
Product Description

Nexto Series is a powerful and complete Programmable Logic Controller (PLC) Series with unique and innovative features. Due to its flexibility, smart design, enhanced diagnostics capabilities and modular architecture, Nexto is suitable for control systems ranging from medium to high-end large applications. Finally, its compact size, high density of points per module and superior performance, allow Nexto Series to be applied in small automation systems with high performance requirements, such as manufacturing applications and industrial machines.

In this context, Nexto Jet is a selection of I/O modules that uses the existing CPUs and modules from Nexto Series to provide the best solution for applications in verticals like infrastructure, building, water, wastewater, food, machines and several OEM projects. Nexto Jet is ideal for systems with no hot-swapping and conformal coating requirements.

NJ6020 is a module that offers 8 individually configurable analog inputs, that allows to read temperature sensor of RTD type (resistance temperature detectors), supporting a vast variety of sensors and ranges of resistances and it is a module that uses one rack position.



Its main features are:

- 8 RTD analog inputs and resistance in a single width module
- Support for different types of RTD sensors: Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500 and Ni1000
- Support for multiple resistance range: 0 to 400 Ω , 0 to 4000 Ω and 0 to 10000 Ω
- Individual configuration per input
- Software configurable filters
- Galvanic isolation between inputs and internal logic
- Protection against surge voltage
- Under and over range diagnostics
- Display for module diagnostics and input state indication

Ordering Information

Included Items

The product package contains the following items:

- NJ6020 module
- 20-terminal connector with wire holder

Product Code

The following code should be used to purchase the product:

| Code | Description |
|--------|-----------------|
| NJ6020 | 8 AI RTD Module |

Related Products

The following product must be purchased separately when necessary:

| Code | Description |
|--------|--|
| NX9403 | 20-terminal connector with wire holder |

Innovative Features





Nexto Series brings to the user several innovations in utilization, supervision and system maintenance. These features were developed focusing on a new experience in industrial automation.



IF Product Design Award 2012: Nexto Series was the winner of iF Product Design Award 2012 in industry + skilled trades group. This award is recognized internationally as a seal of quality and excellence, considered the Oscars of the design in Europe.

Product Characteristics

General Characteristics

| | NJ6020 |
|--|---|
| Backplane rack occupation | 1 slot |
| Number of inputs | 8 analog inputs |
| Input type | Individually configurable inputs Resistances: 0 to 400 Ω , 0 to 4000 Ω and 0 to 10000 Ω Sensors RTD: Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500 and Ni1000 |
| Data format | 16 bits in two's complement, justified to the left |
| Converter resolution | 24 bits monotonicity guaranteed, no missing codes |
| Input state indication | Yes |
| One Touch Diag (OTD) | No |
| Electronic Tag on Display (ETD) | No |
| Status and diagnostic indication | Display, web pages and CPU's internal memory |
| Hot swap support | No |
| Module protection | Yes, protection against surge voltages |
| Isolation | |
| Inputs to logic | 1500 Vac / 1 minute |
| Inputs to protective earth  | 1500 Vac / 1 minute |
| Logic to protective earth  | 1500 Vac / 1 minute |
| Current consumption from backplane rack | 300 mA |
| Maximum power dissipation | 3 W |
| IP level | IP 20 |
| Operating temperature | 0 to 60 °C |
| Storage temperature | -25 to 75 °C |
| Operating and storage relative humidity | 5 to 96 %, non-condensing |
| Standards | IEC 61131-2 CE, Electromagnetic Compatibility directives (EMC) and Low-voltage devices (Low-Voltage Directive – LVD)   RoHS |
| Module dimensions (W x H x D) | 17.90 x 113.00 x 117.46 mm |
| Package dimensions (W x H x D) | 25.00 x 122.00 x 147.00 mm |
| Net weight | 200 g |
| Gross weight | 250 g |

Temperature Mode Characteristics (RTD)

