

OPC-UA variables

Version 1.05

SIMATIC S7-1500 OPC-UA Server (opc.tcp)

Server

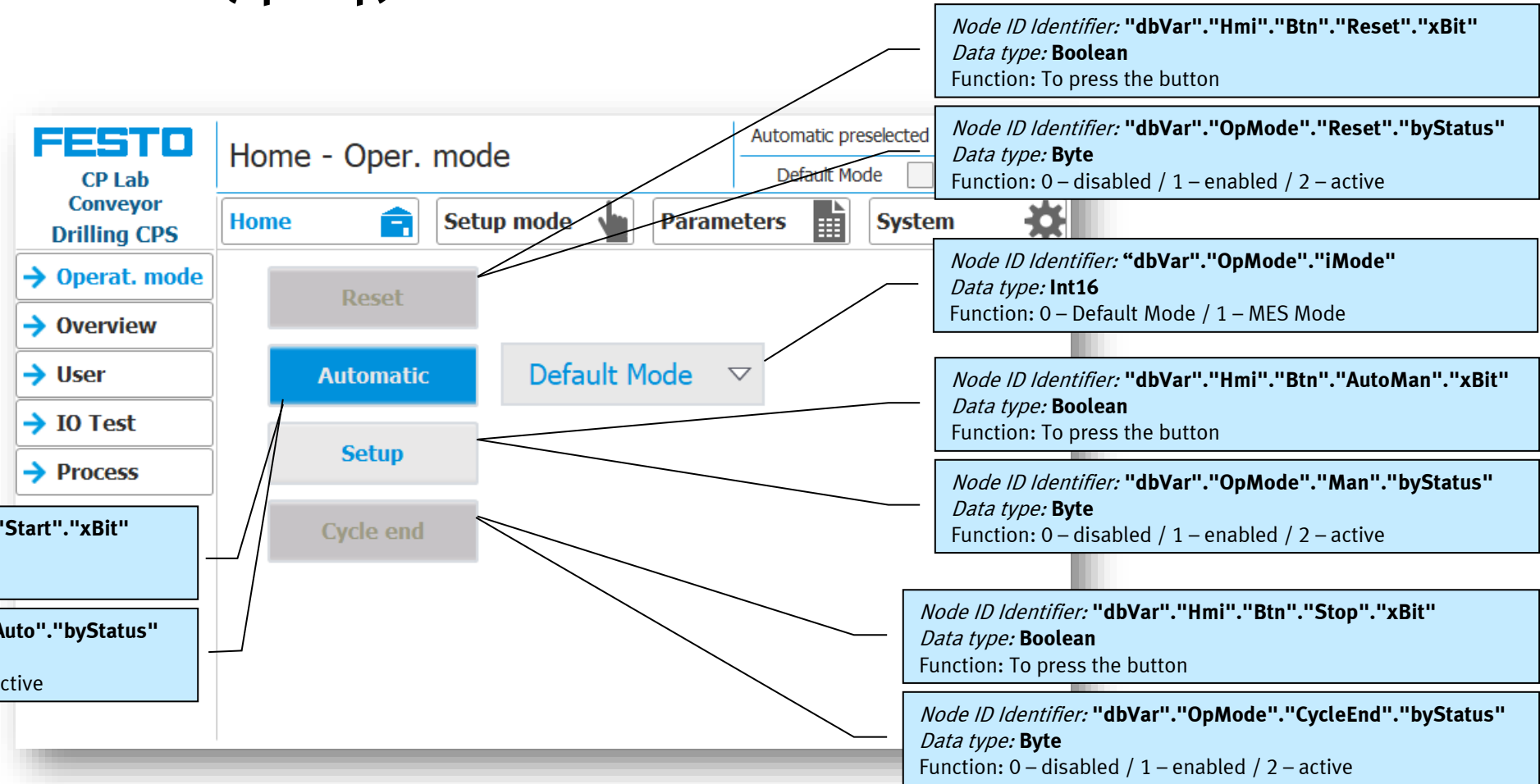
- Endpoint URL: **opc.tcp://<IP address>:4840**
- Security policy: **none / Basic256 / Basic256**
- Message security mode: **none / Sign / Sign & Encrypt**
- Authentication settings: **Anonymous**

Node ID

- Namespace Index **3**
- Identifier Type **String**

SIMATIC S7-1500 OPC-UA Server (opc.tcp)

Home / Operation mode



SIMATIC S7-1500 OPC-UA Server (opc.tcp)

Home / IO Test

Home - IO Test

Automatic preselected
Default Mode

Home Setup mode Parameters System

Inputs			Outputs		
Byte 0	Byte 1	IO-Link	Byte 0	Byte 1	IO-Link
0.0	SF1	BG1	0.0	PF1	PH2.0
0.1	SF2	BG2	0.1	PF4	PH2.1
0.2	SF3	BG3	0.2	PF2	PH2.2
0.3	SF4	BG4	0.3	PF3	PH2.3
0.4	BG1	BG7/KG1	0.4	QA1-A1	GF1
0.5	NA	BG8/KG2	0.5	QA1-A2	GF2
0.6	BG5	KF21_I6	0.6	QA1-A3	AGNDA
0.7	BG6	BG9	0.7	MB1	AGNDE
IW43	0	IB45	0		
IW46	0	IB48	0		

