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Exemplo comunicação Modbus através da CFG Port
entre XBTOT e STB NIP 2212.

Schneider Electric

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- Arquitetura:

STB XCA 4002
Modbus (RS-232)

Connections

An STB XCA 4002 programming cable must be used to connect the computer running the Advantys configuration software or a Modbus-capable HMI panel to the NIM via the CFG port.

The following table describes the specifications for the programming cable:

Parameter	Description
model	STB XCA 4002
function	connection to device running Advantys configuration software
	connection to HMI panel
communications protocol	Modbus (either RTU or ASCII mode)
cable length	2 m (6.23 ft)
cable connectors	eight-receptacle HE-13 (female) nine-receptacle SUB-D (female)
cable type	multiconductor

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- STB NIP 2212:

Bus or network type		Industrial LAN
Structure	**Physical interface**	10 BASE-T
	Data rate	10 Mbps
Medium		Double shielded twisted pair via Ethernet ConneXium cabling system
Configuration	**Number of devices** *(1)*	256 max. per segment, unlimited with switches
	Maximum length	100 m according to 802.3 standard 1000 m with ConneXium cabling system > 3000 m with fibre optic connection
Features of NIM modules ***(Network Interface Modules)***	**Number of I/O modules per Advantys STB island** *(1)*	Standard NIM: 32 modules max. on 1 primary segment and 6 extension segments max.
	Supply voltage	24 V ⎓ not isolated (19.2…30 V)
	Logic power supply	Provides 5 V ⎓ logic power to all the I/O modules of an island (1200 mA)
	CANopen devices supported	12 devices max.
Services used		- Embedded Web (configuration, diagnostics and access to variables) - Modbus TCP/IP - SNMP agent - DHCP client service
Operating temperature		0…60°C

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- CFG Port:

The CFG Interface

Purpose

The CFG port is the connection point to the island bus for either a computer running the Advantys configuration software or an HMI panel.

Physical Description

The CFG interface is a front-accessible RS-232 interface located behind a hinged flap on the bottom front of the NIM:

The port uses a male eight-pin HE-13 connector.

Port Parameters

The CFG port supports the set of communication parameters listed in the following table. If you want to apply any settings other than the factory default values, you must use the Advantys configuration software:

Parameter	Valid Values	Factory Default Settings
bit rate (baud)	2400 / 4800 / 9600 / 19200 / 38400/ 57600	9600
data bits	7/8	8
stop bits	1/2	1
parity	none/odd/even	even
Modbus communications mode	RTU/ASCII	RTU