| | NJ6020 |
|---------------------------------------|---|
| Precision (25 °C) | |
| 0..400 Ω | $\pm 0.05\%$ of full scale rating |
| 0..4000 Ω | $\pm 0.05\%$ of full scale rating |
| 0..10000 Ω | $\pm 0.1\%$ of full scale rating |
| Pt (100, 200, 500, 1000) | ± 0.5 °C |
| Ni (100, 120, 200, 500, 1000) | ± 0.5 °C |
| Precision (0 to 60 °C) | |
| 0..400 Ω | $\pm 0.15\%$ of full scale rating |
| 0..4000 Ω | $\pm 0.15\%$ of full scale rating |
| 0..10000 Ω | $\pm 0.5\%$ of full scale rating |
| Pt (100, 200, 500, 1000) | ± 1.2 °C |
| Ni (100, 120, 200, 500, 1000) | ± 1 °C |
| Measurement unit | °C or °F |
| Input impedance | > 10 M Ω |
| Connection types | 2 and 3 wires |
| Excitation current | 1.02 mA |
| Continuous maximum voltage | ± 15 Vdc |
| Noise Suppression Filter | Disabled, 50 Hz and 60 Hz |
| Conversion time | |
| 50 Hz | 82.5 ms / channel |
| 60 Hz | 69.ms / channel |
| Disabled | 12.5 ms / channel |
| Maximum conversion time | |
| 50 Hz | 660 ms |
| 60 Hz | 552 ms |
| Disabled | 100 ms |
| Low pass filter time constant | Disabled, 100 ms, 1 s and 10 s |
| Configurable parameters | Noise suppression filter Temperature unit Input types Connection types Digital filter |
| Open input detection | Yes, available in diagnostics |
| Over range indication | Yes |
| Under range indication | Yes |
| Sensor cable maximum impedance | 20 Ω per wire |

Notes:

Noise suppression filter: This parameter enables or disables a filter that rejects a particular frequency in the measurements, but this rejection includes a delay per enabled input for data acquisition, which depends on the selected frequency. It is important to consider the delays presented. The value of the selected filter in this parameter will be applied to all module reading inputs.

Conversion time: Each module channel corresponds to an enabled input.

Maximum conversion time: The conversion time shown in the table above refers to the total conversion time for the 8 channels according to the selected noise suppression filter.

Open input detection: In this situation will be presented an over range indication and the read value presented will be the full scale rating selected.

Maximum impedance of the sensor cable: On a two-wire connection, the value read is the result of the sum of the sensor reading and resistance of each wire. In case of using this connection with large cables, the value read by the

module will be affected by the effect of the resistance of the cable wires. On a three-wire connection, the error due to wire resistance is compensated by measuring the resistance value of one of the cable wires. Therefore, to enable a correct compensation is necessary for all the cable wires to have the same resistance.

Over range indication: When the input selected is RTD reading type and the sensor input value is greater than the maximum value of full scale for the range selected, the symbolic variable will be enabled. In this condition, besides enabling the diagnostic variable, the module will set the value read to the maximum value of full scale configured for this channel. In case of resistance reading, the diagnostic becomes active when the input value read in the input is 1% greater than the maximum value of full scale configured for this channel. If the value read exceeds 5% of the maximum value of full scale, the module will set the reading variable of this channel to this value.

Under range indication: This diagnostic becomes active when the input selected is RTD reading type and the value read in the channel is less than the minimum value of full scale for the selected range. E.g. for the PT100E (-200 a +850 °C) scale, the diagnostics variable will be enabled when the measured value is less than -200 °C. In this condition, besides enabling the diagnostic variable, the module will set the value read to the minimum value of full scale configured for this channel. For resistance reading scale this diagnostic is not available.

The tables below show the functioning of over range and under range diagnostics according to the RTD sensor or applicable resistance scale.

| Diagnostics | Sensors of Platinum type (Pt) $\alpha= 0.00385$ | | Sensors of Platinum type (Pt) $\alpha= 0.003916$ | | Sensors of Nickel type (Ni) | |
|----------------|---|---------------|--|---------------|-----------------------------|--------------|
| | Temperature | Count | Temperature | Count | Temperature | Count |
| Over range | > 850 °C | 8500 | > 630 °C | 8500 | > 250 °C | 2500 |
| No diagnostics | 850 to -200 °C | 8500 to -2000 | 630 to -200 °C | 8500 to -2000 | 250 to -60 °C | 2500 to -600 |
| Under range | < -200 °C | -2000 | < -200 °C | -2000 | < -60 °C | -600 |

| Diagnostics | 0 to 400 Ω Scale | | 0 to 4000 Ω Scale | | 0 to 10000 Ω Scale | |
|----------------|-------------------------|--------------|--------------------------|--------------|---------------------------|----------------|
| | Resistance | Count | Resistance | Count | Resistance | Count |
| Over range | > 420 Ω | 4200 | > 4200 Ω | 4200 | > 10500 Ω | 10500 |
| | 420 to 404.1 Ω | 4200 to 4041 | 4200 to 4041 Ω | 4200 to 4041 | 10500 to 10101 Ω | 10500 to 10101 |
| No diagnostics | 404 to 0 Ω | 4040 to 0 | 4040 to 0 Ω | 4040 to 0 | 10100 to 0 Ω | 10100 to 0 |