Node ID Identifiers:
 "xSF1"
 "xSF2"
 "xSF3"
 "xSF4"
 "xBG1"
 "xSF5"
 "xBG5"
 "xBG6"
Data type: Boolean
 Function: Basic module inputs

Node ID Identifiers:
 "xBG1_BCD0"
 "xBG2_BCD1"
 "xBG3_BCD2"
 "xBG4_BCD3"
 "xG1_BG7_KG1"
 "xG1_BG8_KG2"
 "xKF21_IN6"
 "xG1_BG9"
Data type: Boolean
 Function: Basic module inputs via IO-Link module

Node ID Identifier: "IB0"
Data type: Byte
 Function: Application module input byte

Outputs
CAUTION
 Program return of OB1
 No cyclic program call

SIMATIC S7-1500 OPC-UA Server (opc.tcp)

Home / IO Test

Inputs

Byte 0	Byte 1	IO-Link
0.0	SF1	BG1
0.1	SF2	BG2
0.2	SF3	BG3
0.3	SF4	BG4
0.4	BG1	BG7/KG1
0.5	NA	BG8/KG2
0.6	BG5	KF21_I6
0.7	BG6	BG9

Outputs

Byte 0	Byte 1	IO-Link
0.0	PF1	PH2.0
0.1	PF4	PH2.1
0.2	PF2	PH2.2
0.3	PF3	PH2.3
0.4	QA1-A1	GF1
0.5	QA1-A2	GF2
0.6	QA1-A3	AGNDA
0.7	MB1	AGNDE

IW43 0 IB45 0 QW43

IW46 0 IB48 0 QW45

Node ID Identifiers:
 "xPF1"
 "xPF2"
 "xPF3"
 "xPF4"
 "xQA1_A1"
 "xQA1_A2"
 "xQA1_A3"
 "xMB1"
Data type: Boolean
 Function: Basic module outputs

Node ID Identifiers:
 "xPH2_A"
 "xPH2_B"
 "xPH2_C"
 "xPH2_D"
 "xGF1"
 "xGF2"
 "xMB2"
 "xMB3"
Data type: Boolean
 Function: Basic module outputs via IO-Link module

Outputs
CAUTION
 Program return of OB1
 No cyclic program call

Node ID Identifier: "QB0"
Data type: Byte
 Function: Application module output byte

SIMATIC S7-1500 OPC-UA Server (opc.tcp)

Home / Overview

Node ID Identifier: "dbVar"."Hmi"."StateCode"."iIn"
 Data type: **Int16**
 Function: Status code in

Node ID Identifier: "dbVar"."Hmi"."StateCode"."iOut"
 Data type: **Int16**
 Function: Status code out

Node ID Identifier: "dbVar"."Options"."CarrierInit"."xEnCarrierInit"
 Data type: **Boolean**
 Function: Initialize Carrier in Default Mode

Node ID Identifier: "dbVar"."Options"."CarrierInit"."iCntSet"
 Data type: **Int16**
 Function: Setpoint of init counter

Node ID Identifier: "dbVar"."Options"."CarrierInit"."iCntAct"
 Data type: **Int16**
 Function: Actual counter of init

SIMATIC S7-1500 OPC-UA Server (opc.tcp)

Home / Overview

The screenshot displays the 'Home - Overview' page of the SIMATIC S7-1500 OPC-UA Server. It features a 3D model of a robot arm with components labeled G1-BG5, G1-JF1, G1-BG1, and G1-BG6. The interface includes a navigation bar with 'Home', 'Setup mode', 'Parameters', and 'System' buttons. A right-hand panel shows 'Order Carrier' and 'Application' status indicators. A 'Timeout' section at the bottom shows 'Max: 240.000' and 'Set: 0.000'. A 'Last application process' field shows '3.235'.

Callout boxes provide the following details for selected variables:

- Node ID Identifier:** "dbAppIF"."Out"."xReady"
Data type: Boolean
Function: Application module is ready
- Node ID Identifier:** "dbAppIF"."Out"."xBusy"
Data type: Boolean
Function: Application module is busy
- Node ID Identifier:** "dbAppIF"."In"."xStart"
Data type: Boolean
Function: Start application module in Automatic mode
- Node ID Identifier:** "dbAppIF"."In"."xReset"
Data type: Boolean
Function: Reset application module
- Node ID Identifier:** "dbAppPar"."xAppActivate"
Data type: Boolean
Function: Application module is active
- Node ID Identifier:** "dbRfidCtr"."ID1"."xBusy"
Data type: Boolean
Function: RFID is busy
- Node ID Identifier:** "dbAppIF"."Out"."xInitPos"
Data type: Boolean
Function: Application module is in initial position

SIMATIC S7-1500 OPC-UA Server (opc.tcp)

Parameter / Application

The screenshot shows the 'Parameters - Application' dialog box in SIMATIC Manager. The dialog has a title bar with 'Automatic preselected' and '21/07/2021 08:55:22'. Below the title bar are tabs for 'Home', 'Setup mode', 'Parameters', and 'System'. The main area contains several parameters with checkboxes and input fields. Callout boxes provide details for specific parameters:

- Node ID Identifier: "dbAppPar"."xAppActivate"**
Data type: **Boolean**
Function: Activate application module
- Node ID Identifier: "dbAppPar"."Sim"." xAppSim"**
Data type: **Boolean**
Function: Simulate application
- Node ID Identifier: "dbAppPar"."Sim"." iSimMode"**
Data type: **Int16**
Function: 0 – Simulation / 1 – Manual workplace
- Node ID Identifier: "dbAppPar"."Sim"." xSimOptAct"**
Data type: **Boolean**
Function: In the end of simulation acknowledge is required
- Node ID Identifier: "dbAppPar"."Sim"." iSimRetVal"**
Data type: **Int16**
Function: Set return value for simulation
- Node ID Identifier: "dbAppPar"."Sim"."tSimTimeNom"**
Data type: **Int32**
Function: Simulation time [ms]

SIMATIC S7-1500 OPC-UA Server (opc.tcp)

Parameter / Belt, Stopper

The screenshot shows the 'Parameters - Belt, Stopper' configuration window. It features a top navigation bar with 'Automatic preselected', 'Default Mode', and a date/time display. Below the navigation are icons for 'Home', 'Setup mode', 'Parameters', and 'System'. The main area is divided into sections: 'Drilling CPS' (with sub-sections 'Transport, Energy' and 'Stopper'), and 'Stopper'. Each parameter is represented by a text label and a checkbox. Callout boxes provide detailed information for several parameters:

- Node ID Identifier: "dbVar"."Options"."xEnConvStop"**
Data type: **Boolean**
Function: Stop belt while application module is busy
- Node ID Identifier: "dbVar"."Options"."xEnStopBySens"**
Data type: **Boolean**
Function: Start and stop belt by the end sensors
- Node ID Identifier: "dbVar"."Options"."xEnEnergySave"**
Data type: **Boolean**
Function: Stop belt if no traffic
- Node ID Identifier: "dbVar"."Options"."xMoveSlow"**
Data type: **Boolean**
Function: Reduce the speed of the belt
- Node ID Identifier: "dbVar"."Options"."xSwitchStopperWithoutMes"**
Data type: **Boolean**
Function: Stopper is not waiting for MES connection
- Node ID Identifier: "dbVar"."Options"."xEnSubSec"**
Data type: **Boolean**
Function: Avoid traffic jam after the stopper

SIMATIC S7-1500 OPC-UA Server (opc.tcp)

Parameter / Transitions

Node ID Identifiers:
 "dbAppPar"."Conditions"[0]."adiPar"[1]
 "dbAppPar"."Conditions"[1]."adiPar"[1]
 ...
 "dbAppPar"."Conditions"[10]."adiPar"[1]
 Data type: **Int32**
 Function: First parameter

Node ID Identifiers:
 "dbAppPar"."Conditions"[0]."adiPar"[2]
 "dbAppPar"."Conditions"[1]."adiPar"[2]
 ...
 "dbAppPar"."Conditions"[10]."adiPar"[2]
 Data type: **Int32**
 Function: Second parameter

Node ID Identifiers:
 "dbAppPar"."Conditions"[1]."iCondIn"
 "dbAppPar"."Conditions"[2]."iCondIn"
 ...
 "dbAppPar"."Conditions"[10]."iCondIn"
 Data type: **Int16**
 Function: Start state condition

Node ID Identifiers:
 "dbAppPar"."Conditions"[0]."xAppEn"
 "dbAppPar"."Conditions"[1]."xAppEn"
 ...
 "dbAppPar"."Conditions"[10]."xAppEn"
 Data type: **Boolean**
 Function: Enable row to execute

Node ID Identifiers:
 "dbAppPar"."Conditions"[0]."iCondAbort"
 "dbAppPar"."Conditions"[1]."iCondAbort"
 ...
 "dbAppPar"."Conditions"[10]."iCondAbort"
 Data type: **Int16**
 Function: State condition after unsuccessful operation

Node ID Identifiers:
 "dbAppPar"."Conditions"[0]."iCondOut"
 "dbAppPar"."Conditions"[1]."iCondOut"
 ...
 "dbAppPar"."Conditions"[10]."iCondOut"
 Data type: **Int16**
 Function: State condition after successful operation

Application		No.	Start condition	Application execute	Prog. no.	Parameter			End condition	
									OK	NOK
	Init		none	✓	0	0	0	0	0	0
	1	0		✓	0	0	0	0	0	0
	2	0		✓	0	0	0	0	0	0
	3	0		✓	0	0	0	0	0	0
	4	0		✓	0	0	0	0	0	0
	5	0		✓	0	0	0	0	0	0
	6	0		✓	0	0	0	0	0	0
	7	0		✓						
	8	0		✓						
	9	0		✓						
	10	0		✓						

SIMATIC S7-1500 OPC-UA Server (opc.tcp)

Setup mode / Belt

- Node ID Identifier:* "dbActuators"."G1"."QA1"."Ctrl"."xManQ1"
Data type: Boolean
 Function: Move belt forward in Manual mode
- Node ID Identifier:* "dbActuators"."G1"."QA1"."Ctrl"."xManQ2"
Data type: Boolean
 Function: Move belt backward in Manual mode
- Node ID Identifier:* "dbActuators"."G1"."QA1"."Ctrl"."xManQ3"
Data type: Boolean
 Function: Move belt slow in Manual mode