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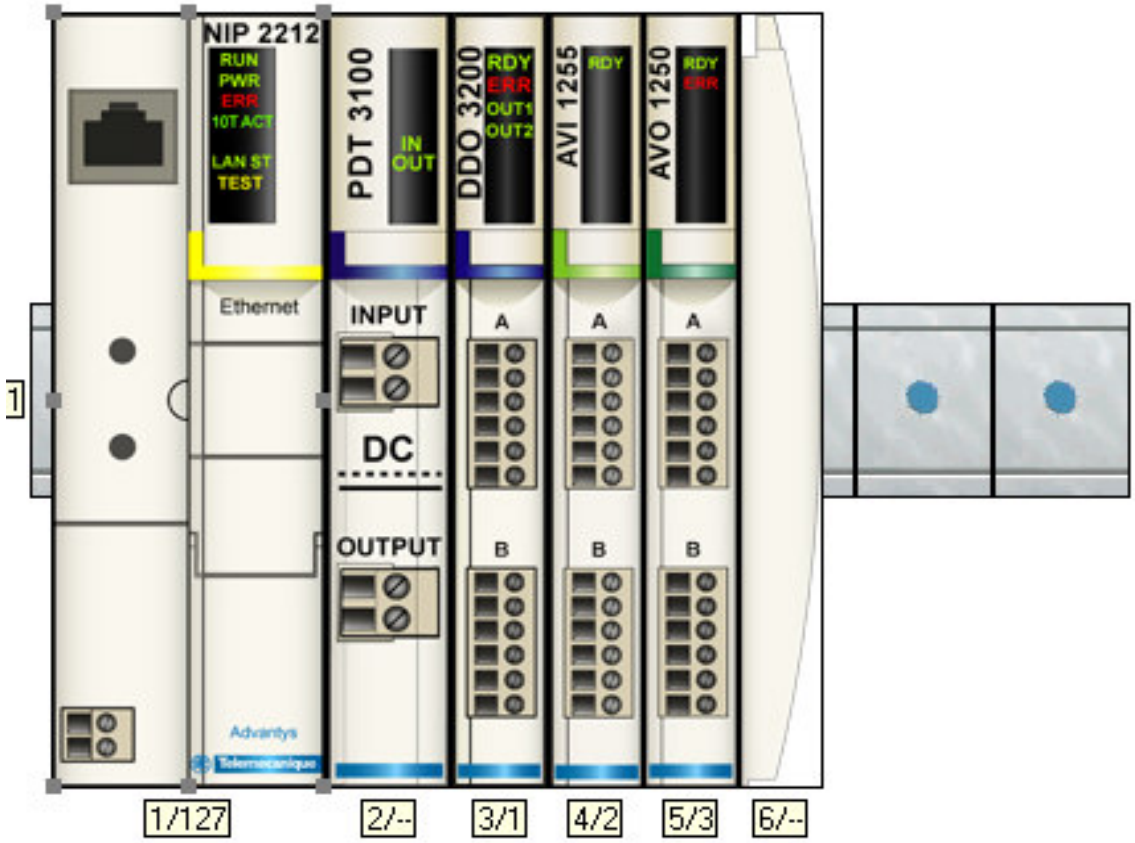
- Configuração da ilha:

A configuração da estação remota **Modbus TCP** é dada por:



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- STB AVO 1250: Módulo de Saída Analógica:

STB AVO 1250 Specifications

Table of Technical Specifications

description		two single-ended analog voltage output channels
analog voltage range	default	0 ... 10 V
	user-configurable setting**	-10 ... +10 V
resolution	@ 0 ... 10 V	12 bits
	@ -10 ... +10 V	11 bits + sign
returned data format		IEC
module width		13.9 mm (0.58 in)
I/O base		STB XBA 1000 (see *p. 391*)
operating voltage range		19.2 to 30 VDC
logic bus current consumption		45 mA
nominal actuator bus current consumption		260 mA, with no load
maximum output current		5 mA/channel
hot swapping supported*		NIM-dependent**
reflex actions supported		two maximum
output response time	nominal	3.0 ms plus settling time both channels
short-circuit protection on the outputs		yes
output fault detection		none
isolation	field-to-bus	1500 VDC for 1 min
	analog module-to-actuator bus	500 VAC rms (when actuator bus is not used for field power
integral linearity		+/- 0.1% of full scale typical
differential linearity		monotonic
absolute accuracy		+/- 0.5% of full scale @ 25°C
temperature drift		typically +/- 0.01% of full scale/ °C
operating temperature range***		0 to 60°C
storage temperature		-40 to 85°C
capacitive load		1 µF
fallback mode	default	predefined
	user-configurable settings[1]	hold last value
		predefined on one or both channels

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- STB AVI 1255: Módulo de Entrada Analógica:

STB AVI 1255 Specifications

Table of Technical Specifications

description		two single-ended analog voltage input channels
analog input voltage range		0 ... 10 V
resolution		10 bits
returned data format		IEC
module width		13.9 mm (0.58 in)
I/O base		STB XBA 1000 (see *p. 391*)
operating voltage range		19.2 to 30 VDC
logic bus current consumption		30 mA
nominal field power bus current consumption		225 mA, with no load
hot swapping supported*		NIM-dependent**
reflex actions supported		no
input response time	nominal	5.0 ms both channels
isolation	field-to-bus	1500 VDC for 1 min
	analog module-to-sensor bus	500 VAC rms (when sensor bus is not used for field power
input filter		single low-pass filter at a nominal 25 Hz
integral linearity		+/- 0.2% of full scale, typical
differential linearity		monotonic
absolute accuracy		+/- 0.75% of full scale @ 25°C
temperature drift		typically +/- 0.01% of full scale/ °C
operating temperature range		0 to 60°C
storage Temperature		--40 to 85°C
input impedance		400 kΩ @ DC
source impedance		1 kΩ max.
maximum input voltage		50 VDC without damage
addressing requirement		two words (one data word/channel)
sensor bus power for accessories		100 mA/module
over-current protection for accessory power		yes
field power requirements		from a 24 VDC PDM
power protection		time-lag fuse on the PDM
agency certifications		refer to *Advantys STB System Planning and Installation Guide, 890 USE 171*