The table below presents the types of configurable inputs supported by NJ6020 module.

| Input type | Temperature Coefficient (α) | Measurement Band | Count | Resolution |
|---------------------------------|--------------------------------------|-----------------------------------|---------------------------------|------------------|
| Pt100E, Pt200E, Pt500E, Pt1000E | 0.00385 | -200 to 850 °C -328 to 1562 °F | -2000 to 8500 -3280 to 15620 | 0.1 °C 0.2 °F |
| Pt100A, Pt200A, Pt500A, Pt1000A | 0.003916 | -200 to 630 °C -328 to 1166 °F | -2000 to 6300 -3280 to 11660 | 0.1 °C 0.2 °F |
| Ni100, Ni200, Ni500, Ni1000 | 0.00618 | -60 to 250 °C -76 to 482 °F | -600 to 2500 -760 to 4820 | 0.1 °C 0.2 °F |
| Ni120 | 0.00672 | -60 to 250 °C -76 °F to 482 °F | -600 to 2500 -760 to 4820 | 0.1 °C 0.2 °F |
| 400 Ω | - | 0 to 400 Ω | 0 to 4000 | 0.1 Ω |
| 4000 Ω | - | 0 to 4000 Ω | 0 to 4000 | 1 Ω |
| 10000 Ω | - | 0 to 10000 Ω | 0 to 10000 | 1 Ω |

Note:

Temperature Coefficient (α): For the Platinum type sensors (Pt100, Pt200, Pt500 and Pt1000) there are two supported coefficients. For other types of sensors there is only one associated temperature coefficient. In the Module Parameters the possible settings per channel can be found.

Installation

Electrical Installation

The figure below shows an example where some inputs of NJ6020 module are used: input 00, input 02, input 03 and input 06. Each one of these inputs presents a different type of connection, according to the following.

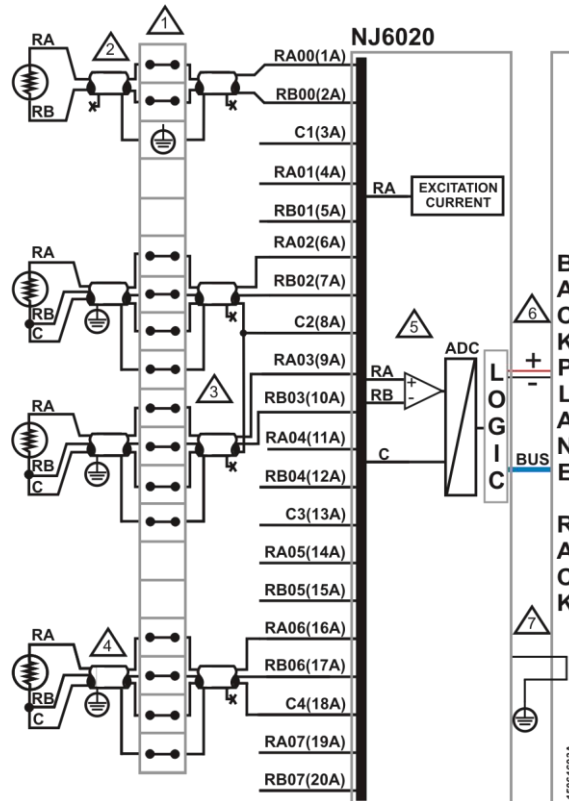


Diagram Notes:

- 1 – The diagram above has the representation a set of terminal blocks where each symbol represents a different kind of terminal block: represents a standard feed-through terminal block, represents a grounding terminal block, represents a feed-through terminal block with connection to other terminal block and represents a fuse terminal block.
- 2 – Input 00 shows an example of a 2-wire connection. In this case only one of the ends of the sensor grounding shield in the field and the cable used to connect the module NJ6020 to the terminals of the electric panel are being connected to the earth terminal of the electric panel. In this type of connection, the other end of each cable must not be connected to other grounding point.
- 3 – Inputs 02 and 03 show examples of 3-wire connection, where the compensation wire of the sensors are connected to the NJ6020 module at one single point (C2), which refers to the ports 02 and 03.
- 4 – Input 06 shows an example of a 3-wire connection, where the central point of grounding is done in the field. One end of the sensor grid in the field is connected to field grounding point and the other end is connected to the electric panel terminal board. The cable grid used to connect the electric panel terminal board to the NJ6020 module terminals is connected in only one of its ends (which are connected to the electric panel terminal board).
- 5 – The use of RA, RB and C signal depends on the number of wires used in the sensor connection.
- 6 – The module power supply is derived from the connection to the backplane rack, not requiring external connections.
- 7 – The NJ6020 module is grounded through the backplane rack .