- Node ID Identifier:* "dbActuators"."G1"."QA1"."Hmi"."xQA1_A1"
Data type: Boolean
 Function: Belt is moving forward
- Node ID Identifier:* "dbActuators"."G1"."QA1"."Hmi"."xQA1_A3"
Data type: Boolean
 Function: Belt is moving slow
- Node ID Identifier:* "dbActuators"."G1"."QA1"."Hmi"."xQA1_A2"
Data type: Boolean
 Function: Belt is moving backward

SIMATIC S7-1500 OPC-UA Server (opc.tcp)

Setup mode / Stopper

The screenshot displays the 'Setup - Stopper' configuration page in SIMATIC Manager. The interface includes a navigation bar with 'Home', 'Setup mode', 'Parameters', and 'System' tabs. The main area shows a configuration table with columns for 'lower (MB1)', 'G1_BG9', and 'Stopper'. Below the table are buttons for 'init', 'read', 'write', and 'Delete data'. On the right, there is a status panel with buttons for 'Tag present', 'Ready', 'Busy', 'Error', and 'Timeout'. Several callout boxes provide details for specific OPC-UA variables.

Variable Name	Data Type	Function
"dbActuators"."G1"."MB1"."Ctrl"."xManQ1"	Boolean	Move stopper down in Manual mode
"dbActuators"."G1"."MB1"."Hmi"."xSens1"	Boolean	Stopper is down
"dbRfidCtrn"."ID1"."xInit"	Boolean	Initialize RFID head
"dbRfidCtrn"."ID1"."xRead"	Boolean	Read data from RFID
"dbRfidCtrn"."ID1"."xWrite"	Boolean	Write data to RFID
"dbRfidCtrn"."ID1"."xClearData"	Boolean	Delete RFID data on the HMI
"dbRfidCtrn"."ID1"."xDone"	Boolean	RFID module is idle
"dbRfidCtrn"."ID1"."xBusy"	Boolean	RFID module is busy
"dbRfidCtrn"."ID1"."xError"	Boolean	RFID module is in error
"dbRfidCtrn"."ID1"."xTout"	Boolean	Read/Write timeout
"dbRfidCtrn"."ID1"."xTP"	Boolean	RFID chip is available above the head

SIMATIC S7-1500 OPC-UA Server (opc.tcp)

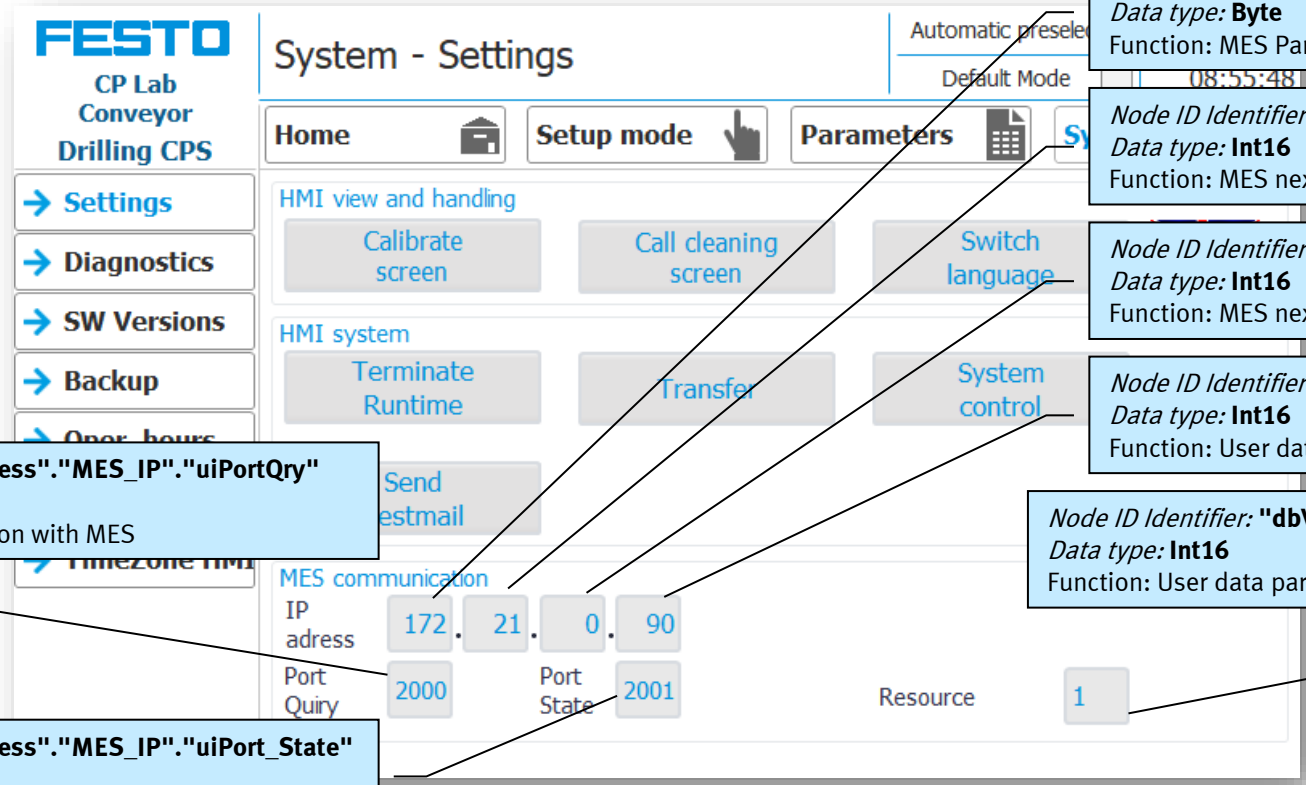
Setup mode / Stopper

The screenshot shows the 'Setup - Stopper' configuration window in SIMATIC Manager. The interface includes a top navigation bar with 'Home', 'Setup mode', 'Parameters', and 'System' buttons. Below this, there are tabs for 'lower (MB1)', 'G1_BG9', and 'Stopper'. The main area is divided into 'RFID Data' and 'Default Mode' sections, each with input fields for various parameters. Callout boxes on the left and right provide detailed information for several of these parameters.

Variable Name	Data Type	Function
Node ID Identifier: "dbRfidData"."ID1"."iCarrierID"	Int16	Function: Unique identification number of the Carrier
Node ID Identifier: "dbRfidData"."ID1"."Mes"."diONo"	Int32	Function: MES Order number
Node ID Identifier: "dbRfidData"."ID1"."Mes"."iOPos"	Int16	Function: MES Order position
Node ID Identifier: "dbRfidData"."ID1"."iCode"	Int16	Function: Default mode state code
Node ID Identifier: "dbRfidData"."ID1"."iPar1"	Int16	Function: User data parameter 1
Node ID Identifier: "dbRfidData"."ID1"."iPar3"	Int16	Function: User data parameter 3
Node ID Identifier: "dbRfidData"."ID1"."Mes"."diPNo"	Int32	Function: MES Part number
Node ID Identifier: "dbRfidData"."ID1"."Mes"."iResourceID"	Int16	Function: MES next Resource ID number
Node ID Identifier: "dbRfidData"."ID1"."Mes"."iOpNo"	Int16	Function: MES next Operation number
Node ID Identifier: "dbRfidData"."ID1"."iPar2"	Int16	Function: User data parameter 2
Node ID Identifier: "dbRfidData"."ID1"."iPar4"	Int16	Function: User data parameter 4

SIMATIC S7-1500 OPC-UA Server (opc.tcp)

System/ Settings



Node ID Identifier: "dbVar"."Hmi"."Address"."MES_IP"."uiPortQry"
Data type: **UInt16**
Function: TCP/IP port of query commination with MES

Node ID Identifier: "dbVar"."Hmi"."Address"."MES_IP"."uiPort_State"
Data type: **UInt16**
Function: TCP/IP port of cyclic state commination with MES

Node ID Identifier: "dbVar"."Hmi"."Address"."MES_IP"."bIP1"
Data type: **Byte**
Function: MES Part number

Node ID Identifier: "dbRfidData"."ID1"."Mes"."iResourceId"
Data type: **Int16**
Function: MES next Resource ID number

Node ID Identifier: "dbRfidData"."ID1"."Mes"."iOpNo"
Data type: **Int16**
Function: MES next Operation number

Node ID Identifier: "dbRfidData"."ID1"."iPar2"
Data type: **Int16**
Function: User data parameter 2

Node ID Identifier: "dbVar"."Hmi"."Address"."MES_IP"."iResource"
Data type: **Int16**
Function: User data parameter 4

iDrill - CODESYS OPC UA Server (opc.tcp)

Server

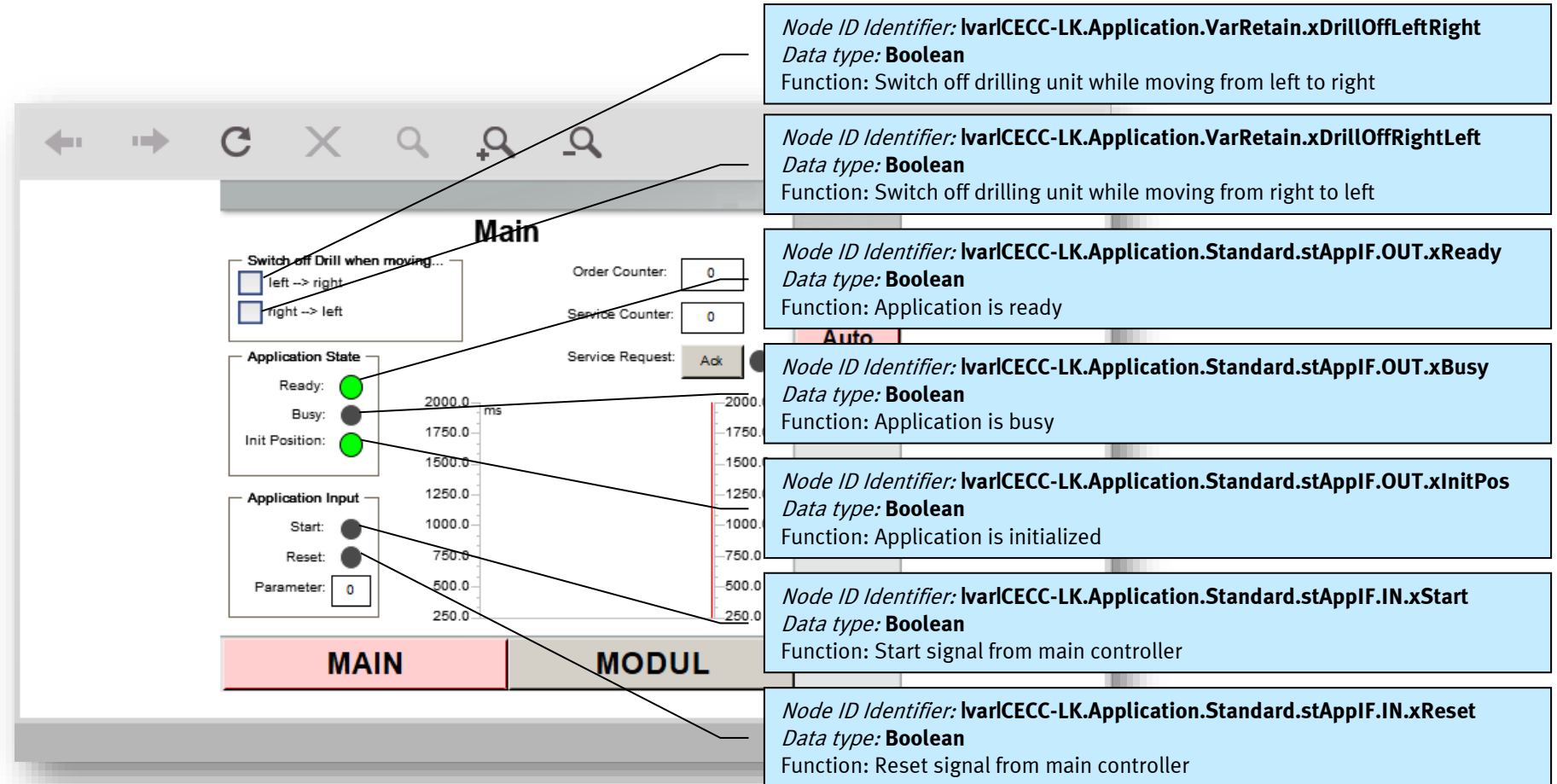
- Endpoint URL: **opc.tcp://<IP address>:4840**
- Security policy: **none**
- Message security mode: **none**
- Authentication settings: **Anonymous**

Node ID

- Namespace Index **4**
- Identifier Type **String**

iDrill - CODESYS OPC UA Server (opc.tcp)

Main



iDrill - CODESYS OPC UA Server (opc.tcp)

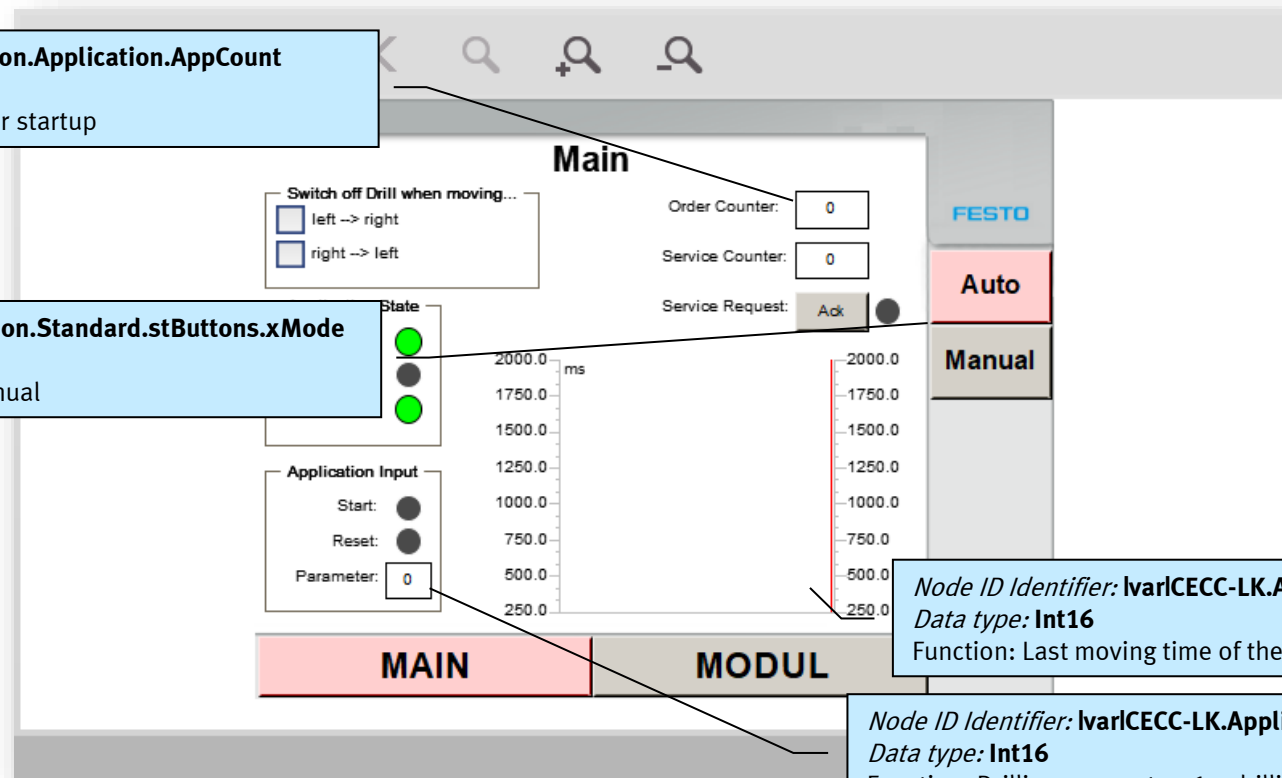
Main

Node ID Identifier: **lvarlCECC-LK.Application.Application.AppCount**
 Data type: **UInt16**
 Function: Number of executed orders after startup

Node ID Identifier: **lvarlCECC-LK.Application.Standard.stButtons.xMode**
 Data type: **Boolean**
 Function: TRUE – automatic / FALSE - manual

Node ID Identifier: **lvarlCECC-LK.Application.TimeForAxis.i**
 Data type: **Int16**
 Function: Last moving time of the horizontal axis

Node ID Identifier: **lvarlCECC-LK.Application.Standard.stAppIF.IN.iPar1**
 Data type: **Int16**
 Function: Drilling parameter, 1 – drilling left / 2 – drilling right / 3 – drilling both



iDrill - CODESYS OPC UA Server (opc.tcp)

Modul

Node ID Identifier: lvarlCECC-LK.Application.Standard.stManual.xMB1
Data type: Boolean
 Function: Horizontal axis control in manual mode, TRUE – left / FALSE – off

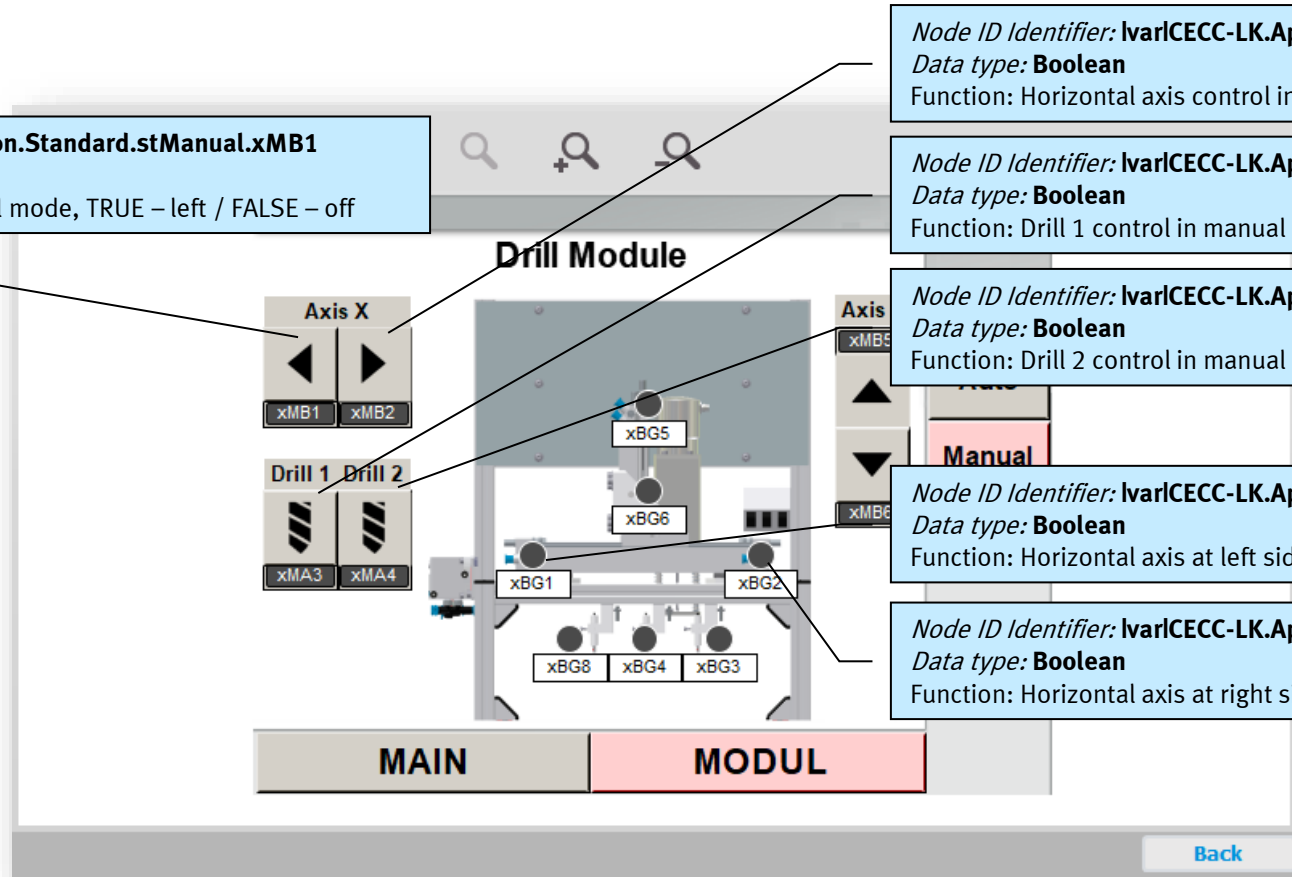
Node ID Identifier: lvarlCECC-LK.Application.Standard.stManual.xMB2
Data type: Boolean
 Function: Horizontal axis control in manual mode, TRUE – right / FALSE – off

Node ID Identifier: lvarlCECC-LK.Application.Standard.stManual.xMA3
Data type: Boolean
 Function: Drill 1 control in manual mode

Node ID Identifier: lvarlCECC-LK.Application.Standard.stManual.xMA4
Data type: Boolean
 Function: Drill 2 control in manual mode

Node ID Identifier: lvarlCECC-LK.Application.Station_IO.xBG1
Data type: Boolean
 Function: Horizontal axis at left side

Node ID Identifier: lvarlCECC-LK.Application.Station_IO.xBG2
Data type: Boolean
 Function: Horizontal axis at right side



iDrill - CODESYS OPC UA Server (opc.tcp)

Modul

The screenshot displays the control interface for the iDrill machine. It features a central 3D model of the drill module with several callout boxes pointing to specific components. The interface includes control panels for Axis X and Axis Z, a mode selector (Auto/Manual), and a status bar at the bottom with 'MAIN' and 'MODUL' indicators. A 'Back' button is located at the bottom right.

Node ID Identifier: lvarICECC-LK.Application.Standard.stManual.xMB6
Data type: Boolean
 Function: Vertical axis control in manual mode, TRUE – down / FALSE – off

Node ID Identifier: lvarICECC-LK.Application.Standard.stManual.xMB5
Data type: Boolean
 Function: Vertical axis control in manual mode, TRUE – up / FALSE – off

Node ID Identifier: lvarICECC-LK.Application.Station_IO.xBG8
Data type: Boolean
 Function: Workpiece check, TRUE – Upper part available

Node ID Identifier: lvarICECC-LK.Application.Station_IO.xBG4
Data type: Boolean
 Function: Workpiece check, TRUE – Bottom part available

Node ID Identifier: lvarICECC-LK.Application.Station_IO.xBG3
Data type: Boolean
 Function: Workpiece check, TRUE – Bottom part right oriented

Node ID Identifier: lvarICECC-LK.Application.Station_IO.xBG5
Data type: Boolean
 Function: Vertical axis at upper position

Node ID Identifier: lvarICECC-LK.Application.Station_IO.xBG6
Data type: Boolean
 Function: Vertical axis at lower position

iDrill - CODESYS OPC UA Server (opc.tcp)

Inputs

<p><i>Node ID Identifier:</i> lvarlCECC-LK.Application.Station_IO.xBG1 <i>Data type:</i> Boolean Function: Horizontal axis at left side</p>
<p><i>Node ID Identifier:</i> lvarlCECC-LK.Application.Station_IO.xBG2 <i>Data type:</i> Boolean Function: Horizontal axis at right side</p>
<p><i>Node ID Identifier:</i> lvarlCECC-LK.Application.Station_IO.xBG3 <i>Data type:</i> Boolean Function: Workpiece check, TRUE – Bottom part right oriented</p>
<p><i>Node ID Identifier:</i> lvarlCECC-LK.Application.Station_IO.xBG4 <i>Data type:</i> Boolean Function: Workpiece check, TRUE – Bottom part available</p>
<p><i>Node ID Identifier:</i> lvarlCECC-LK.Application.Station_IO.xBG5 <i>Data type:</i> Boolean Function: Vertical axis at upper position</p>
<p><i>Node ID Identifier:</i> lvarlCECC-LK.Application.Station_IO.xBG6 <i>Data type:</i> Boolean Function: Vertical axis at lower position</p>
<p><i>Node ID Identifier:</i> lvarlCECC-LK.Application.Station_IO.xBG8 <i>Data type:</i> Boolean Function: Workpiece check, TRUE – Upper part available</p>

Outputs

<p><i>Node ID Identifier:</i> lvarlCECC-LK.Application.Station_IO.xMB1 <i>Data type:</i> Boolean Function: Horizontal axis left, TRUE – left / FALSE – off</p>
<p><i>Node ID Identifier:</i> lvarlCECC-LK.Application.Station_IO.xMB2 <i>Data type:</i> Boolean Function: Horizontal axis right, TRUE – right / FALSE – off</p>
<p><i>Node ID Identifier:</i> lvarlCECC-LK.Application.Station_IO.xMA3 <i>Data type:</i> Boolean Function: Drill 1 on</p>
<p><i>Node ID Identifier:</i> lvarlCECC-LK.Application.Station_IO.xMA4 <i>Data type:</i> Boolean Function: Drill 2 on</p>
<p><i>Node ID Identifier:</i> lvarlCECC-LK.Application.Station_IO.xMB5 <i>Data type:</i> Boolean Function: Vertical axis control in manual mode, TRUE – up / FALSE – down</p>
<p><i>Node ID Identifier:</i> lvarlCECC-LK.Application.Standard.stManual.xMB6 <i>Data type:</i> Boolean Function: Vertical axis control in manual mode, TRUE – down / FALSE – off</p>
<p><i>Node ID Identifier:</i> lvarlCECC-LK.Application.Standard.stManual.xMB7 <i>Data type:</i> Boolean Function: Brakes for vertical axis, TRUE – open / FALSE – close</p>