1. 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.

The Series has a wide variety of CPUs, I/O and communication modules with features to fit requirements in different kinds of applications. The options available cover from standard automation systems, high-availability applications where redundancy is a major requirement, distributed applications to functional safety systems.

The NX2025 module offers 8 transistor source type monitored digital outputs, occupying just one position in the rack. These modules are recommended for applications where supervision of the electrical installation is necessary, indicating conditions of open load, interrupted wiring, short-circuit or overcurrent, with diagnostic functions to guarantee the operation of the outputs. Finally, Nexto Series has some innovative features for diagnosis and maintenance, such as Electronic Tag on Display, Easy Plug System and One Touch Diag.

Its main features are:

- 08 outputs in a single width module
- Drive outputs in differential mode
- Diagnosis of line break
- Diagnosis of failure causes
- Galvanic isolation between outputs and internal logic
- Protection against short-circuit and overcurrent
- Protection against surge voltage
- Display for module diagnostics and output state indication
- Easy Plug System
- One Touch Diag
- Electronic Tag on Display

2. Ordering information

2.1. Included Items

The product package contains the following items:

- NX2025 module
- 20-terminals conector with wire holder

2.2. Product Code

The following code should be used to purchase the product:

Code	Description
NX2025	24Vdc 8 DO Monitored Module

Table 1: Product Code

3. Related Products

The following product must be purchased separately when necessary:

Code	Description
NX9403	20-terminal connector with cable guides

Table 2: Related Products

4. Innovative Features

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

Easy Plug System: Nexto Series has an exclusive method to plug and unplug I/O terminal blocks. The terminal blocks can be easily removed with a single movement and with no special tools. In order to plug the terminal block back to the module, the frontal cover assists the installation procedure, fitting the terminal block to the module.

One Touch Diag: One Touch Diag is an exclusive feature that Nexto Series brings to PLCs. With this new concept, the user can check diagnostic information of any module present in the system directly on CPU's graphic display with one single press in the diagnostic switch of the respective module. OTD is a powerful diagnostic tool that can be used offline (without supervisor or programmer), reducing maintenance and commissioning times.

ETD – Electronic Tag on Display: Another exclusive feature that Nexto Series brings to PLCs is the Electronic Tag on Display. This new functionality brings the process of checking the tag names of any I/O pin or module used in the system directly to the CPU's graphic display. Along with this information, the user can check the description, as well. This feature is extremely useful during maintenance and troubleshooting procedures.

5. Product Features

5.1. General Features

	NX2025
Backplane rack occupation	1 slot
Output Type	Transistor source type
Number of outputs	8 monitored digital outputs
Nominal current	Per output point: 1,25 A @ 40 °C 1,00 A @ 60 °C Module total: 6,0 A total @ 40 °C 4,5 A total @ 60 °C
Maximum current limit per output	1,5 A (± 10 %)
Minimum current limit per output	5 mA (± 5 %)
Switching time	42 μs – off to on transition 2450 μs – on to off transition
Maximum switching frequency	330 Hz
Output update time	3 ms
Output state indication	Yes
One Touch Diag (OTD)	Yes
Electronic Tag on Display (ETD)	Yes
Status and diagnostic indication	Display, web pages and CPU's internal memory
Hot swap capability	Yes
Wire gauge	0,5 mm^2 (20 AWG)
Minimum wire temperature rating	75 °C
Wire material	Copper only
Module protections	Yes, protection against voltage surges per output, polarity inversion on the external supply and short-circuit protection on the outputs
Isolation **Output to logic** **Output to protective earth** ⏚ **Logic to protective earth** ⏚	 1500 Vdc / 1 minute 1500 Vdc / 1 minute 1500 Vdc / 1 minute
Current consumption from rack	200 mA
External power supply	18 to 30 Vdc
External power supply current	50 mA internal consumption
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
Conformal coating	Yes
Module dimensions (W x H x D)	18,00 x 114,62 x 117,46 mm
Package dimensions (W x H x D)	25,00 x 122,00 x 147,00 mm
Weight	200 g

	NX2025
Weight with package	250 g

Table 3: General Features

Notes:

Maximum current limit: This is the current at which the overcurrent protection takes effect. This protection turns off the overcurrent point to prevent damage to the module. Continuous operation with currents between the rated current and the maximum limit current is not recommended. Using the module under these conditions can cause irreversible damage.