Connector Pinout

The following table shows the description of each connector terminal:

| Terminal | Input | Description |
|----------|--------|--|
| 1A | 00 | Positive signal RTD (excitation current for 2/3 wire sensor) |
| 2A | | RTD negative |
| 3A | Common | Compensation for 3-wire sensor |
| 4A | 01 | RTD positive signal (excitation current for sensor 2/3 wire) |
| 5A | | RTD negative |
| 6A | 02 | RTD positive signal (excitation current for sensor 2/3 wire) |
| 7A | | RTD negative |
| 8A | Common | Compensation for 3-wire sensor |
| 9A | 03 | RTD positive signal (excitation current for sensor 2/3 wire) |
| 10A | | RTD negative signal |
| 11A | 04 | RTD positive (excitation current for sensor 2/3 wire) |
| 12A | | RTD negative signal |
| 13A | Common | Compensation for 3-wire sensor |
| 14A | 05 | RTD positive signal (excitation current for sensor 2/3 wire) |
| 15A | | RTD negative signal |
| 16A | 06 | RTD positive (excitation current for sensor 2/3 wire) |
| 17A | | RTD negative signal |
| 18A | Common | Compensation for 3-wire sensor |
| 19A | 07 | RTD positive signal (excitation current for sensor 2/3 wire) |
| 20A | | RTD negative signal |

Note:

NJ6020 module has no grounding terminals through the connector. The grounding is done through the terminal board or in the field sensor as described in the Electrical Installation.

Mechanical Assembly

The mechanical and electrical mounting and the connector pin insertion and removing for single hardware width I/O modules are described at Nexto Series User Manual – MU214600.

Compatibility with Other Products

The following table brings information regarding the compatibility between NJ6020 module and other products of the Nexto Series.

| NJ6020 | | Compatible Software Version | | | |
|-------------------|----------|-----------------------------|---------------------------|-------------------|-------------------|
| Version | Revision | NX3004 | NX3010, NX3020 and NX3030 | NX5110 | MasterTool IEC XE |
| 1.1.0.0 or higher | AA | 1.5.1.0 or higher | 1.5.1.0 or higher | 1.1.1.0 or higher | 2.03 or higher |

Note:

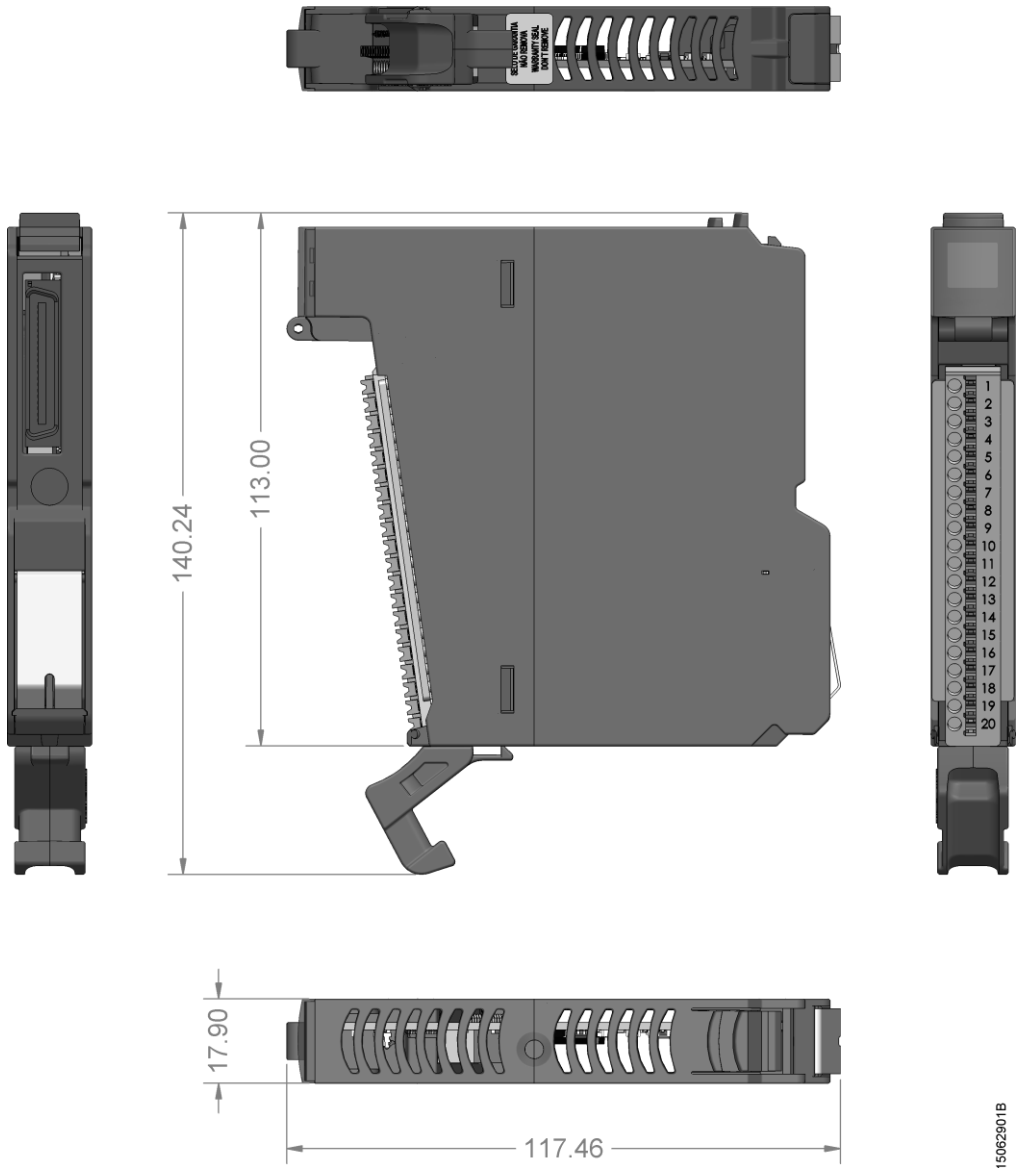
Product revision: If the software is upgraded in the field the product reviewing indicated on the label will no longer match the actual review of the product.