*ATEX applications prohibit hot swapping-refer to *Advantys STB System Planning and Installation Guide, 890 USE 171*
**Basic NIMs do not allow you to hot swap I/O modules.

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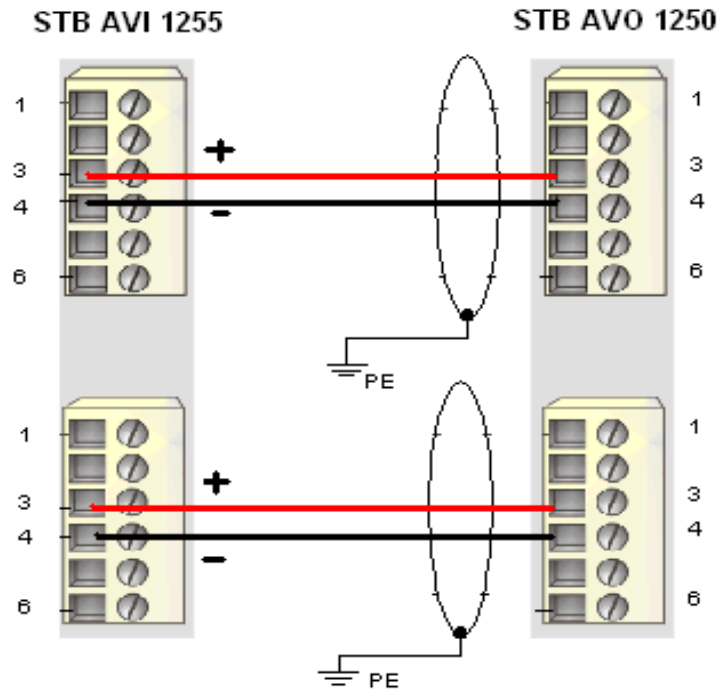
- Esquema de conexões:

Neste exemplo, gerar-se-á a referência de **0...10V** pela saída analógica do módulo **STB AVO 1250** e realizar a leitura através do módulo **STB AVI 1255**. O esquema de conexões é dado por:



Nota: Neste exemplo, utilizamos apenas o canal localizado nos blocos A e este esquema não requer a utilização de uma fonte 24Vcc para alimentação. Para outros esquemas com alimentação 24Vcc, **não** dispensa a consultar no manual de ligações dos módulos.

