installation altitude | Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m) // Tmin ... (Tmax - 10K) at 795 hPa ... 658 hPa (+2000 m ... +3500 m) // Tmin ... (Tmax - 20K) at 658 hPa ... 540 hPa (+3500 m ... +5000 m) |
| Relative humidity                                                          |                                                                                                                                                                                                         |
| with condensation / maximum                                                | 100 % ; Relative humidity, incl. condensation / frost permitted (no commissioning under condensation conditions)                                                                                        |
| Resistance                                                                 |                                                                                                                                                                                                         |
| to biologically active substances / conformity with EN 60721-3-3           | Yes ; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!                                     |
| to chemically active substances / conformity with EN 60721-3-3             | Yes ; Class 3C4 incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!                                |
| to mechanically active substances / conformity with EN 60721-3-3           | Yes ; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!                                                                                  |
| Climatic and mechanical conditions for storage and transport               |                                                                                                                                                                                                         |
| Climatic conditions for storage and transport                              |                                                                                                                                                                                                         |
| Free fall                                                                  |                                                                                                                                                                                                         |
| Drop height, max. (in packaging)                                           | 0.3 m ; five times, in dispatch package                                                                                                                                                                 |
| Temperature                                                                |                                                                                                                                                                                                         |
| Permissible temperature range                                              | -40 °C to +70 °C                                                                                                                                                                                        |
| Configuration                                                              |                                                                                                                                                                                                         |
| programming                                                                |                                                                                                                                                                                                         |
| Programming language                                                       |                                                                                                                                                                                                         |
| LAD                                                                        | Yes                                                                                                                                                                                                     |
| FBD                                                                        | Yes                                                                                                                                                                                                     |



|                                  |              |
|----------------------------------|--------------|
| SCL                              | Yes          |
| Cycle time monitoring adjustable | Yes          |
| Dimensions                       |              |
| Width                            | 110 mm       |
| Height                           | 100 mm       |
| Depth                            | 75 mm        |
| Weight                           |              |
| Weight, approx.                  | 455 g        |
| Status                           | Jul 17, 2012 |