ATTENTION:

The CPUs, racks and the PROFIBUS remote head of Nexto Series support the use of Nexto Jet Modules. The Nexto Jet is formed by I/Os modules and when used in configuration with CPUs or PROFIBUS remote head of Nexto Series, no other I/O type of Nexto Series can be used in the same bus.

Physical Dimensions

Nexto Series User Manual - MU214600 should be consulted for general measurement of installation panel.
Dimensions in mm



15062901B

Configuration

NJ6020 module was developed to be used with Nexto Series products that make part of Nexto Jet solution. All Nexto Series products are configured in MasterTool IEC XE. All configuration data of a given module can be accessed through a double click in it on the Graphical Editor.

Process Data

Process Data are the variables that are used to access and control the module. The list below describes all variables delivered by NJ6020 module.

The process data of the module, when inserted in a PROFIBUS network, can be accessed through variables. The table below presents the variables organizational structure in the CPU memory.

Besides these data the NJ6020 module also provides a set of variables containing information related to diagnostics which are also described in this document.

| Variable | Size | Process Data | Description | Type | Update |
|-----------|------|--------------|-----------------|---------------|--------|
| %IW(n) | WORD | AI 00 | Analog Input 00 | INT (Reading) | Always |
| %IW(n+2) | WORD | AI 01 | Analog Input 01 | INT (Reading) | Always |
| %IW(n+4) | WORD | AI 02 | Analog Input 02 | INT (Reading) | Always |
| %IW(n+6) | WORD | AI 03 | Analog Input 03 | INT (Reading) | Always |
| %IW(n+8) | WORD | AI 04 | Analog Input 04 | INT (Reading) | Always |
| %IW(n+10) | WORD | AI 05 | Analog Input 05 | INT (Reading) | Always |
| %IW(n+12) | WORD | AI 06 | Analog Input 06 | INT (Reading) | Always |
| %IW(n+14) | WORD | AI 07 | Analog Input 07 | INT (Reading) | Always |

Note:

Update: The field "Update" indicates if the respective process data is updated by CPU and NJ6020 module by default. When defined as "Always", it means that the process data is always updated. When defined as "Selectable", it means that the user can select if the respective process data will be updated or not. All these process data are exchanged between CPU and NJ6020 module through the bus, to improve CPU performance. It is recommended to update only the process data that will be used in the application.

Module Parameters

| Name | Description | Standard Value | Options | Configuration |
|--------------------------|---|-----------------|--|---------------|
| Noise Suppression Filter | Enables or disables the Noise Suppression Filter in the frequencies of 50 Hz or 60 Hz | 60 Hz | Disabled 50 Hz 60 Hz | Per module |
| Temperature Unit | Selects the temperature unit | Degrees Celsius | Degrees Celsius Degrees Fahrenheit | Per module |
| Input Type | Configuration of the input type | Not Configured | Not configured 400 Ω 4000 Ω 10000 Ω Pt100A Pt100E Pt200A Pt200E Pt500A Pt500E Pt1000A Pt1000E Ni100 Ni120 Ni200 Ni500 Ni1000 | Per channel |
| Wire Configuration | Configures the wire connection type | Two Wires | Two wires Three wires | Per channel |
| Digital Filter | Configures the time or disables the low pass filter | Disabled | Disabled 100 ms 1 s 10 s | Per channel |

| | | | |
|--|---|---|------------|
| %Q Start Address of Module Diagnostics | Defines the start address of the module diagnostics | - | Per module |
|--|---|---|------------|

Notes:

Configuration: Indicates whether certain functionality of the module is related to an entire module configuration (per module), or if the functionality is related to a single input (per channel).

Noise Suppression Filter: This parameter is used to select the frequency of the noise suppression filter which is applied to all NJ6020 module inputs. This filter rejects a particular frequency in the analog signal measurements. For each frequency configured there is an associated conversion time which must be regarded during the development of an application in the channels reading. For further information on the conversion time according to the selected filter, see the Temperature Mode Characteristics (RTD).

Input Types: Exclusively for the RTD sensors of Platinum type (Pt100, Pt200, Pt500 and Pt1000), this module supports two temperature coefficients (α), which are different from each other by its last character. For the option which ends with A the α is 0.003916 and for the option with E α is 0.00385. For information on the values of the temperature coefficients used for each type of RTD sensor, see the Temperature Mode Characteristics (RTD).

Digital Filter: This parameter enables or disables, per channel, of a first order low pass digital with time constant of 100 ms, 1 s or 10 s. If there is a signal in a channel with the digital filter enabled and a hot swap is performed in the module, the channel will start with zero until it reaches the input value, according to the selected time constant, in a dynamic way.

Module Usage

RTD Analog Input Read

NJ6020 module has one variable for each input. The parameters of minimum value and maximum value are automatically configured according to the selected RTD type.





The NJ6020 module has one variable for each input, which will be presented in the temperature scale defined in the Measurement Unit, where the value is multiplied for 10. Thus, a 25 °C temperature, for example, is read as 250.

Maintenance

Altus recommends that all modules' connections should be checked and any dust or any kind of dirt in the module's enclosure should be removed at least every 6 months.

The NJ6020 module offers important features to assist users during maintenance as: status and diagnostics indicators, web pages with complete status and diagnostics list and status and diagnostics mapped to internal memory.

Status and Diagnostics Indicators

All Nexto Series I/O modules have a display with the following symbols: D, E, ,  and numerical characters. The states of the symbols D, E, ,  are common for all Nexto Series slave modules. These states can be consulted in the table below.

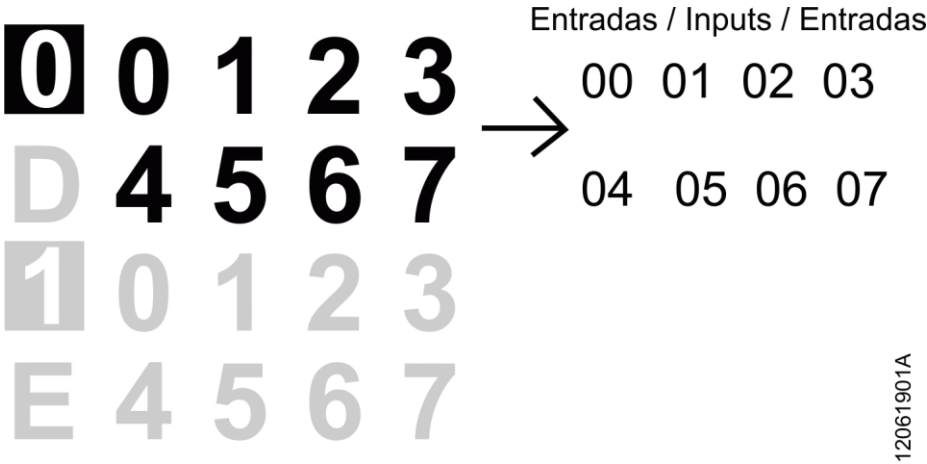
The meaning of the numerical characters can be different for specific modules. In case of analog modules, the numerical characters show the respective state of each input. When the numerical character is on, the respective input is configured and enabled, and if the numerical character is off, the respective input is disabled. The relationship between the input number and its respective numerical character can be found on the following figure.

D and E States

| D | E | Description | Cause | Solution | Priority |
|-------------|-------------|--|--|---|------------|
| Off | Off | Display fail or module off | Module off, external power supply fail or hardware fail | Check if the module is completely connected to the backplane rack and if the backplane rack is supplied by an external power supply | - |
| On | Off | Normal use | - | - | 9 (Lower) |
| Blinking 1x | Off | Active Diagnostics | There is at least one active diagnostic related to the module | Check what the active diagnostic. More information can be found in the "Diagnostics Mapped in Variables" in this document | 8 |
| Blinking 2x | Off | CPU in STOP mode. If the module is in a Remote PROFIBUS, Master is in Clear state. | CPU in STOP mode | Check if CPU is in RUN mode or if PROFIBUS Master is in OPERATE mode. More information can be found on CPU's or PROFIBUS Master's documentation | 7 |
| Blinking 3x | Off | Reserved | - | - | 6 |
| Blinking 4x | Off | Non-fatal fault | Failure in some hardware or software component, which does not have impact on the basic functionality of the product | Check the module diagnostic information. If it is a hardware fault, provide the replacement of this part. If it is a software fault, please contact the Technical Support | 5 |
| Off | Blinking 2x | Loss of master | Loss of communication between module and CPU or module and PROFIBUS head. | Check if the module is completely connected to the backplane rack Check if CPU is in RUN mode or if PROFIBUS head is Active. | 4 |
| Off | Blinking 3x | Module without calibration | NJ6020 is not calibrated or there was an error with the calibrated value | In this case, the module should return to the manufacturer | 3 |
| Off | Blinking 1x | Parameterization error | The module is not parameterized or didn't receive the parameterization | Check if the module parametrization is ok | 2 |
| Off | Blinking 4x | Fatal hardware fault | Hardware fault | Contact Altus Technical Support in case of fatal hardware fault | 1 (Higher) |

0, 1 and Numerical Characters

The segments 0 and 1 are used to group the numerical characters used for inputs and outputs. In NJ6020 module's case, the characters that are placed at the right side of character 0 represent the inputs from 00 a 07, where character 0 represents the input 00 and character 7 represents the input 07. The characters that are placed at the right side of character 1 and the segment 1 itself are not used in NJ6020 module. The figure below shows the relationship between the numerical characters and the respective inputs.



Web Pages with Complete Status and Diagnostics List

Another way to access diagnostics information on Nexto Series is via web pages. Nexto Series CPU's has an embedded web page server that provides all Nexto status and diagnostics information, which can be accessed using a simple browser.

More information about web page with complete status and diagnostics list can be found at Nexto Series CPUs User Manual – MU214605.

Diagnostics Mapped to Variables

All NJ6020 modules' diagnostics can be accessed through variables that can be handled by the user application or even forwarded to a supervisory system using a communication channel. There are two different ways to access diagnostics in the user application: using symbolic variables with AT directive or addressing memory. Altus recommends the use of symbolic variables for diagnostic accessing. The table below shows all available diagnostics for NJ6020 module and their respective memory address, description, symbolic variables and strings that will be shown on the CPU's web.

General Diagnostics

| Direct Representation Variable | | Diagnostic Message | Symbolic Variable DG_modulename.tGeneral. | Description | PROFIBUS Message Code | |
|--------------------------------|------|--------------------------|--|--|--|---|
| Variable | Bit | | | | | |
| %QB(n) | 0 | INPUT 00 W/ DIAG | bActiveDiagnosticsInput00 | TRUE – Input 00 has active diagnostics | - | |
| | | - | | FALSE – Input 00 has no active diagnostics | | |
| | 1 | INPUT 01 W/ DIAG | bActiveDiagnosticsInput01 | TRUE – Input 01 has active diagnostics | - | |
| | | - | | FALSE – Input 01 has no active diagnostics | | |
| | 2 | INPUT 02 W/ DIAG | bActiveDiagnosticsInput02 | TRUE – Input 02 has active diagnostics | -- | |
| | | - | | FALSE – Input 02 has no active diagnostics | | |
| | 3 | INPUT 03 W/ DIAG | bActiveDiagnosticsInput03 | TRUE – Input 03 has active diagnostics | - | |
| | | - | | FALSE – Input 03 has no active diagnostics | | |
| | 4 | INPUT 04 W/ DIAG | bActiveDiagnosticsInput04 | TRUE – Input 04 has active diagnostics | - | |
| | | - | | FALSE – Input 04 has no active diagnostics | | |
| | 5 | INPUT 05 W/ DIAG | bActiveDiagnosticsInput05 | TRUE – Input 05 has active diagnostics | - | |
| | | - | | FALSE – Input 05 has no active diagnostics | | |
| | | 6 | INPUT 06 W/ DIAG | bActiveDiagnosticsInput06 | TRUE – Input 06 has active diagnostics | - |
| | | | - | | FALSE – Input 06 has no active diagnostics | |
| | | 7 | INPUT 07 W/ DIAG | bActiveDiagnosticsInput07 | TRUE – Input 07 has active diagnostics | - |
| | | | - | | FALSE – Input 07 has no active diagnostics | |
| %QB(n+1) | 0 | MODULE W/ DIAGNOSTICS | bActiveDiagnostics | TRUE – Module has active diagnostics | - | |
| | | - | | FALSE – Module has no active diagnostics | | |
| | 1 | MODULE W/ FATAL ERROR | bFatalError | TRUE – Fatal error | 25 | |
| | | - | | FALSE – No fatal error | | |
| | 2 | CONFIG. MISMATCH | bConfigMismatch | TRUE – Parameterization error | 26 | |
| | | - | | FALSE – Parameterization ok | | |
| | 3 | WATCHDOG ERROR | bWatchdogError | TRUE – Watchdog has been detected | 27 | |
| | | - | | FALSE – No watchdog | | |
| | 4 | Reserved | | | | |
| | 5 | CALIBRATION ERROR | bCalibrationError | TRUE – Module without calibration | 29 | |
| | | - | | FALSE – Module calibrated | | |
| | 6..7 | Reserved | | | | |

Detailed Diagnostics

| Direct Representation Variable | | Diagnostic Message | Symbolic Variable DG_ modulename.tDetailed.tA nalogInput_XX | Description | PROFIBUS Message Code |
|--------------------------------|------|--------------------|---|-----------------------------------|-----------------------|
| Variable | Bit | | | | |
| %QB(n+2+XX*2) | 0..7 | Reserved | | | |
| %QB(n+2+2*XX+1) | 0 | OVER RANGE | bOverRange | TRUE – Input data are over range | 24 |
| | | - | | FALSE – Input data are ok | |
| | 1 | UNDER RANGE | bUnderRange | TRUE – Input data are under range | 25 |
| | | - | | FALSE – Input data are ok | |
| | 2 | Reserved | | | |
| | 3 | - | bInputNotEnable | TRUE – Input is not enabled | - |
| | | | | FALSE – Input is enabled | |
| | 4..7 | Reserved | | | |

Notes:

Direct Representation Value: n" is the address defined in the field %Q Start Address of Diagnostic Area on the NJ6020 module's configuration screen – Modules Parameters tab in the MasterTool IEC XE, "XX" is the channel of analog input.

Symbolic Variables: Some symbolic variables serve to access diagnostics. These diagnostics are stored into the addressing memory, then the AT directive is used to map the symbolic variables in the addressing memory. The AT directive is a reserved word in the MasterTool IEC XE, that uses this directive to declares the diagnostics automatically on a symbolic variable. All symbolic variables declared automatically can be found in the diagnostics object.

Hot Swap

This product does not support hot swap.

Manuals

For further technical details, configuration, installation and programming of Nexto Series the table below should be consulted. The table is only a guide of some relevant documents that can be useful during the use, maintenance, and programming of NJ6020 modules. The complete and updated table containing all documents of Nexto Series can be found at Nexto Series User Manual – MU214600.

| Document Code | Description | Language |
|---|--|----------------------------------|
| CE114000 CT114000 CS114000 | Nexto Series – Technical Characteristics Série Nexto – Características Técnicas Serie Nexto – Especificaciones y Configuraciones | English Portuguese Spanish |
| MU214600 MU214000 MU214300 | Nexto Series User Manual Manual de Utilização Série Nexto Manual Del Usuario Serie Nexto | English Portuguese Spanish |
| MU214605 MU214100 MU214305 | Nexto Series CPUs User Manual Manual de Utilização UCPs Série Nexto Manual del Usuario UCPs Serie Nexto | English Portuguese Spanish |
| MU299609 MU299048 MU299800 | MasterTool IEC XE User Manual Manual de Utilização MasterTool IEC XE Manual Del Usuario MasterTool IEC XE | English Portuguese Spanish |
| MP399609 MP399048 MP399800 | MasterTool IEC XE Programming Manual Manual de Programação MasterTool IEC XE Manual de Programación MasterTool IEC XE | English Portuguese Spanish |
| MU214608 MU214108 MU214308 | Nexto PROFIBUS-DP Head Utilization Manual Manual de Utilização da Cabeça PROFIBUS-DP Nexto Manual de Utilización Cabeza PROFIBUS Nexto | English Portuguese Spanish |