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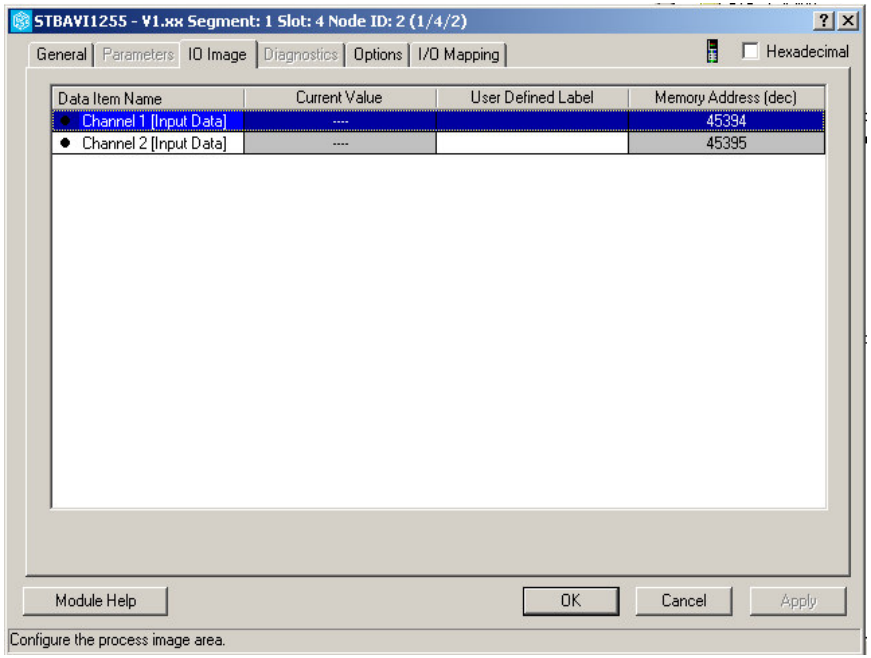
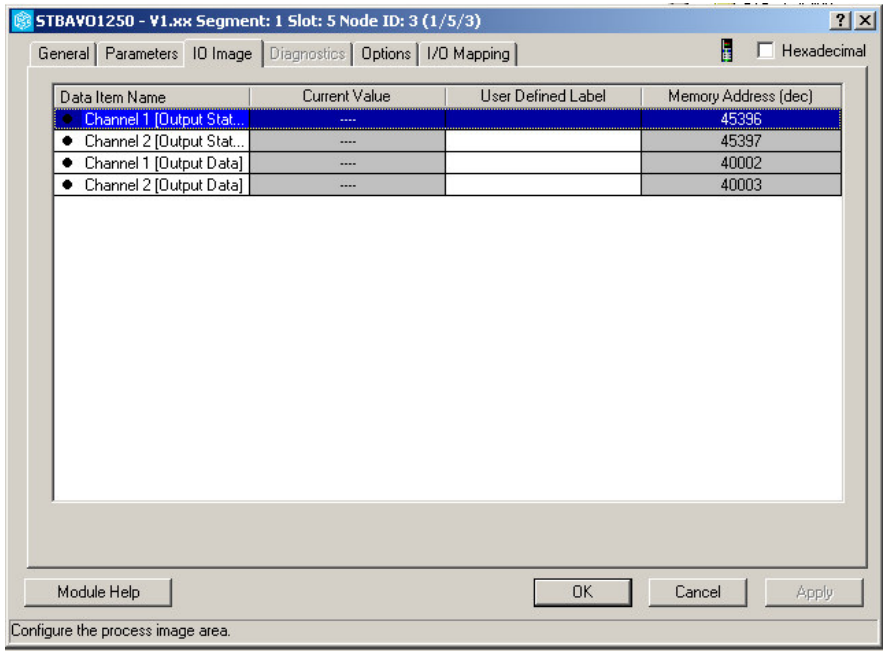
- Mapa de registros:



O registro **45394** (Input Data) permite a leitura do canal de entrada em função da referência 0...10V.

O registro de saída **40002** (Output Data) fornecerá a referência 0...10V.