Minimum current limit: This is the current below which the module indicates open load.

Switching time: It's the required time to turn off one specific output, but it depends on the output load. A lower resistance load results in a shorter time to disable the output. The given time refers to the maximum time to disable an output connected to a 12.5 kΩ resistive load, which is the maximum allowable resistance defined by IEC 61131 for digital input modules.

External power supply: Terminals 17 to 20 are used to supply the outputs only. The NX2025's internal logic is supplied by the Power Supply Module located in the Nexto Rack.

ATTENTION

If the external power supply is below the 18 V limit, the outputs are turned off. as the display only shows the logical state of the trigger, its indication may not correspond to their physical state.

External power supply current: The full current consumption of the external power supply is the internal consumption added to the output loads consumption.

Conformal Coating: Conformal coating protects the electronic components inside the product from moisture, dust and other harsh elements to electronic circuits.

Wire gauge: Crimp terminals for 0,5 mm^2 wire in each way respecting as described at Nexto Series User Manual - MU214600.

5.2. Compatibility with Other Products

The following table provides information regarding the compatibility of the module NX2025 and Nexto Series programming tool MasterTool IEC XE.

NX2025		Software Version Compatible	
Version	**Revision**	**MasterTool IEC XE**	**Nexto PROFIBUS-DP Head**
1.0.6.1 or higher	AA or higher	3.75 or higher	1.14.51.0 or higher

Table 4: Compatibility with Other Products

Note:

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

5.3. Physical Dimensions

Dimensions in mm.

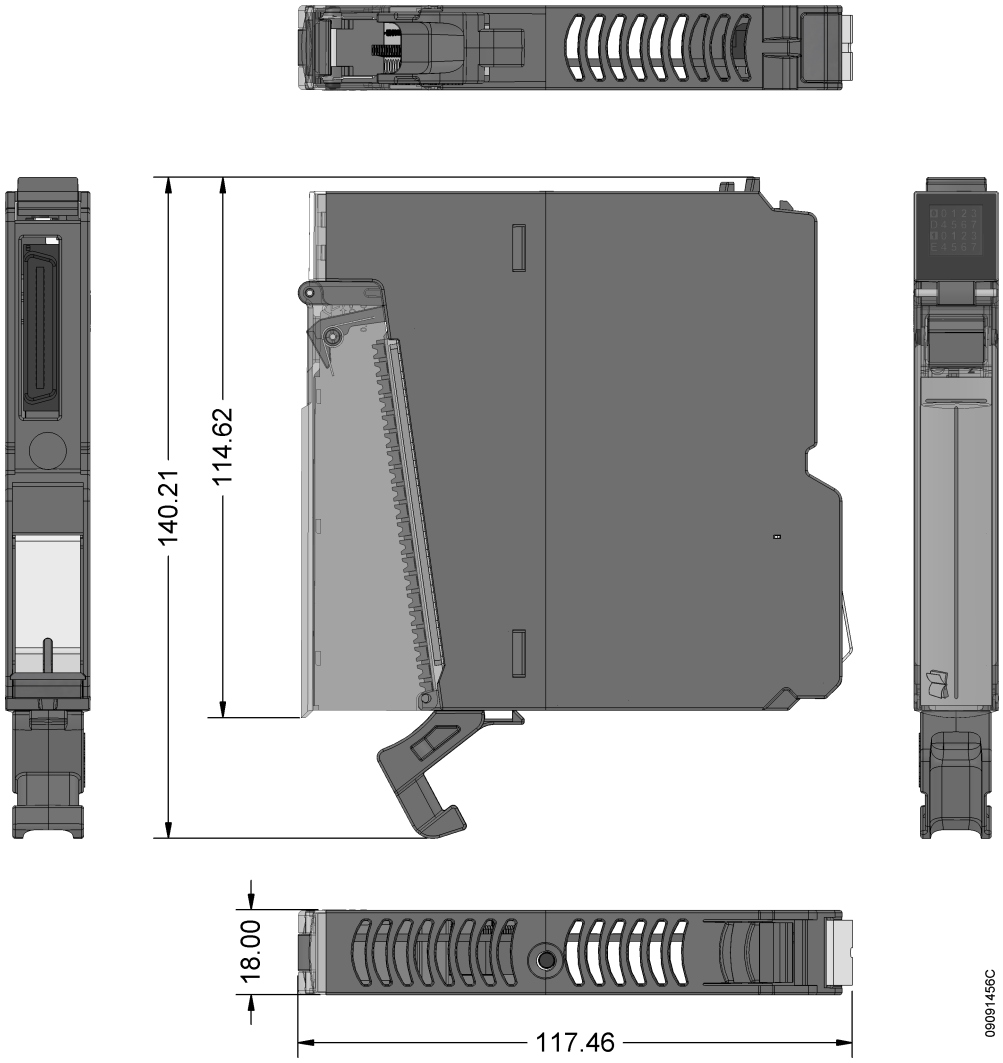

Figure 1: Physical Dimensions

6. Instalation

For the correct installation of this product, it is necessary to use a rack (backplane rack) and it must be carried out according to the mechanical and electrical installation instructions that follow.

6.1. Product identification

This product has some parts that must be observed before installation and use. The following figure identifies each of these parts.

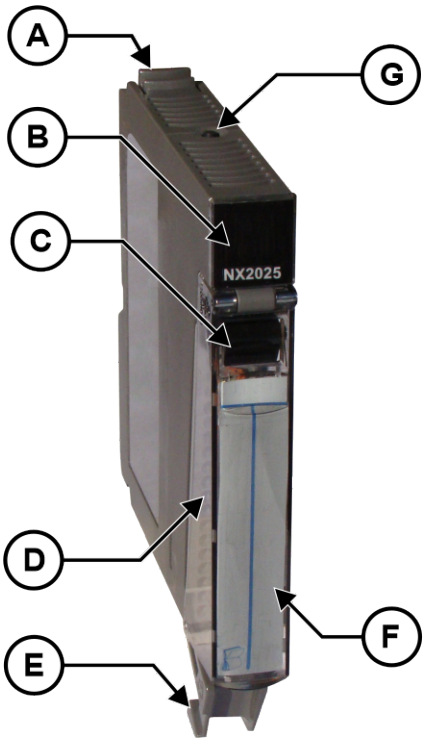

Figure 2: NX2025

Ⓐ Fixing lock.
Ⓑ Status and diagnostic display.
Ⓒ Terminal block extraction lever.
Ⓓ Front cover.
Ⓔ 20 pin terminal block with wire holder.
Ⓕ Label for module identification.
Ⓖ Diagnostic switch.

The product has in its mechanics a label that identifies it and in it are presented some symbols whose meaning is described below:

⚠ Attention! Before using the equipment and installing, read the documentation.

⎓ Direct Current.

6.2. Electrical Installation

The figure below shows an example of two NX2025 outputs connected to two loads.

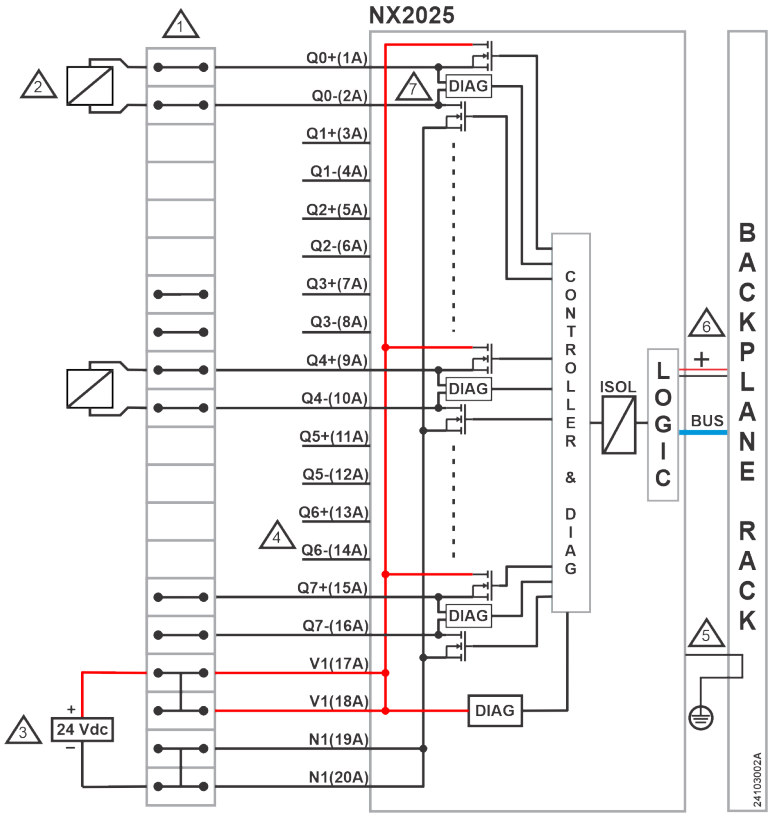

Figure 3: Electric Diagram

Diagram Notes:

1. The diagram above shows a set of terminal blocks where each symbol represents a different kind of terminal block: ⊷ represents a standard feed-through terminal block.
2. Indication that the connection of the load must be made between pins Q+ and Q-.
3. The external power supply is connected to pins 17A to 20A. With 17A and 18A connected to +24 Vdc and 19A and 20A connected to 0 Vdc.
4. Differential mode output, which uses two transistors to drive the load, one at Q+ and the other at Q-.
5. The NX2025 is connected to protective earth ⏚ through the backplane rack.
6. The module power supply is derived from the connection to the backplane rack, not requiring external connections.
7. Diagnosis of overcurrent (short circuit) and minimum load (line break).

⏚ Protective conductor terminal.

6.3. Connector Pinout

The following table shows the description of each connector terminal:

Terminal Number	Description
1	Output 00 - Positive
2	Output 00 - Negative
3	Output 01 - Positive
4	Output 01 - Negative
5	Output 02 - Positive
6	Output 02 - Negative
7	Output 03 - Positive
8	Output 03 - Negative
9	Output 04 - Positive
10	Output 04 - Negative
11	Output 05 - Positive
12	Output 05 - Negative
13	Output 06 - Positive
14	Output 06 - Negative
15	Output 07 - Positive
16	Output 07 - Negative
17	External power supply input (+24 Vdc)
18	External power supply input (+24 Vdc)
19	External power supply input (0 Vdc)
20	External power supply input (0 Vdc)

Table 5: Connector Pinout

6.4. Protection circuit

The NX2025 module has internal protection diodes for inductive loads, which generate reverse voltage surges in the output circuits when the load is switched off. However, for greater protection against noise and to preserve the field wiring and module connections, additional protection circuits should be used to ensure that the current flows through the system in the shortest possible path. Point protection circuits are recommended to extend the life expectancy of the module and system wiring, especially when working with inductive loads. Protection circuits should be installed close to the load. As a rule, they should not be more than 0.5 meters away.

6.4.1. Diode Circuit

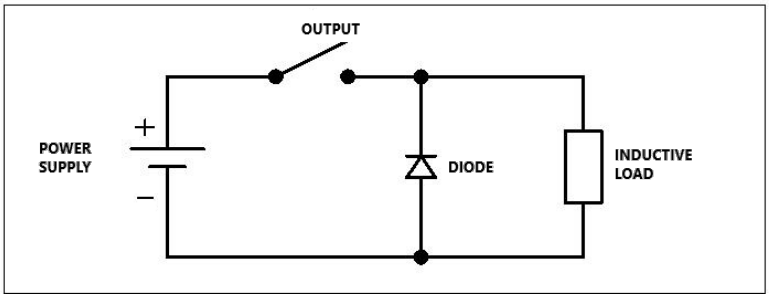

Figure 4: Diode Circuit

This is the most efficient way of protecting against a surge of excessive current that occurs when inductive loads are demagnetized. However, this can cause problems as it increases the disarming time if the load is, for example, a contactor or solenoid. The circuit can only be used for DC voltages, its reverse voltage must be higher than that of the source and the current at least equal to that of the load.

Circuits with a diode and zener are not effective with this module, as the module's internal diode operates before the zener.

For more information, see the " Lightning protection " section of the Nexto Series User Manual - MU214600.

ATTENTION

Atmospheric discharges can cause damage to the module despite the existing protections. If the module's power supply comes from a source located outside the electrical panel where the module is installed, which could be subject to discharges of this type, suitable protection must be installed at the panel's power input. If the wiring of the output points is susceptible to this type of event, voltage surge protection must be used.

6.5. Mechanical and Electrical Assembly

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

ATTENTION

Products with broken warranty seal are not covered in warranty.

CAUTION

The device is sensitive to static electricity (ESD). Always touch in a metallic grounded object before handling it.

DANGER

Nexto Series can operate with voltage up to 250 Vac. Special care must be taken during the installation, which should only be done by qualified technical personnel. Do not touch on the wiring field when in operation.

7. Configuration

This module was developed to be used with Nexto Series products. 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.

7.1. Process Data

Process Data, when available, are the variables that are used to access and control the module. The list below describes all variables delivered by NX2025.

The module's process data, when it is inserted into a PROFIBUS network, can be accessed via variables. The table below shows the organization structure of the variables in the CPU's memory.

Besides this data, NX2025 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
%QB(n)	BYTE	Digital Outputs	Channel 00 to 07 output value	Output (Read/Write)	Always

Table 6: Process Data

Note:

Update: The field Update indicates if the respective process data is updated by CPU and NX2025. When defined as Always, it means that the process data is always updated. When defined as Selectable, 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 NX2025 through the bus, to improve CPU performance, it's recommended to update only the process data that will be used in the application.

7.2. Module Parameters

Name	Description	Standard Value	Options	Configuration
Light Pulse Duration	Light pulse duration in units of 100μs.	10	4 to 255	Per Module
Dark Pulse Duration	Dark pulse duration in units of 100μs.	10	4 to 255	Per Module
Light Test	Enables or disables Light Test.	Disabled	Disabled Enabled	Per Output
Dark Test	Enables or disables Dark Test.	Disabled	Disabled Enabled	Per Output
Diagnostic Enable	Enables the diagnostics for each channel.	Enabled	Disabled Enabled	Per Output
Outputs Behavior when CPU is in Stop	Defines output behavior when CPU is in Stop.	Disabled	Disabled Off On Last Value	Per Output
%Q Start Address of Module Diagnostics Area	Defines the starting address of the module diagnostics area.	-	-	Per Module

Table 7: Module Parameters

Notes:

Configuration: Configuration indicates if the parameter is related to the entire module (per module) or if the parameter is related to a single output (per output). In the case of individual parameters for the monitored outputs, all parameters will be repeated for each available output.

Light Pulse Duration: Defines the pulse time duration of the Light test. It is specified in units of 0.1 ms, and can assume values from 0.4 ms to 25.5 ms (numbers lower than 4 will be considered as 0.4 ms).

Dark Pulse Duration: Defines the pulse time duration of the Dark test. It is specified in units of 0.1 ms, and can assume values from 0.4 ms to 25.5 ms (numbers lower than 4 will be considered as 0.4 ms).

Light Test: The light test generates a trigger pulse on the disconnected outputs, verifying the existence of a minimum current, and voltage variation on the output, for a maximum time specified by the user. Its purpose is to diagnose failures in the module's output circuits and short circuits in the field wiring. The time between testing a point is fixed at 32 seconds.

Dark Test: The dark test generates a shutdown pulse on the connected outputs, where it checks for a variation in the output voltage, for a maximum time specified by the user. Its purpose is to diagnose failures in the module's output circuits and short circuits in the field wiring. The time between testing a point is fixed at 32 seconds.

Outputs Behavior when CPU is in Stop: This parameter allows to define the state of the module outputs when the execution of the application on the CPU is interrupted, both on the local bus and on remote PROFIBUS, which can typically occur in three situations:

- Execution of Stop command through MasterTool
- Software exception
- Failure in one or more I/O module (absent), when Hot Swap is disabled

The "CPU in Stop" state also occurs at the end of Download, Reset Warm and Reset Cold. During the execution of these commands, the behavior of the outputs may vary depending on the type of architecture used:

- **Local Bus:** The output temporarily assumes the Disabled state, going to the value set by the parameter at the end of the operation. However, specifically in the case configured as Last Value, due to the application restart that occurs in these commands, the output does not return to the last value written, but to its minimum value.
- **PROFIBUS Remote Bus:** When the module is operating on a PROFIBUS remote, it keeps the output on Disabled state until the CPU starts the execution (RUN).

There are also other situations that involve stopping the CPU, such as:

- Reset Origin
- CPU failure (no power, or removed from the bus)
- Firmware update

In these scenarios, where there is an interruption or complete removal of the application, the output temporarily switch to the state defined by this parameter. However, at the end of the process, the state of the output will be Disabled. In the case of a firmware update, at the end of the process, if the CPU has an application, the output will assume the value set in the application.

The support for this functionality was introduced on MasterTool version 3.75 and firmware 1.0.8.0, where the default value is Disabled, thus keeping the module original behavior. If used with an earlier firmware version, the module will work normally, only ignoring the value set for this parameter, also keeping its original behavior.

8. Module Usage

8.1. General Purpose Output Write

The NX2025 has one variable to control its outputs (Digital Outputs). The variable has 8 bits where each bit represents the logic state of each output channel. The relationship between each bit and its respective output can be found on the Bus: I/O Mapping tab.

9. Maintenance

Altus recommends that all module's 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.

This module offers five important features to assist users during maintenance: Electronic Tag on Display, One Touch Diag, Status and Diagnostics Indicators, Web Page with Complete Status and Diagnostics List, and Diagnostics through Variables.

9.1. Electronic Tag on Display and One Touch Diag

Electronic Tag on Display and One Touch Diag are important features that provide to the user the option to check the tag, description and diagnostics related to a given module directly on the CPU display.

Electronic Tag on Display and One Touch Diag are easy-to-use features. To check the tag and diagnostics of a given module, it's required only one short press (shorter than 1 s) on its diagnostic switch. After pressing once, CPU will start to scroll tag information and diagnostic information of the module. To access the respective module description just long press (longer than 1 s) the diagnostics switch of the respective module.

More information about Electronic Tag on Display and One Touch Diag can be found at User Manual of each respective CPU (listed at manual of Nexto Series - MU214600).

9.2. Status and Diagnostics Indicators

Nexto I/O modules have a display with the following symbols: D, E, 0, 1 and numerical characters. The states of the symbols D, E, 0 and 1 are common for all Nexto Series I/O modules. These states can be consulted in the table below.

9.2.1. D and E Symbols States

D	E	Description	Cause	Solution	Priority
Off	Off	Display failure or module off	- Module disconnected; - External power supply failure; - Hardware failure.	Check: - If the module is completely connected to the rack; - If the rack is powered by an external source; - If the module has external power.	-
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 is. More information can be found at section Diagnostics Through Variables.	8
Blinking 2x	Off	No I/O data update	- CPU in STOP mode; - Head/Remote in non-ACTIVE state.	Check: - If the CPU is in operation; - If the Fieldbus Master is in operation; - The integrity of the network between the MODBUS Client and the Head/Remote.	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's diagnostic information. If it is a hardware failure, have the part replaced. If it's software, contact Technical Support.	5
Off	Blinking 2x	Loss of bus master	Loss of communication between: - The module and the CPU; - The module and the Head/Remote; - The Head/Remote and the Field Network Master.	Check: - If the module is completely connected to the rack; - If the CPU is in RUN mode; - If the Fieldbus Master is in operation; - Network integrity between PROFIBUS Master and Head/Remote.	4
Off	Blinking 3x	Module without calibration	- The module is not calibrated; - There was an error with the calibration value.	The module must return to the manufacturer.	3

D	E	Description	Cause	Solution	Priority
Off	Blinking 1x	Missing or parameterization error	The module isn't parameterized.	Check: - If the module parameterization is correct; - Network integrity between PROFIBUS Master and Head/Remote; - Network integrity between PROFINET Controller and Head/Remote.	2
Off	Blinking 4x	Fatal hardware fault	Hardware fault.	The module must return to the manufacturer.	1 (Higher)

Table 8: Status of Symbols D and E

Notes:

Field net master: There are different field net solutions, using different nomenclatures to refer to the net master. Examples: Profibus Master, MODBUS Client, PROFINET Controller, etc.

Module without calibration: Only valid for modules that have calibration, typically analog modules. Modules that do not have calibration will never show such an indication through the symbols D and E.

9.2.2. 0, 1 and Numerical Characters

The meaning of the numerical characters can be different for specific modules. In case of digital output modules, the numerical characters show the respective logic output state. When the numerical character is on, the respective output is also on and if the numerical character is off, the respective output is also off. The relationship between the output number and its respective numerical character can be found on the following figure.

The segments 0 and 1 are used to group the numerical characters used for the first 8 I/O and the numerical characters used for the last 8 I/O. In case of NX2025 only the character 0 is on. The figure below shows the relation between numerical characters and the respective output.

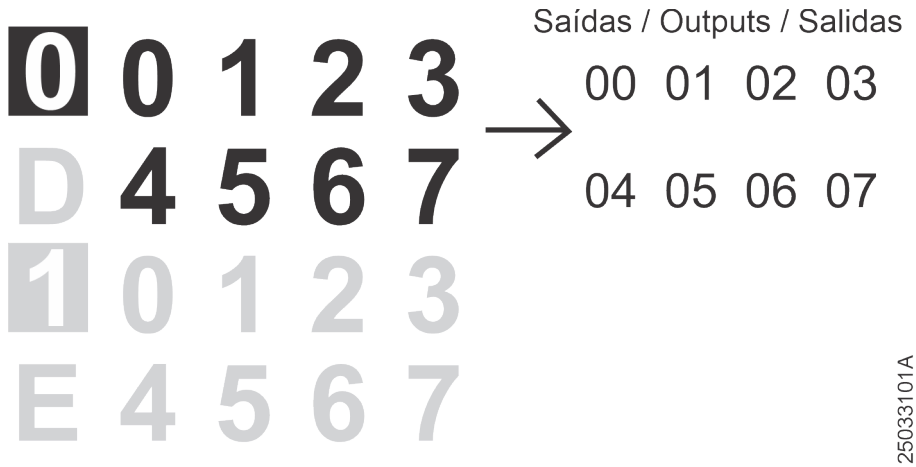

Figure 5: Display

9.3. Web Page 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 User Manual of each respective CPU (listed at Nexto Series User Manual - MU214600).

9.4. Diagnostics Through Variables

All diagnostics in this module 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 use symbolic variables for diagnostic accessing. The table below shows all available diagnostics for this module and their respective memory address, description, symbolic variable and string that will be shown on the CPU graphical display and web.

9.4.1. General Diagnostics

Direct Variable		Diagnostic Message	Symbolic Variable DG_modulename.tGeneral.	Description	PROFIBUS Message Code
Variable	**Bit**				
%QB(n)	0	OUTPUT 00 W/ DIAG	bActiveDiagnosticsOutput00	TRUE – Output 00 has active diagnostics	-
		-		FALSE – Output 00 doesn't have active diagnostics	
	1	OUTPUT 01 W/ DIAG	bActiveDiagnosticsOutput01	TRUE – Output 01 has active diagnostics	-
		-		FALSE – Output 01 doesn't have active diagnostics	
	2	OUTPUT 02 W/ DIAG	bActiveDiagnosticsOutput02	TRUE – Output 02 has active diagnostics	-
		-		FALSE – Output 02 doesn't have active diagnostics	
	3	OUTPUT 03 W/ DIAG	bActiveDiagnosticsOutput03	TRUE – Output 03 has active diagnostics	-
		-		FALSE – Output 03 doesn't have active diagnostics	
	4	OUTPUT 04 W/ DIAG	bActiveDiagnosticsOutput04	TRUE – Output 04 has active diagnostics	-
		-		FALSE – Output 04 doesn't have active diagnostics	
	5	OUTPUT 05 W/ DIAG	bActiveDiagnosticsOutput05	TRUE – Output 05 has active diagnostics	-
		-		FALSE – Output 05 doesn't have active diagnostics	
	6	OUTPUT 06 W/ DIAG	bActiveDiagnosticsOutput06	TRUE – Output 06 has active diagnostics	-
		-		FALSE – Output 06 doesn't have active diagnostics	
	7	OUTPUT 07 W/ DIAG	bActiveDiagnosticsOutput07	TRUE – Output 07 has active diagnostics	-
		-		FALSE – Output 07 doesn't have active diagnostics	
	0	MODULE W/ DIAGNOSTICS	bActiveDiagnostics	TRUE – Module has active diagnostics	-
		-		FALSE – Module doesn't have active diagnostics	
	1	MODULE W/ FATAL ERROR	bFatalError	TRUE – Fatal error	25

Direct Variable		Diagnostic Message	Symbolic Variable DG_modulename.tGeneral.	Description	PROFIBUS Message Code
Variable	**Bit**				
%QB(n+1)		-		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	OTD SWITCH ERROR	bOTDSwitchError	TRUE – Module has switch failure	28
		-		FALSE – Diagnostics switch ok	
	5	Reserved			
	6	EXTERNAL SUPPLY	bNoExternalSupply	TRUE – External supply below minimum voltage limit	30
		-		FALSE – External supply above minimum voltage limit	
	7	Reserved			

Table 9: General Diagnostics

9.4.2. Detailed Diagnostics

Direct Representation Variable		Diagnostic Message	Symbolic Variable DG_modulename.tDetailed.tDigitalOutput_XX.	Description	PROFIBUS Message Code
Variable	**Bit**				
%QB(n+2+XX*2)	0..7	Reserved			
%QB(n+2+2*XX+1)	0	LINE BREAK	bLineBreak	TRUE – Output is in an open load situation (current less than the Minimum Limit Current).	6
		-		FALSE – Output with connected load	
	1	OVER CURRENT	bOverCurrent	TRUE – Output is in an overcurrent situation (current higher than the Maximum Limit Current).	26
		-		FALSE – Output with current below the Maximum Current Limit.	
	2	0V SHORT CIRCUIT	bShortCircuit0V	TRUE – Output is in short circuit for 0 Vdc (Light Test)	27
		-		FALSE – Output OK	

Direct Representation Variable		Diagnostic Message	Symbolic Variable DG_modulename.tDetailed. tDigitalOutput_XX.	Description	PROFIBUS Message Code
Variable	Bit				
	3	24V SHORT CIRCUIT	bShortCircuit24V	TRUE – Output is in short circuit for 24 Vdc (Dark Test)	28
		-		FALSE – Output OK	
	4..7	Reserved			

Table 10: Detailed Diagnostics

Notes:

Direct Representation Variable: "n" is the address defined in the field %Q Start Address of Module Diagnostics Area on the NX2025 configuration screen – Module Parameters tab in MasterTool IEC XE, “XX” is the digital output channel.

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

Line Break: Indicates that this point is without load, or that the load current is less than the minimum limit current.

Over Current: Indicates that this point is overcurrent, or that the load current is greater than the maximum limit current.

0V Short Circuit: Indicates that during the execution of the Light Test, executed when the output is off, it was unable to detect the voltage variation at the output.

24V Short Circuit: Indicates that during the execution of the Dark Test, executed when the output is off, it was unable to detect the voltage variation at the output.

9.5. Hot Swap

This product supports hot swap. For further information about how to correctly perform a hot swap, consult Nexto Series User Manual - MU214600.

10. Manuals

For further technical details, configuration, installation and programming, the table below should be consulted.

The table below is only a guide of some relevant documents that can be useful during the use, maintenance, and programming of this product.

Code	Description	Language
CE114000	Nexto Series – Technical Characteristics	English
CT114000	Série Nexto – Características Técnicas	Portuguese
MU214600	Nexto Series User Manual	English
MU214000	Manual de Utilização Série Nexto	Portuguese
MU299609	MasterTool IEC XE User Manual	English
MU299048	Manual de Utilização MasterTool IEC XE	Portuguese
MP399609	MasterTool IEC XE Programming Manual	English
MP399048	Manual de Programação MasterTool IEC XE	Portuguese
MU214608	Nexto PROFIBUS-DP Head Utilization Manual	English
MU214108	Manual de Utilização da Cabeça PROFIBUS-DP Nexto	Portuguese

Table 11: Related Documents