

Nota de Aplicação

M340 - Comunicação em Ethernet/IP
com leitor RFID XGSZ33EIP.



Versão: • V1.0



Suporte Técnico Brasil

Schneider
Electric

Especificações técnicas

Hardware:

BMXP342012

BMXNOC0401.2

XGSZ33EIP

XGCS4901201

XGHB520246

Firmware:

V2.50

V2.20

V3.10

V3.96

-

Software:

UnityPro

Versão:

V7.0

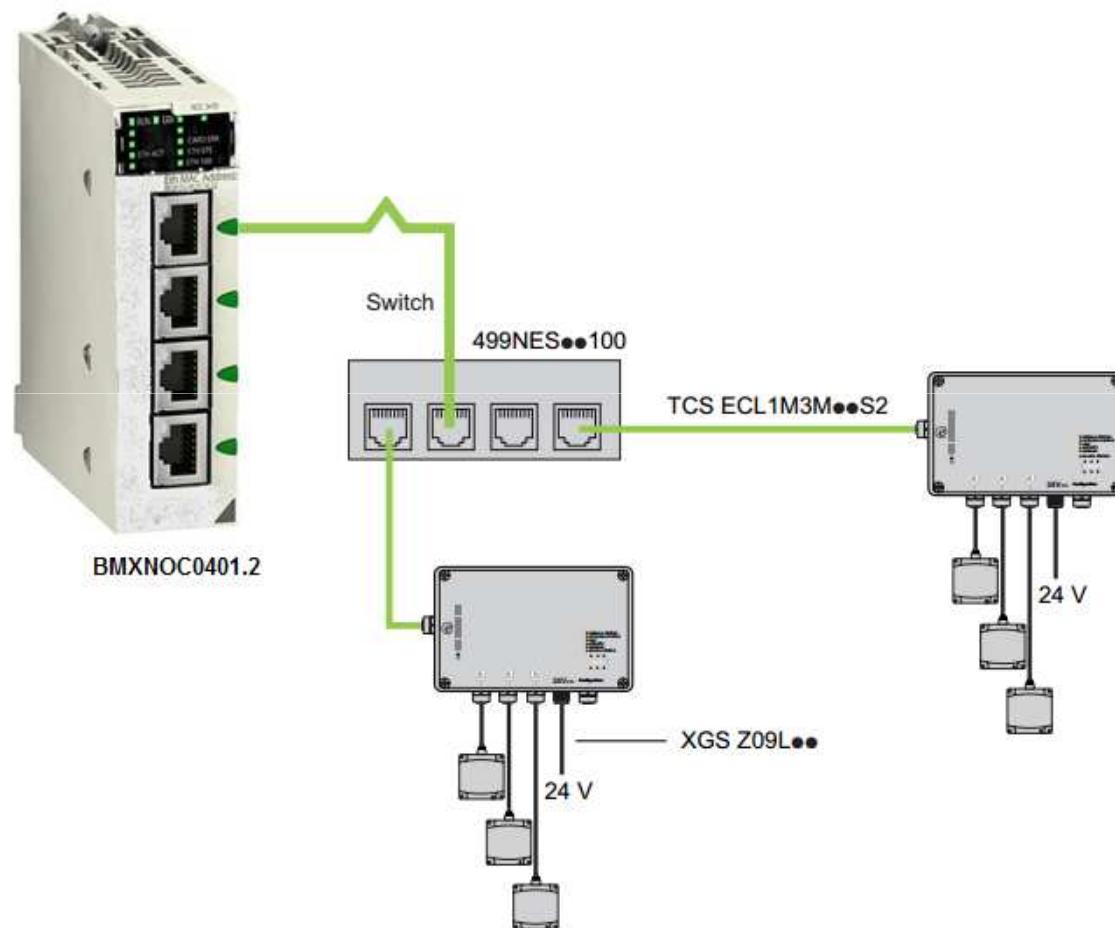


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Arquitetura utilizada

- Ethernet/IP:

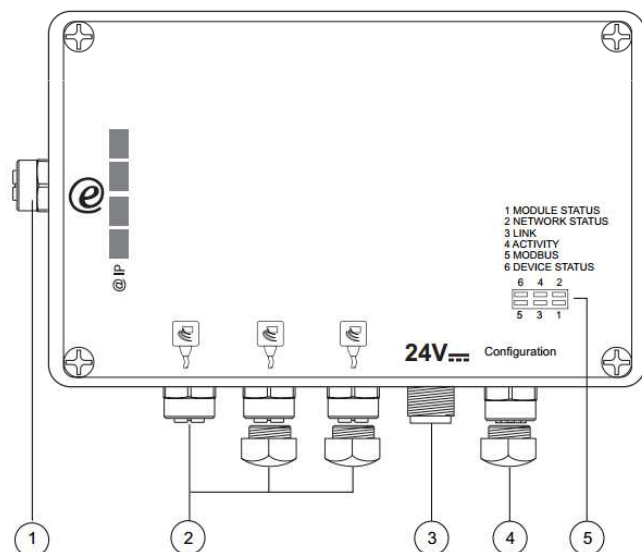


XGSZ33EIP

• Características do leitor RFID:

EtherNet/IP Fieldbus Characteristics

Characteristic	Description
Topology	Star
Data rate	10/100 Mbps
Physical interface	10 Base-T / 100 Base-Tx
Transmission media	Shielded twisted pairs, category CAT 5E
Connector	M12 4-pin, A-coding
Cyclic Transmitted Data (in words)	• Input: 5 for control + ≤ 43 for user data • Output: 7 for control + ≤ 41 for user data
Acyclic transmitted data	Not supported



N°	Description
1	EtherNet/IP connector (M12 4-pin female, D-coding)
2	OsiSense® XG compact smart antenna connectors (M12 5-pin female, A-coding)
3	Power supply connector (M12 4-pin male, A-coding)
4	Configuration port (M12 female, A-coding) (for Schneider Electric use only)
5	Diagnostic LEDs for EtherNet/IP and Modbus fieldbuses, splitter box status

RFID Smart Antenna Communication Characteristics

Characteristic	Description
Transmission rate	38400 Bits/s
Time-out	3 s (after 3 automatic retries)
Quantity of RFID smart antenna	3 (direct connection) to 15 (chained with M12 tees)
Total length of the RFID connections	160 m max (525 ft)
Connector	M12 5-pin female, A-coding

Connector N°	Type of cable / connectors	Type of equipment to be connected	Cable length (m)	Reference
1	IP67 straight-through cable 4-pin M12 male A / R J45 male	Switch Hub	1	TCS ECL1M3M1S2
			3	TCS ECL1M3M3S2
			5	TCS ECL1M3M5S2
			10	TCS ECL1M3M10S2
			40	TCS ECL1M3M40S2
2	Extension 5-pin M12 male A / M12 female	XGCS•••••••• Ositrack compact smart antennas	1	TCS MCN1M1F1
			2	TCS MCN1M1F2
			5	TCS MCN1M1F5
			10	TCS MCN1M1F10
3	Extension 4-pin M12 female A / flying leads	24 Vdc Power supply	2	XGS Z09L2 ⁽¹⁾
			5	XGS Z09L5 ⁽¹⁾
			10	XGS Z09L10 ⁽¹⁾

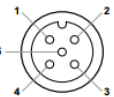
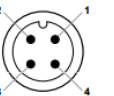
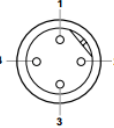
NOTE⁽¹⁾: XGS Z09L• cables replace XGS Z08L• cables from January 2008.

NOTE: Refer to the Connexium IP67 catalog for the IP67 Ethernet cables and accessories.

XGSZ33EIP

• Características do leitor RFID:

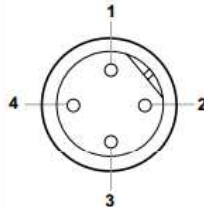
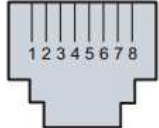
Pin Assignment

Connector	Pin	Color	Assignment
Smart antennas connector (M12 5-pin female, A-coding) 	1	-	Earth
	2	-	24 Vdc
	3	-	0 Vdc
	4	-	D0
	5	-	D1
Power supply connector (M12 4-pin male, A-coding)  Power supply cable XGS Z09L** 	1	Red	24 Vdc
	2	-	Not connected
	3	Black	0 Vdc
	4	-	Not connected
EtherNet/IP connector (M12 4-pin female, D-coding) 	1	-	TD +
	2	-	RD +
	3	-	TD -
	4	-	RD -

NOTE: M12 connectors maximum tightening torque = 10 Nm (88.5 lb-in).

Correspondence Between M12 4-pin Connector and RJ45 Connector

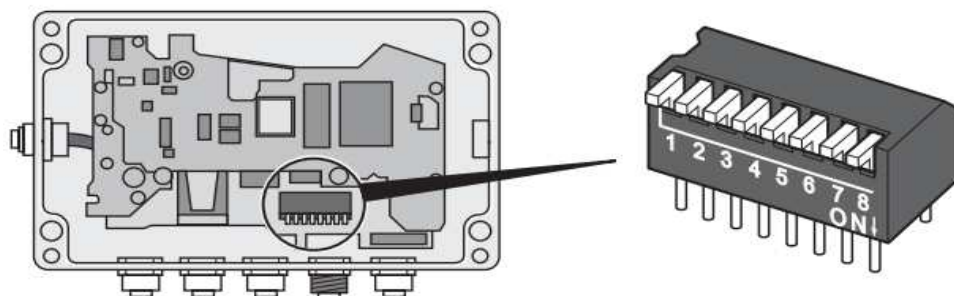
The following table shows the correspondence between pins on M12 4-pin connector and on RJ45 connector:

M12 4-pin Connector	M12 Contact	Signal	RJ45 Contact	RJ45 Connector
	1	TD+	1	
	2	RD+	3	
	3	TD-	2	
	4	RD-	6	
	-	Not connected	4	
	-	Not connected	5	
	-	Not connected	7	
	-	Not connected	8	

XGSZ33EIP

• Características do leitor RFID:

Setting Internal Configuration Switches



Internal configuration switches can be set to:

- a non-zero value, forcing the splitter box to use an IP address in the range 192.168.0.1 to 192.168.0.255 defined by the switches position
- zero value, forcing the splitter box to use the IP address defined by the embedded Web server (the default IP address in the embedded Web server is set to 192.168.0.10). This value disables the configuration switches.

NOTE: Switches are set to zero value as a default factory setting.

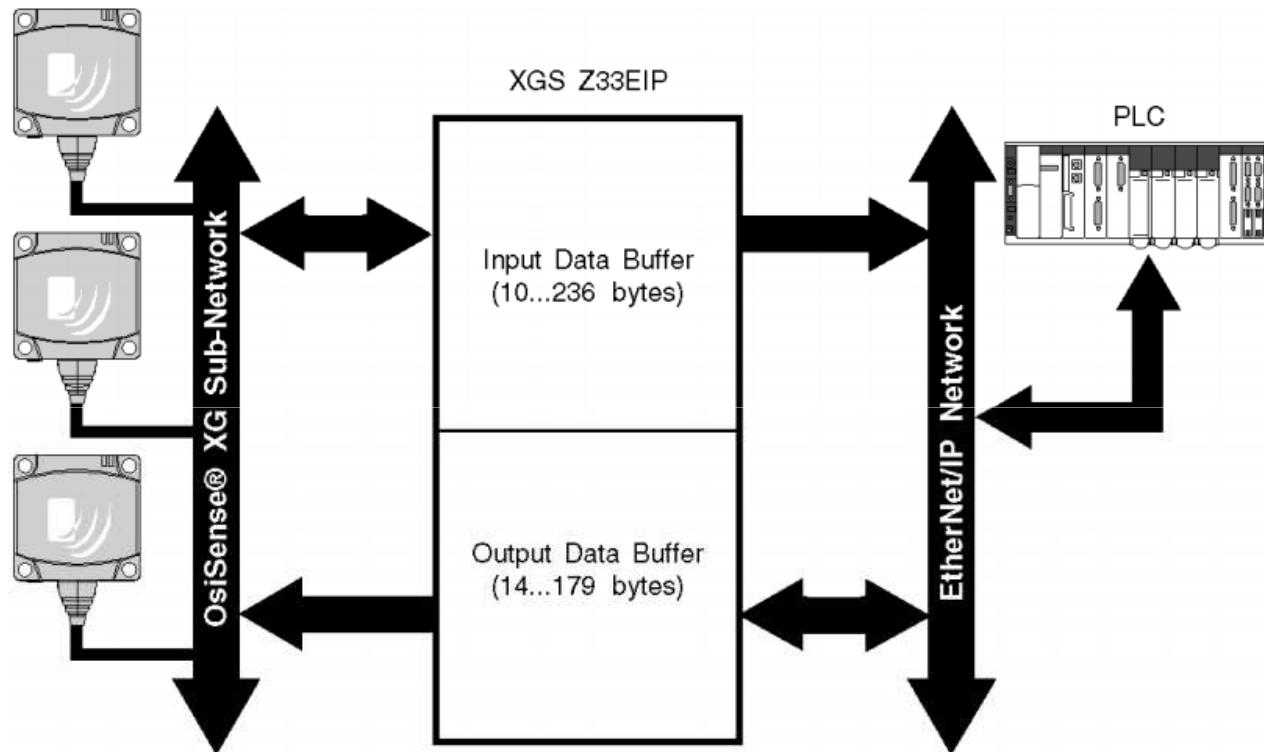
The following table describes the IP address value regarding the splitter box switches position:

SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	DHCP	Subnet	Gateway	IP Address
OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Settings determined by the embedded Web server configuration page.			
OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	255.255.255.0	192.168.0.255	192.168.0.1
OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	255.255.255.0	192.168.0.255	192.168.0.2
...	...	...	...	...	...	...	...	...	...	...	...
ON	ON	ON	ON	ON	ON	ON	OFF	OFF	255.255.255.0	192.168.0.255	192.168.0.254
ON	ON	ON	ON	ON	ON	ON	ON	Invalid setting			

NOTE: The switches value is read once during the splitter box startup. Any changes performed on the switches value require a splitter box reset to be applied.

XGSZ33EIP

- Troca de dados do leitor RFID:



Two memory buffers are integrated in the XGS Z33EIP splitter box:

- Output Data Buffer for:
 - commands addressed to OsiSense® XG smart antennas
 - commands written from EtherNet/IP network
- Input Data Buffer for:
 - results of commands addressed to OsiSense® XG smart antennas
 - status of the commands addressed to OsiSense® XG smart antennas

XGSZ33EIP

• Mapa de variáveis do leitor RFID:

The following table describes the Input Data Buffer structure of the XGS Z33EIP splitter box:

Register (Word)	Description	
	MSB	LSB
1st	Status bit (bit4): • 1 = OK • 0 = missing RFID smart antenna (<i>see page 48</i>)	
2nd	Not applicable	Counter of Read commands
3rd	Not applicable	Counter of Write commands
4th	Total Data bytes received (Read command only)	Address of the RFID smart antenna
5th	Bit 8 to bit 14: command codes. Values of the command code: • 03h: Read • 10h: Write Bit 15: error status bit. Values of the error status bit: • 1: negative answer from the RFID smart antenna and validation of the error code in the LSB • 0: valid answer from the RFID smart antenna	The content of the LSB has two meanings depending on the error status bit (bit 15) value: • if error status bit = 1: detected error code with the following values: • 1h: unknown function code or incorrect request format • 2h: incorrect address, or prohibited zone, or protected zone, or address outside the tag memory zone • 3h: incorrect data, or too much data in the frame, or not enough data in the frame, or quantity is null, or incompatible data • 4h: execution detected error in read or write mode, or tag out of the dialog area • if error status bit = 0: Read data byte count
6th	Data 1	Used only for Read command
7th	Data 2	
8th	Data 3	
...	...	
...	Data n	

XGSZ33EIP

- Mapa de variáveis do leitor RFID:

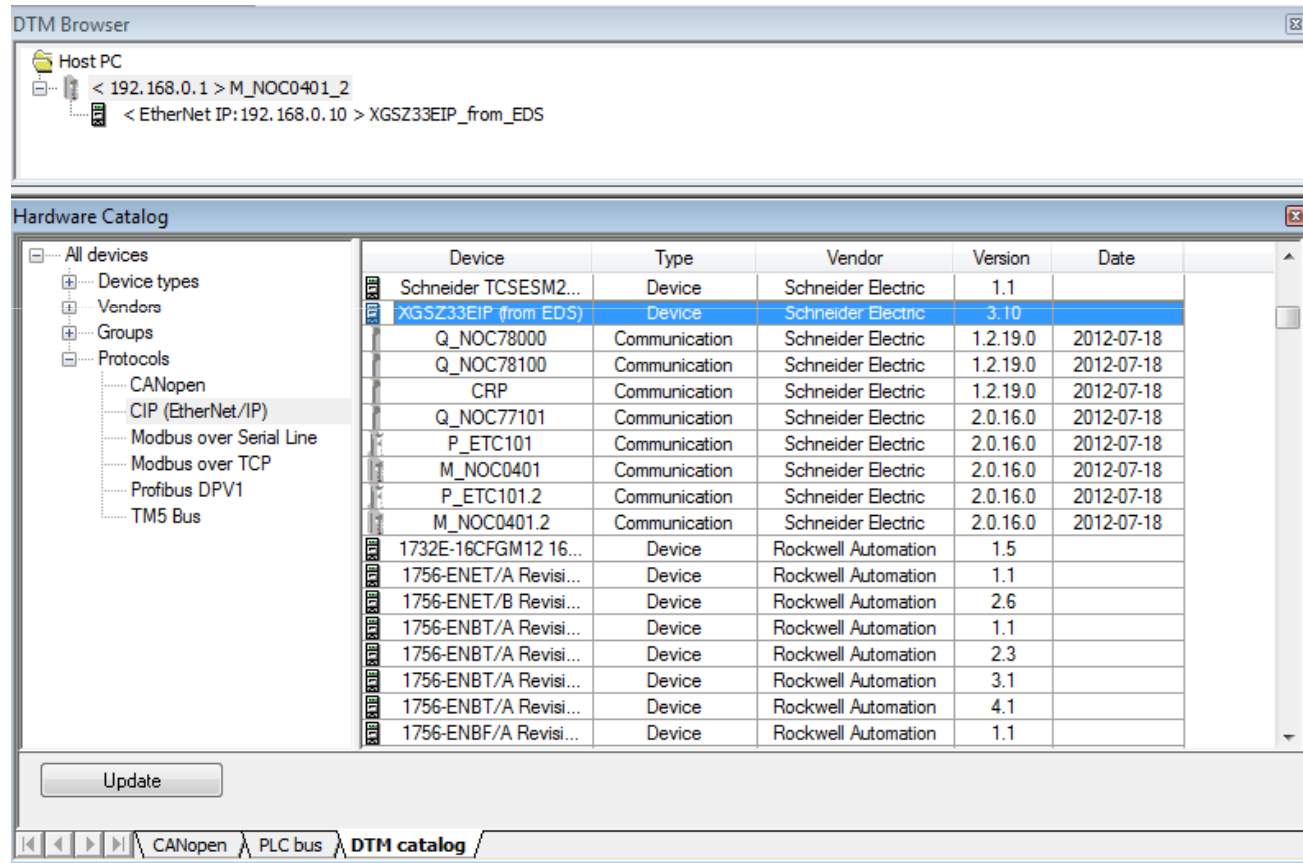
The following table describes the Output Data Buffer structure of the XGS Z33EIP splitter box:

Register (Word)	Description	
1st	Not applicable	
2nd	Bit 0 = Read command trigger bit	
3rd	Bit 0 = Write command trigger bit	
4th	RFID smart antenna slave address (1 to 15)	
5th	Start address of the Read/Write command	
6th	Quantity of registers to Read (1 to 113) / Write (1 to 82)	
7th	LSB: Not used MSB: Quantity of bytes Write command (2 x quantity of registers defined in the 6th word)	
8th	Data 1	Used only for Write command
9th	Data 2	
10th	Data 3	
...	...	
...	Data n	

UnityPro

- Configuração de rede Ethernet/IP:

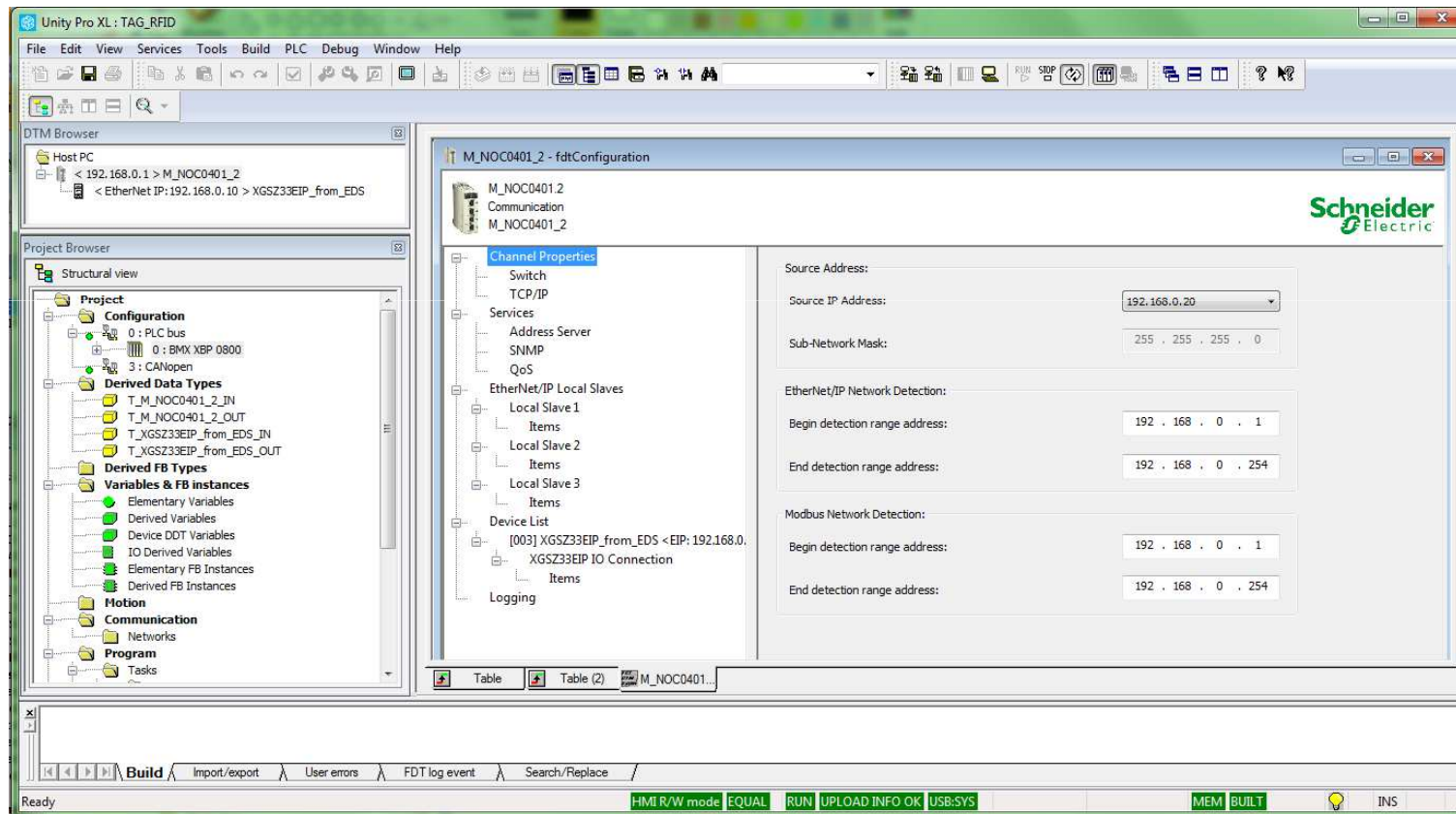
Inserir o arquivo EDS do leitor RFID no DTM Browser:



UnityPro

- Configuração de rede Ethernet/IP:

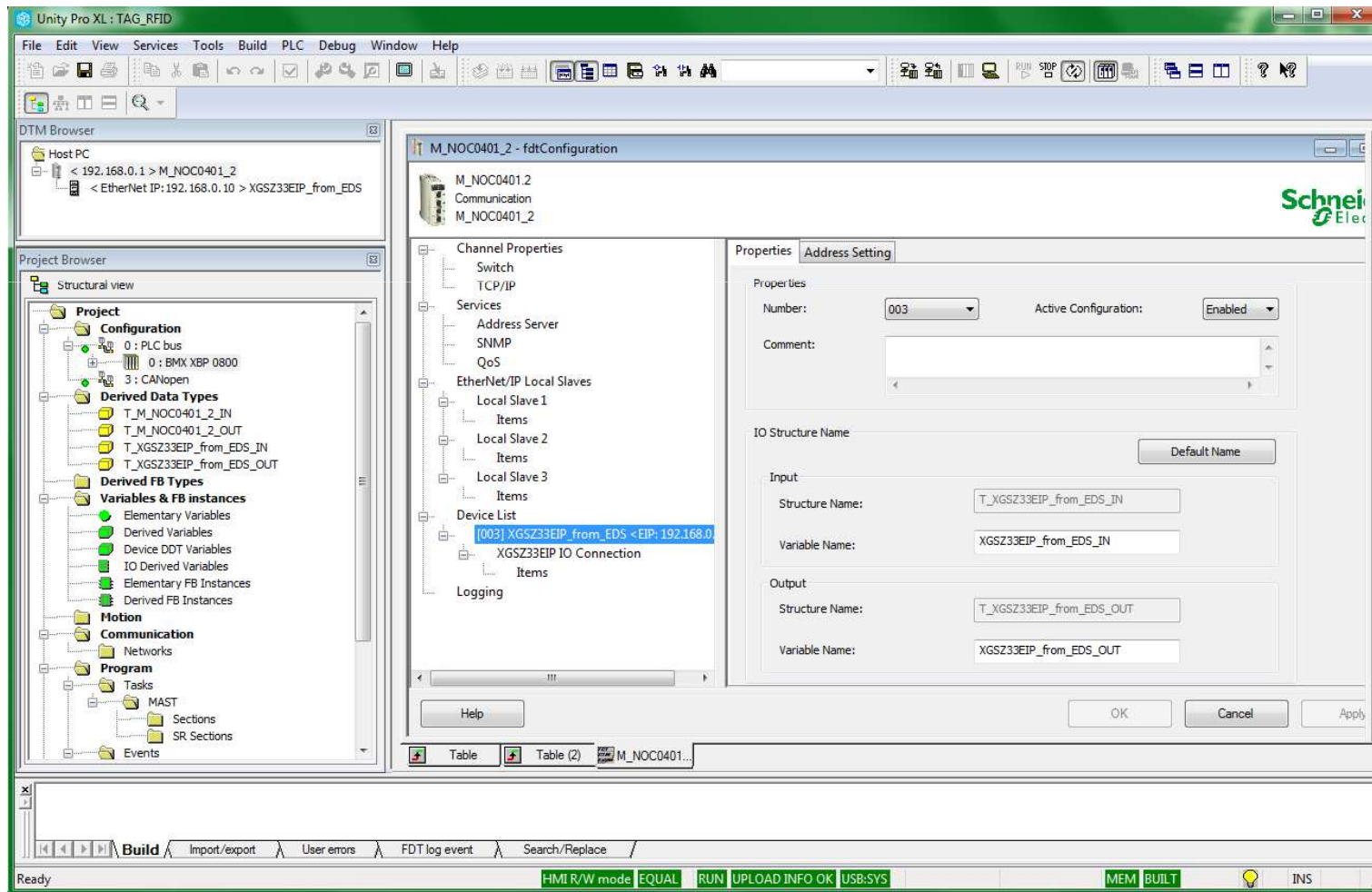
Propriedades do canal do módulo BMXNOC0401.2:



UnityPro

- Configuração de rede Ethernet/IP:

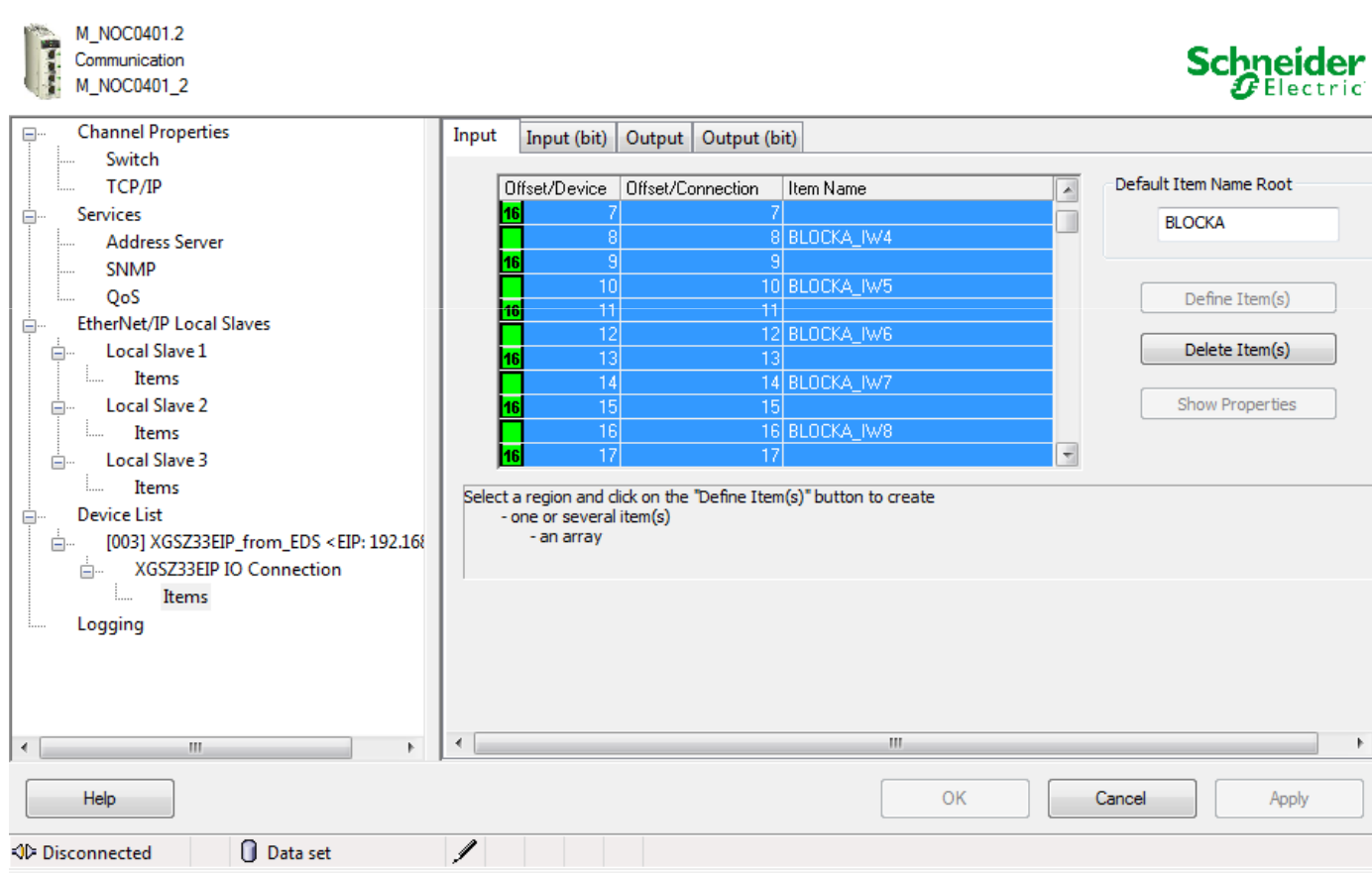
Definição dos registros de entrada e de saída para troca de dados:



UnityPro

- Configuração de rede Ethernet/IP:

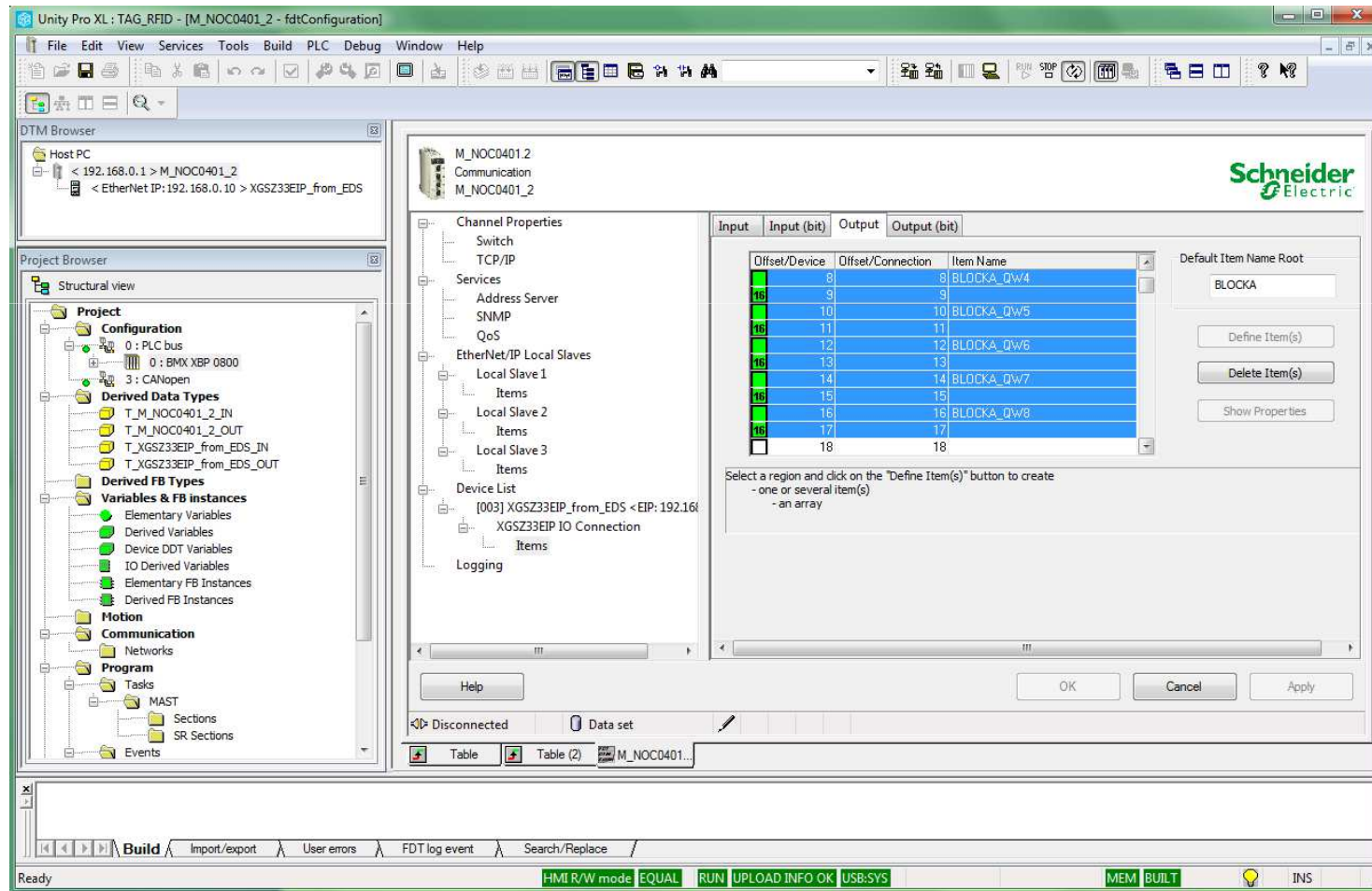
Definição dos registros conforme mapa de variáveis do leitor RFID (pág. 8):



UnityPro

- Configuração de rede Ethernet/IP:

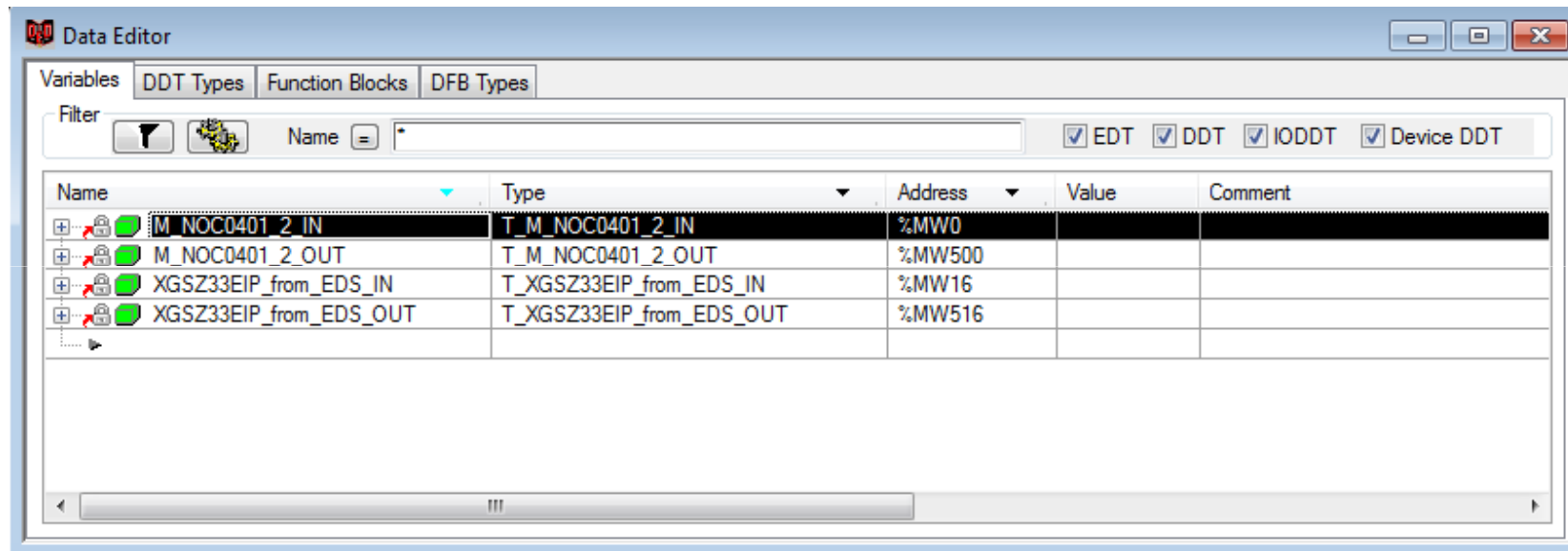
Definição dos registros conforme mapa de variáveis do leitor RFID (pág. 9):



UnityPro

- Data editor:

Exportar a configuração dos registros para a área de registros %MW reservados no módulo BMXNOC0401.2:



UnityPro

- Animation Tables:

A tabela animada superior refere-se à leitura e a tabela animada inferior refere-se à escrita. Abaixo encontra-se a configuração utilizada:

- Endereço escravo (LSB) = 1
- Endereço de leitura = 0
- Qtde de registros (LSB) = 4
- Qtde de registros em bytes (MSB) = 8
- 1.º registro de escrita
- 2.º registro de escrita

The top window, titled "Table", displays a list of variables and their values. The bottom window, titled "Table (2)", displays a list of variables and their values. Arrows point from the text boxes on the left to specific rows in the bottom table.

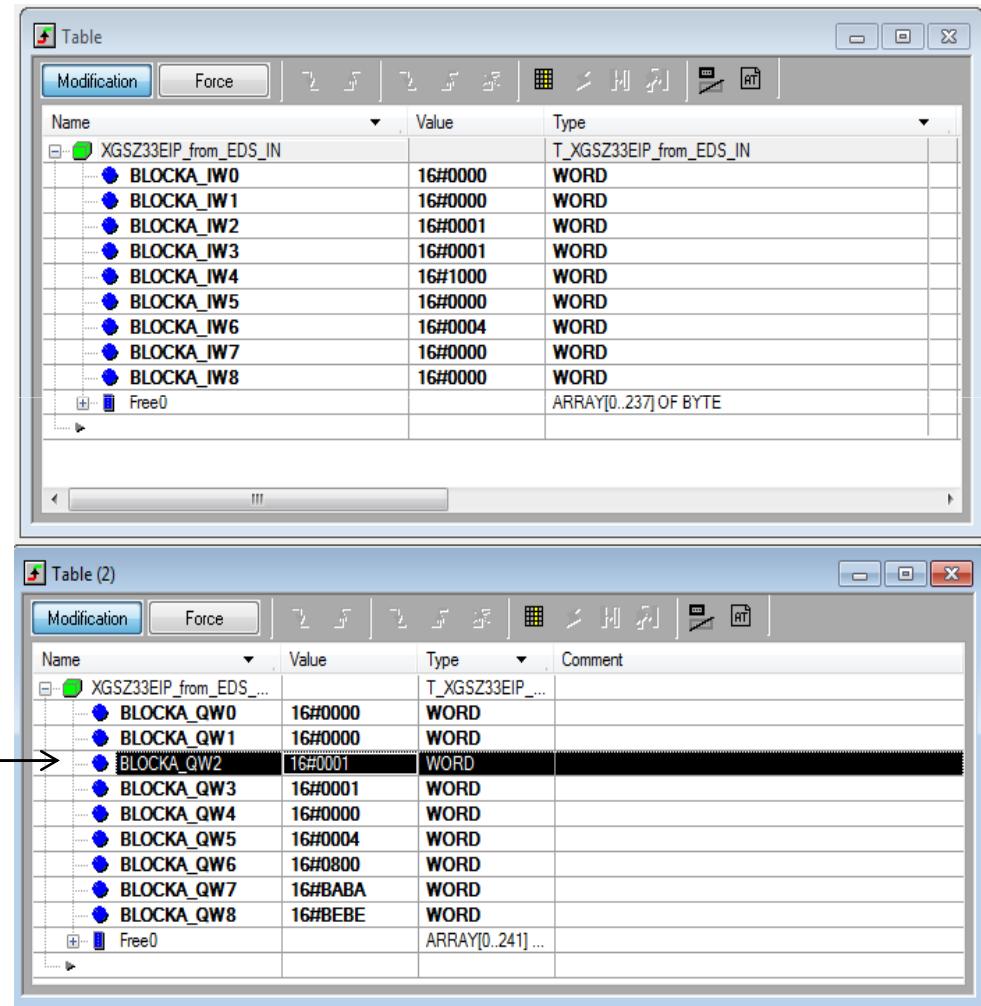
Name	Value	Type
XGSZ33EIP_from_EDS_IN		T_XGSZ33EIP_from_EDS_IN
BLOCKA_IW0	16#0000	WORD
BLOCKA_IW1	16#0000	WORD
BLOCKA_IW2	16#0000	WORD
BLOCKA_IW3	16#0000	WORD
BLOCKA_IW4	16#0000	WORD
BLOCKA_IW5	16#0000	WORD
BLOCKA_IW6	16#0000	WORD
BLOCKA_IW7	16#0000	WORD
BLOCKA_IW8	16#0000	WORD
Free0		ARRAY[0..237] OF BYTE

Name	Value	Type	Comment
XGSZ33EIP_from_EDS_...		T_XGSZ33EIP_...	
BLOCKA_QW0	16#0000	WORD	
BLOCKA_QW1	16#0000	WORD	
BLOCKA_QW2	16#0000	WORD	
BLOCKA_QW3	16#0001	WORD	
BLOCKA_QW4	16#0000	WORD	
BLOCKA_QW5	16#0004	WORD	
BLOCKA_QW6	16#0800	WORD	
BLOCKA_QW7	16#BABA	WORD	
BLOCKA_QW8	16#BEBE	WORD	
Free0		ARRAY[0..241] ...	

UnityPro

- Animation Tables:

A tabela animada superior refere-se à leitura e a tabela animada inferior refere-se à escrita. Abaixo encontra-se a configuração utilizada para o comando de escrita e a resposta provida pelo leitor RFID:



The image displays two screenshots of the UnityPro software interface, specifically the 'Table' and 'Table (2)' windows, which are used for configuring animation tables for RFID communication.

Table (Top Window):

Name	Value	Type
XGSZ33EIP_from_EDS_IN		T_XGSZ33EIP_from_EDS_IN
BLOCKA_IW0	16#0000	WORD
BLOCKA_IW1	16#0000	WORD
BLOCKA_IW2	16#0001	WORD
BLOCKA_IW3	16#0001	WORD
BLOCKA_IW4	16#1000	WORD
BLOCKA_IW5	16#0000	WORD
BLOCKA_IW6	16#0004	WORD
BLOCKA_IW7	16#0000	WORD
BLOCKA_IW8	16#0000	WORD
Free0		ARRAY[0..237] OF BYTE

Table (2) (Bottom Window):

Name	Value	Type	Comment
XGSZ33EIP_from_EDS_...		T_XGSZ33EIP_...	
BLOCKA_QW0	16#0000	WORD	
BLOCKA_QW1	16#0000	WORD	
BLOCKA_QW2	16#0001	WORD	
BLOCKA_QW3	16#0001	WORD	
BLOCKA_QW4	16#0000	WORD	
BLOCKA_QW5	16#0004	WORD	
BLOCKA_QW6	16#0800	WORD	
BLOCKA_QW7	16#BABA	WORD	
BLOCKA_QW8	16#BEBE	WORD	
Free0		ARRAY[0..241] ...	

A callout box labeled "Comando de escrita (bit 0 = 1)" points to the **BLOCKA_QW2** row in the **Table (2)** window, indicating that this row is used for the write command.

UnityPro

- Animation Tables:

A tabela animada superior refere-se à leitura e a tabela animada inferior refere-se à escrita. Abaixo encontra-se a configuração após o comando de escrita e a resposta provida pelo leitor RFID:

1.º registro de escrita tranferido à tag.

2.º registro de escrita tranferido à tag.

Name	Value	Type
XGSZ33EIP_from_EDS_IN		T_XGSZ33EIP_from_EDS_IN
BLOCKA_IW0	16#009F	WORD
BLOCKA_IW1	16#0001	WORD
BLOCKA_IW2	16#0002	WORD
BLOCKA_IW3	16#0A01	WORD
BLOCKA_IW4	16#0308	WORD
BLOCKA_IW5	16#BABA	WORD
BLOCKA_IW6	16#BEBE	WORD
BLOCKA_IW7	16#0000	WORD
BLOCKA_IW8	16#0000	WORD
Free0		ARRAY[0..237] OF BYTE

Name	Value	Type	Comment
XGSZ33EIP_from_EDS_...		T_XGSZ33EIP_...	
BLOCKA_QW0	16#0000	WORD	
BLOCKA_QW1	16#0001	WORD	
BLOCKA_QW2	16#0000	WORD	
BLOCKA_QW3	16#0001	WORD	
BLOCKA_QW4	16#0000	WORD	
BLOCKA_QW5	16#0004	WORD	
BLOCKA_QW6	16#0800	WORD	
BLOCKA_QW7	16#BABA	WORD	
BLOCKA_QW8	16#BEBE	WORD	
Free0		ARRAY[0..241] ...	

Avisos Importantes

- Equipamentos elétricos devem ser instalados, operados e manuseados apenas por pessoas qualificadas.
- Uma pessoa qualificada é aquela que tem habilidades e conhecimentos relacionados com a construção, instalação e operação de equipamentos elétricos e recebeu treinamento adequado para reconhecer e evitar os perigos envolvidos.
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