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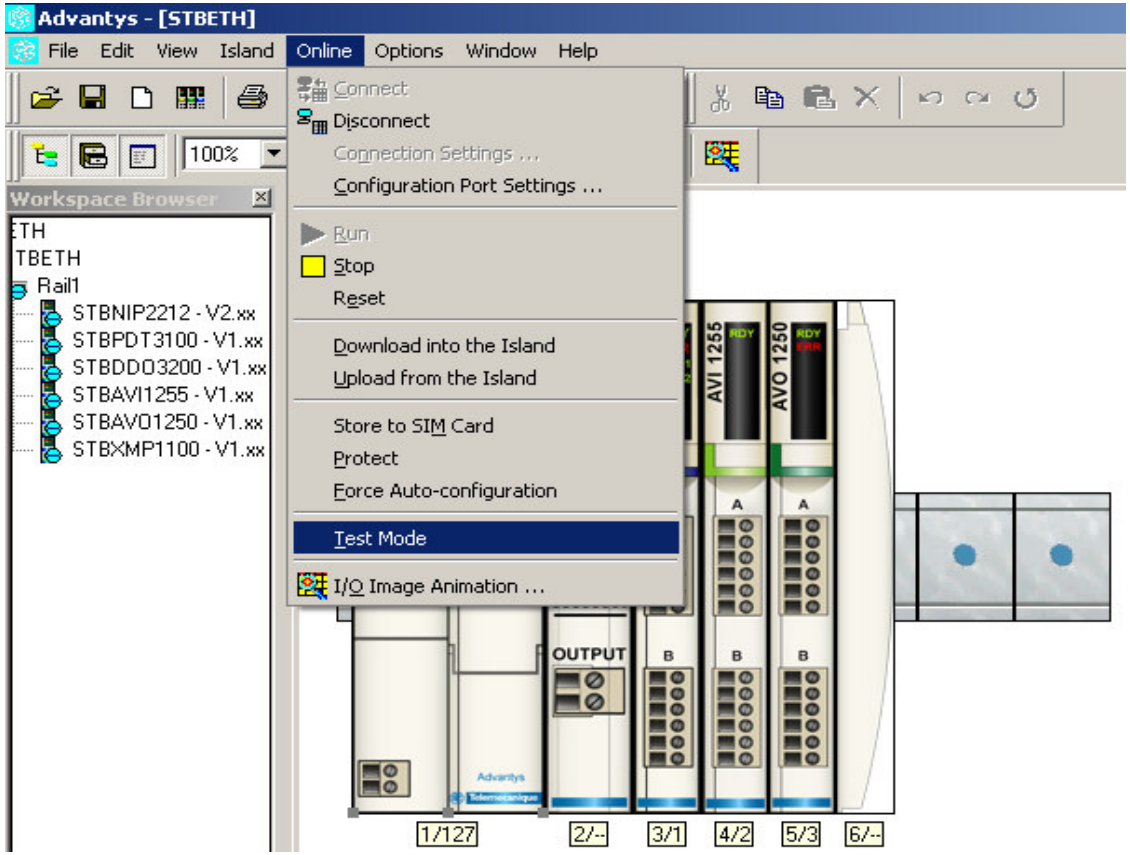
- Test Mode:

Para habilitar a escrita via Modbus, muda-se a configuração para **Test Mode**.



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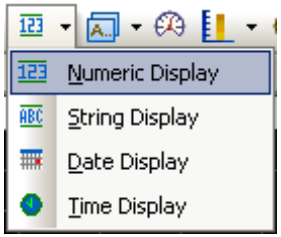
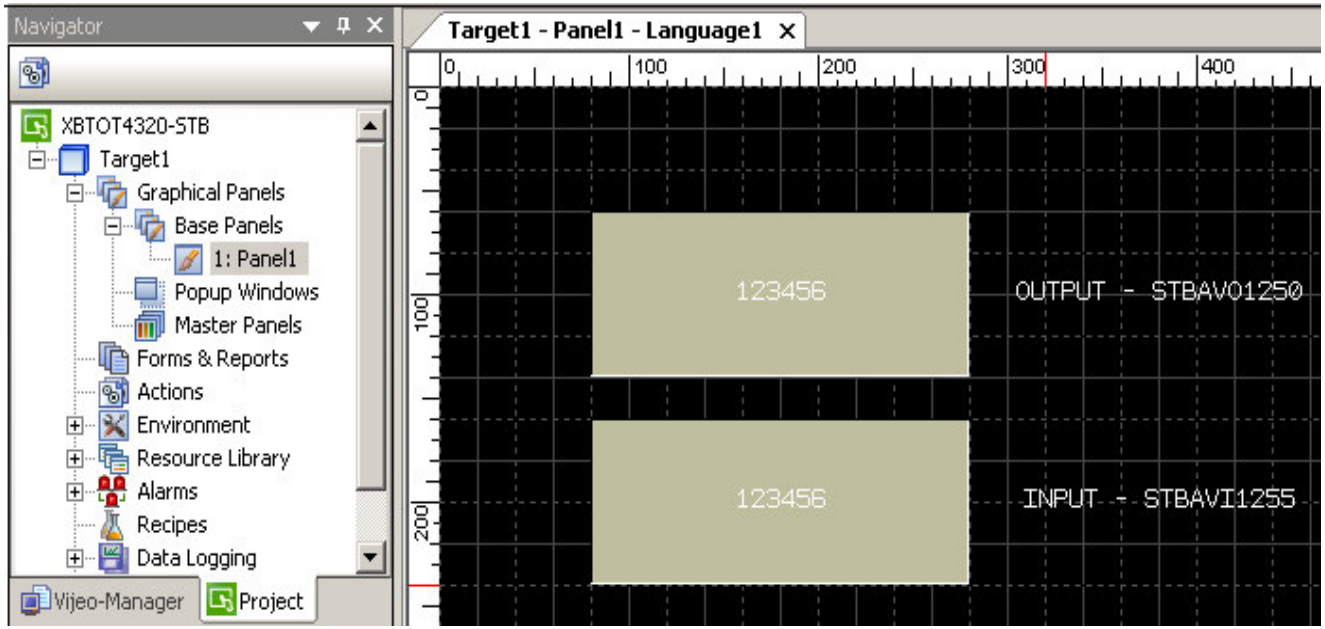
- Vijeo-Designer:



O recurso **Numeric display** permite a edição e a visualização dos valores da saída e entrada, respectivamente.

Identificamos no painel a ordem dos recursos pela saída e entrada:



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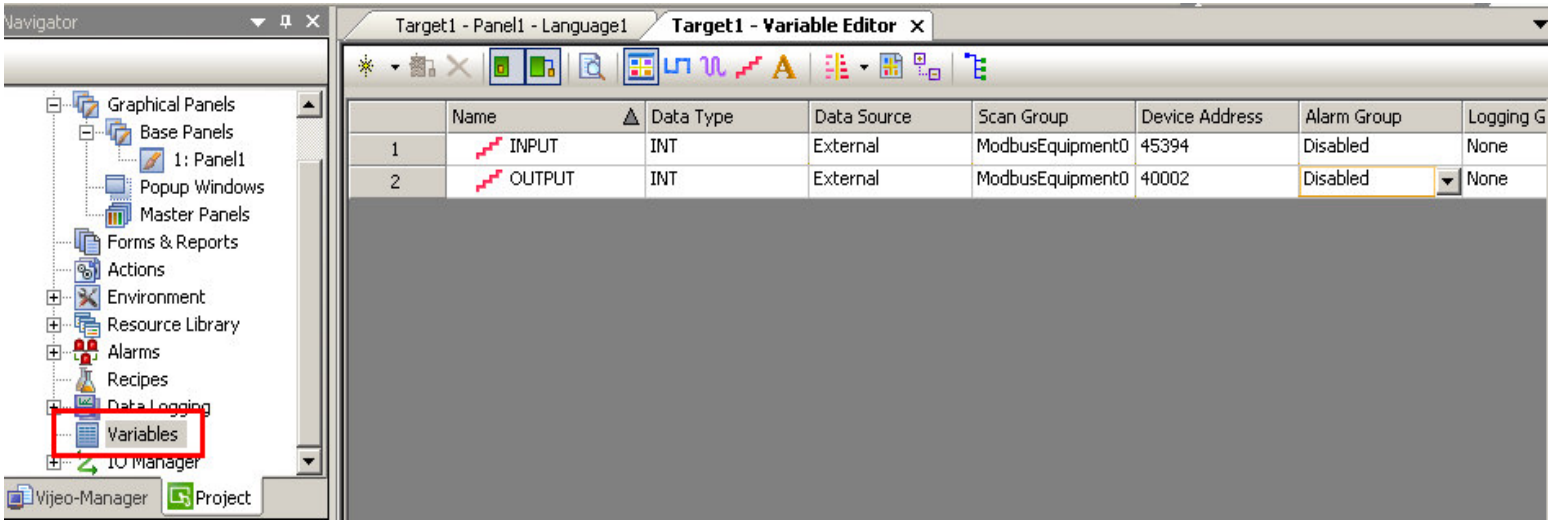
- Vijeo-Designer – Variables:

As variáveis declaradas são vinculadas à conexão **Modbus RTU** criada através do I/O Manager, representadas por: Data Source = External.



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- Vijeo-Designer – I/O Manager:

A configuração do canal de comunicação e do endereço de escravo são dados por: