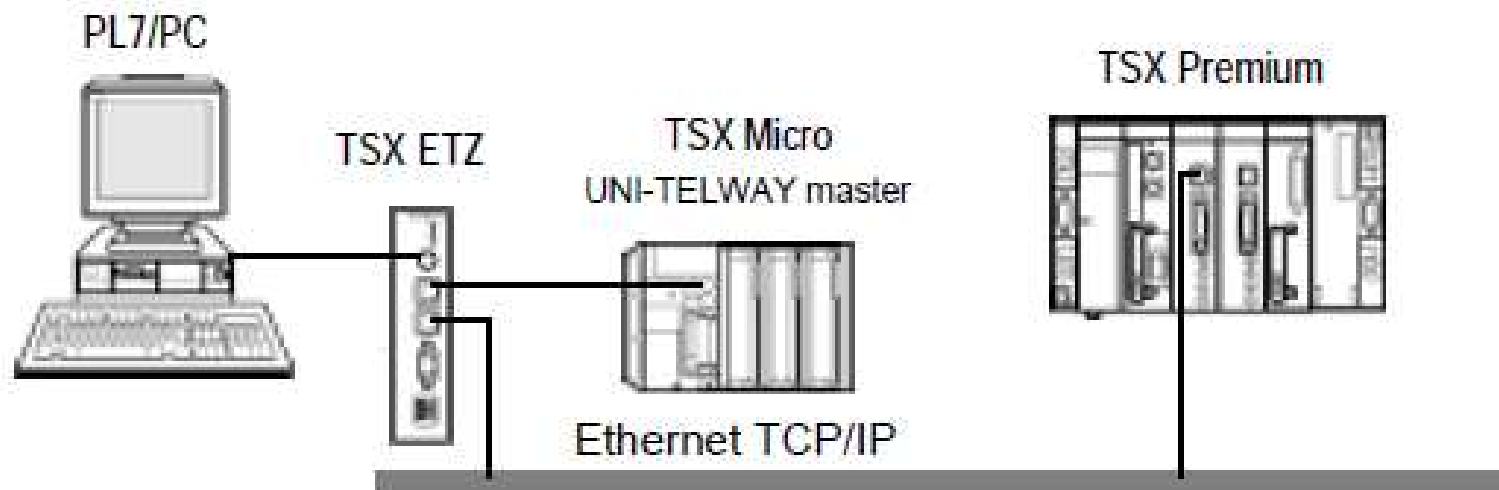


# Modicon TSX Micro

Exemplo de Modbus Messaging TCP/IP profile entre  
TSXETZ510 e Modicon TSX Premium (PL7).

# Arquitetura

- Ethernet:



ETHERNET communication principally targets the following applications:

- coordination between programmable PLCs,
- local or centralized supervision,
- communication with production management computers,
- communication with remote input/output.

The TCP/IP communication profile on ETHERNET, supported by the TSX ETZ modules, allows communication in:

- UNI-TE messaging with the X-WAY structure package,
- Modbus Messaging

# PL7

- TSXETZ510 (Web-page):

**ETZ - IP Configuration**

Arquivo Editar Exibir Histórico Favoritos Ferramentas Ajuda

http://10.161.47.45/secure/system/config.htm

ETZ - IP Configuration

**IP Configuration**

**Ethernet Interface IP Address**

☒ Configurar ☐ Automatic configuration

IP address: 10 161 47 45

Subnetwork mask: 255 255 255 0

Gateway address: 0 0 0 0

**XWAY Address**

Network: 6 Station: 7

**Network Connection**

☒ Ethernet ☐ Modem

**Ethernet configuration**

☒ Ethernet II ☐ 802.3

**Configuration of Connections**

Connections: 4 ☒ Access Control

XWay Address IP Address Protocol Access Mode

New Edit Remove OK Cancel

|   | XWay | IP Address   | Protocol | Access  | Mode |
|---|------|--------------|----------|---------|------|
| 1 | 6.23 | 10.161.47.4  | UNITE    | Allowed | MU   |
| 2 | 6.22 | 10.161.47.2  | UNITE    | Allowed | MU   |
| 3 | 6.5  | 10.161.47.44 | UNITE    | Allowed | MU   |
| 4 | 6.9  | 10.161.47.51 | UNITE    | Allowed | MU   |

Apply Reset

Home Security IP Configuration Unitelway Configuration Automatic Configuration SNMP Configuration Reboot

**Endereço IP do módulo:**  
**10.161.47.45**

**Endereço X-WAY:**

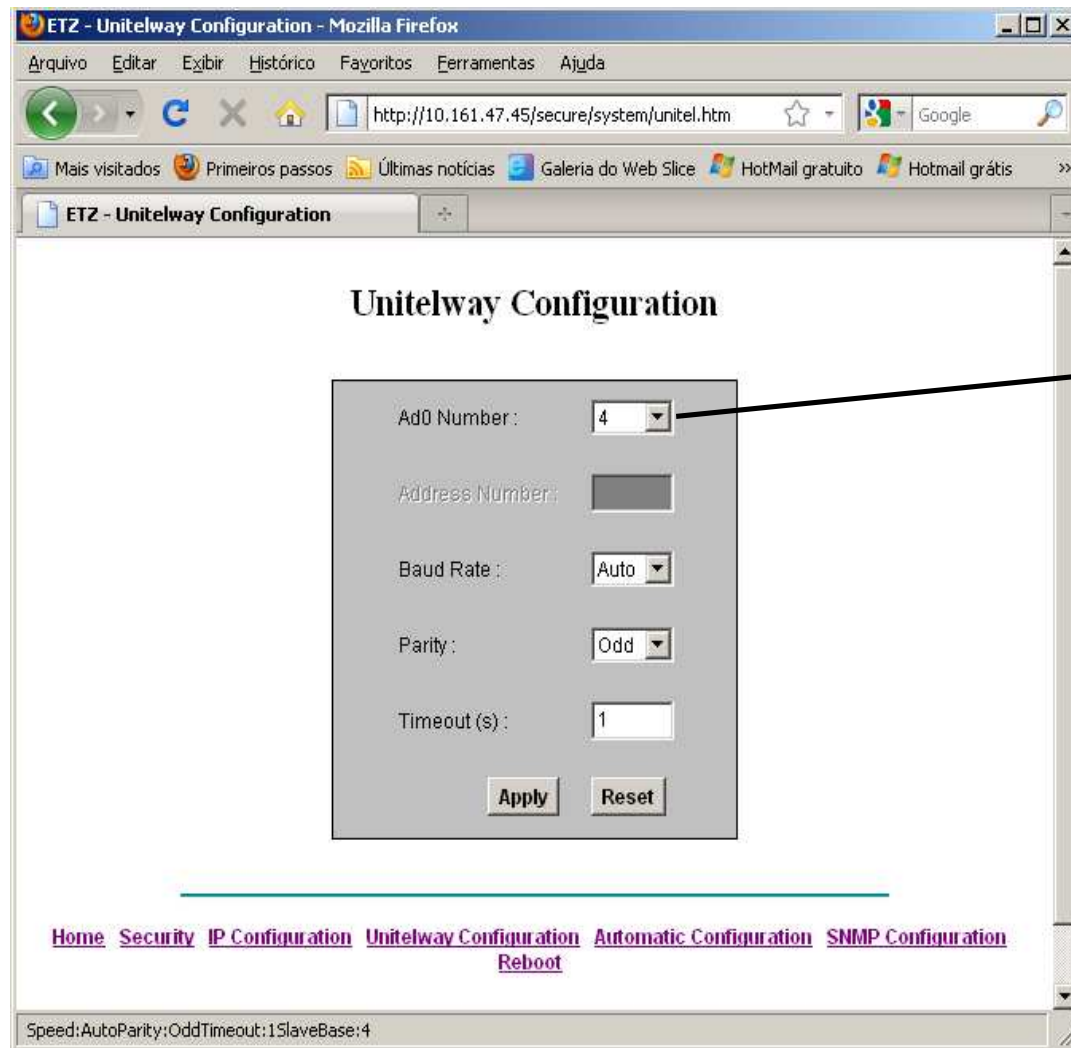
**-Rede: 6**

**-Estação: 7**

**Configuração das conexões  
de acesso ao módulo.**

# PL7

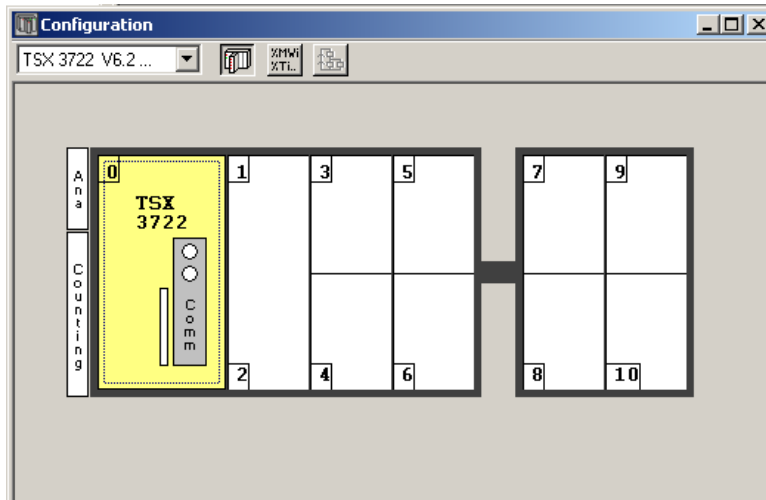
- TSXETZ510 (Web-page):



*Endereço Unitelway para o módulo.*

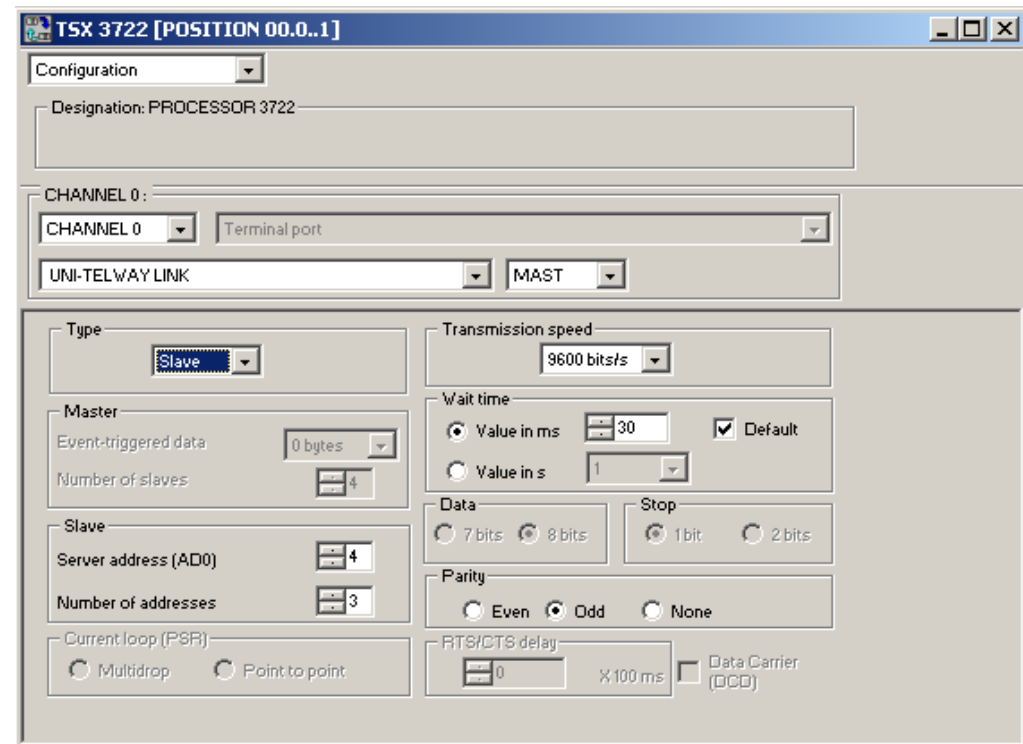
# PL7

- Configuração de Hardware – TSX Micro (TSX37):



➤ Configuração da porta TER/AUX:

{  
AD0 = 4  
Parity = Odd  
}



Configuration

Designation: PROCESSOR 3722

CHANNEL 0:

CHANNEL 0 Terminal port

UNI-TELWAY LINK MAST

Type: Slave

Transmission speed: 9600 bits/s

Wait time: Value in ms 30 (Default) Value in s 1

Data: 7 bits 8 bits 1 bit 2 bits

Parity: Even Odd (selected) None

RTS/CTS delay: 0 X100 ms Data Carrier (DCD)

Master:

Event-triggered data: 0 bytes

Number of slaves: 4

Slave:

Server address (AD0): 4

Number of addresses: 3

Current loop (P&R): Multidrop Point to point

# PL7

## • SEND\_REQ:

### Modbus Messaging on the TCP/IP Profile

#### Installation Principle

Exchanges in the client and server modes are carried out in the same way as in UNI-TE, with the following restrictions.

Even though a Modbus remote station does not have an X-WAY format address, each communication function uses an X-WAY format address to denote a remote IP station.

For each Modbus remote station, you must configure the two following factors in the correspondence table: IP address, {network station} X-WAY with:

- Network: network number of the local X-WAY station.
- Station: X Way station logic number = 100 to 164.

**Example:** X-Way address {2.108} is associated with IP address 139.160.2.8.

**Note:** This address is used by the TSX ETZ module but is not transmitted on the network. In the case of a remote station configured with the Modbus protocol, it is necessary to give an X-Way station address equal to the local X-Way station number plus 100.

#### Exchange of data

As seen from the TSX Micro's PL7 application, the communication function to be installed **is always the UNI-TE request SEND-REQ**. It is the TSX ETZ module that performs the conversion to the corresponding remote station.

**Note: Important:** SEND\_REQ request does not monitor coherence of input parameters (e.g.: checking between the number of facts to write and the size of the data buffer). The user should do this.

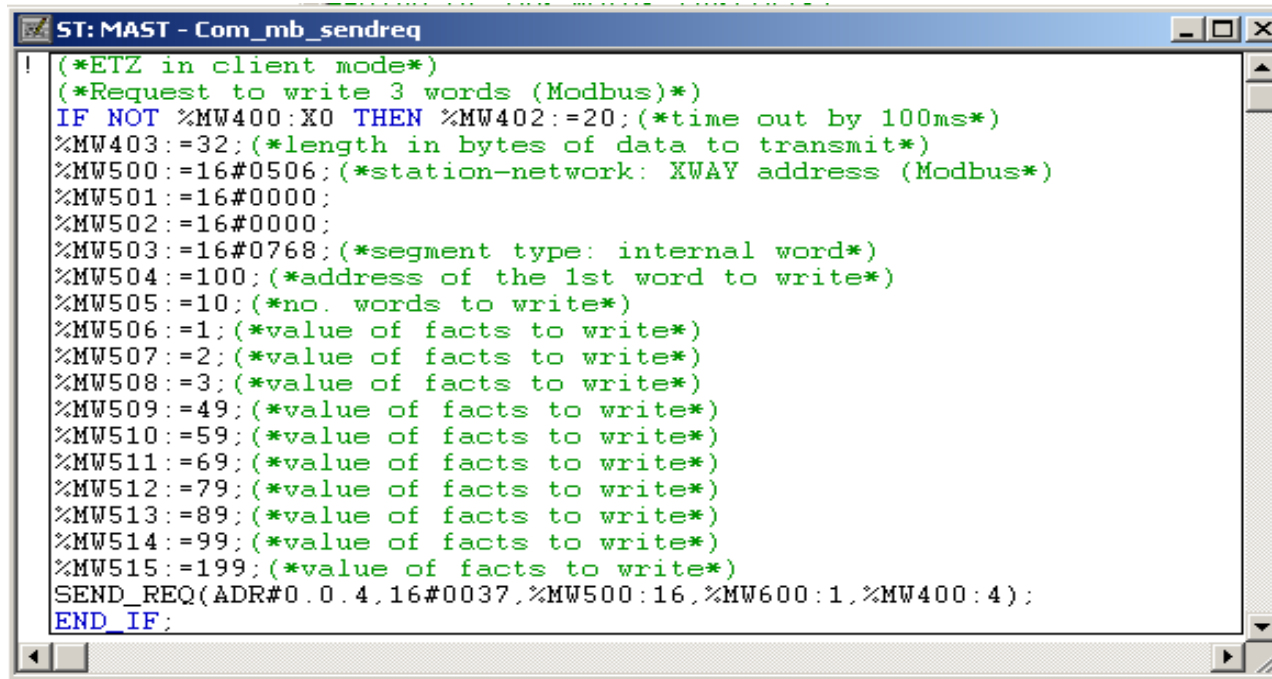
The following requests are addressed to remote devices to read and write variables:

| Modbus request          | Modbus function code | Corresponding UNI-TE communication function |
|-------------------------|----------------------|---------------------------------------------|
| Reading of 1 or n bits  | 16#01                | SEND_REQ(#36...)                            |
| Reading of 1 or n words | 16#03                | SEND_REQ(#36...)                            |
| Writing of 1 or n bits  | 16#05 or 16#0F       | SEND_REQ(#37...)                            |
| Writing of 1 or n words | 16#06 or 16#0F       | SEND_REQ(#37...)                            |

See communication reference manuals TSX DR NET for the coding of UNI-TE requests and manual TSX DG MDB for the coding of Modbus requests.

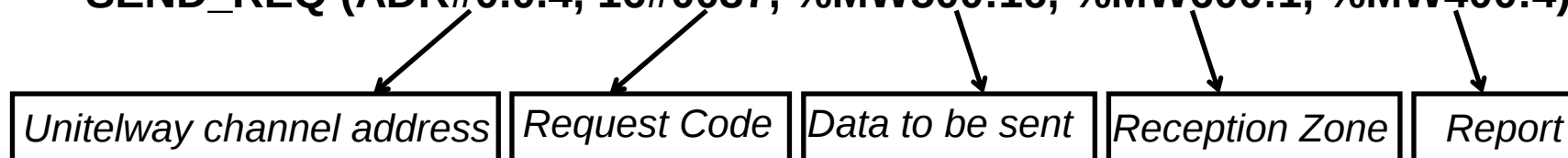
# PL7

- SEND\_REQ:



```
! (*ETZ in client mode*)
(*Request to write 3 words (Modbus*)
IF NOT %MW400:X0 THEN %MW402:=20;(*time out by 100ms*)
%MW403:=32;(*length in bytes of data to transmit*)
%MW500:=16#0506;(*station-network: XWAY address (Modbus*)
%MW501:=16#0000;
%MW502:=16#0000;
%MW503:=16#0768;(*segment type: internal word*)
%MW504:=100;(*address of the 1st word to write*)
%MW505:=10;(*no. words to write*)
%MW506:=1;(*value of facts to write*)
%MW507:=2;(*value of facts to write*)
%MW508:=3;(*value of facts to write*)
%MW509:=49;(*value of facts to write*)
%MW510:=59;(*value of facts to write*)
%MW511:=69;(*value of facts to write*)
%MW512:=79;(*value of facts to write*)
%MW513:=89;(*value of facts to write*)
%MW514:=99;(*value of facts to write*)
%MW515:=199;(*value of facts to write*)
SEND_REQ(ADR#0.0.4,16#0037,%MW500:16,%MW600:1,%MW400:4);
END_IF;
```

**SEND\_REQ (ADR#0.0.4, 16#0037, %MW500:16, %MW600:1, %MW400:4);**



# PL7

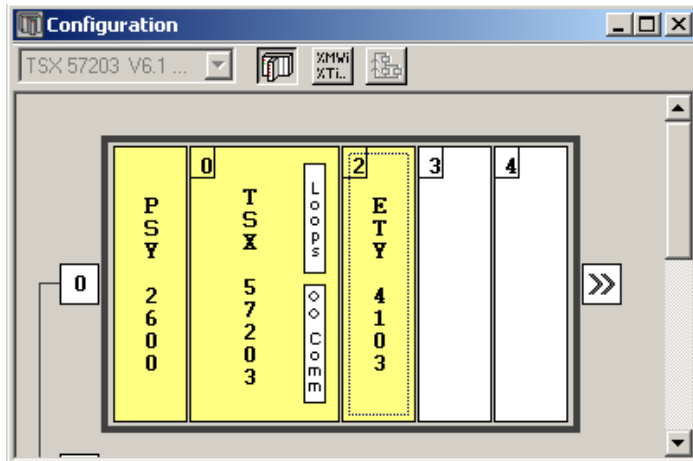
- SEND\_REQ – Animation Tables (TSX Micro):

| Address   | Symbol / Name | Current value | Kind |
|-----------|---------------|---------------|------|
| %MW400:X0 |               | 1             |      |
| %MW402    |               | 20            |      |
| %MW403    |               | 32            |      |
| %MW500    |               | 1286          |      |
| %MW501    |               | 0             |      |
| %MW502    |               | 0             |      |
| %MW503    |               | 1896          |      |
| %MW504    |               | 100           |      |
| %MW505    |               | 10            |      |
| %MW506    |               | 1             |      |
| %MW507    |               | 2             |      |
| %MW508    |               | 3             |      |
| %MW509    |               | 49            |      |
| %MW510    |               | 59            |      |
| %MW511    |               | 69            |      |
| %MW512    |               | 79            |      |
| %MW513    |               | 89            |      |
| %MW514    |               | 99            |      |
| %MW515    |               | 199           |      |
| %MW600    |               | 0             |      |
| %MW400    |               | 5121          |      |

Os valores escritos no TSX Premium estão alocados a partir da %MW500.

# PL7

- Configuração de Hardware – TSX Premium (TSX57):



## ➤ Configuração do Endereço IP e X-WAY:

**IP: 10.161.47.44**

**X-WAY: 6.5**

TSX ETY 4103 [RACK 0 POSITION 2]

Configuration

Designation: TCP/IP 10/100 MODULE

Module IP address

IP address: 10, 161, 47, 44 Subnetwork mask: 255, 255, 255, 0 Gateway address: 0, 0, 0, 0

Module utilities

☒ IO Scanning ☐ Global data

☐ Address server ☐ Bandwidth

Messaging IO Scanning Address server SNMP Global Data Bandwidth Bridge

XWAY address

Network: 6 Station: 5

IP address configuration

☒ Configured

IP address: 10, 161, 47, 44 Subnetwork mask: 255, 255, 255, 0 Gateway address: 0, 0, 0, 0

☐ Client/Server configuration

Ethernet configuration

☒ Ethernet II ☐ 802.3

Connection configuration

Access control ☐

| Xway Addr. | IP address | Protocol | Access                              | Mode  |
|------------|------------|----------|-------------------------------------|-------|
| 1          |            | UNITE    | <input checked="" type="checkbox"/> | MULTI |
| 2          |            | UNITE    | <input checked="" type="checkbox"/> | MULTI |
| 3          |            | UNITE    | <input checked="" type="checkbox"/> | MULTI |
| 4          |            | UNITE    | <input checked="" type="checkbox"/> | MULTI |
| 5          |            | UNITE    | <input checked="" type="checkbox"/> | MULTI |
| 6          |            | UNITE    | <input checked="" type="checkbox"/> | MULTI |
| 7          |            | UNITE    | <input checked="" type="checkbox"/> | MULTI |
| 8          |            | UNITE    | <input checked="" type="checkbox"/> | MULTI |
| 9          |            | UNITE    | <input checked="" type="checkbox"/> | MULTI |
| 10         |            | UNITE    | <input checked="" type="checkbox"/> | MULTI |
| 11         |            | UNITE    | <input checked="" type="checkbox"/> | MULTI |
| 12         |            | UNITE    | <input checked="" type="checkbox"/> | MULTI |

# PL7

- SEND\_REQ – Animation Tables (TSX Premium):

|  | Address | Symbol / Name | Current value | Kind | Type | Comment |
|--|---------|---------------|---------------|------|------|---------|
|  | %MW10   |               | 450           |      |      |         |
|  | %MW100  |               | 1             |      |      |         |
|  | %MW101  |               | 2             |      |      |         |
|  | %MW102  |               | 3             |      |      |         |
|  | %MW103  |               | 49            |      |      |         |
|  | %MW104  |               | 59            |      |      |         |
|  | %MW105  |               | 69            |      |      |         |
|  | %MW106  |               | 79            |      |      |         |
|  | %MW107  |               | 89            |      |      |         |
|  | %MW108  |               | 99            |      |      |         |
|  | %MW109  |               | 199           |      |      |         |
|  | %MW110  |               | 0             |      |      |         |
|  | %MW111  |               | 670           |      |      |         |

Os valores escritos pelo TSX Micro estão alocados a partir da %MW100.