TAG LIST GENERATOR



FIRST IN FIELDBUS

MAY / 05 TAG LIST GENERATOR Version 8





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TAG LIST GENERATOR

TAG LIST GENERATOR and LC700 OPC Server Installation

Required System

- Operating System → Windows NT 4.0 – Service Pack 6, Windows 2000 (Service Pack 2), or Windows XP.

- Computer → PC –Pentium Processor 400 MHz or higher.

- RAM → 64 Mbytes (128Mbytes for Windows XP)

- Disk Space → 10 Mbytes

Preparing the Installation

Using the Smar installation CD "LC700 Software Tools", click on the OPC Server V8 and Tag List Generator V8 to install the LC700 OPC Server and Tag List generator respectively.

Introduction

The software Tag List Generator for the LC700 OPC Server is developed to generate an information Table to the LC700 OPC Server telling which are the Tags for each Modbus Address.

In the HMI side, just configure using links to Tags, in this way, if the user changes the LC700 configuration (the Modbus address will change), but the Tags will not. The OPC Server will be able to read the new Tag List generated after the changes made with the CONF700.

Tag List enables the USER to enter scaled values for Tag values in engineering units. The Tag Scaling allows the user to convert a raw value (unscaled value from the Device) to a given numeric range (in engineering units).

Using the TreeView the USER can select, add, create, delete, and edit the List of Communications Connections (Ports), List of Devices, Types of Conversions.

Under the Controller (Device) Level, a list of Tags will be shown, and the Properties for this Tag will be visualized on the right Frame of the Main Application Frame.

For each Tag, the user can select if this Tag Value will have Conversion or Not and the Type of Conversion that will apply for this Tag Value.

The versions 8.54 and later of the Tag List support the configuration of the MCT for the LC700. MODBUS Cross Table (MCT) is a technique to optimize variable MODBUS addresses that can significantly increase the speed of MODBUS drivers when accessing variables in a Smar LC700 or DF65 system.

Note: This function is only available for systems with CPU-700-E3 or CPU-700-E3R.

Using the Tag List Generator

Creating a New Project

To create a New Project, click on the File menu, then click New, or click on New button, on the toolbar.'

🖁 TagList v8 for the LC700 OPC	2.0 Server v8.54
File Edit OPC Help	
New	
Open	
Save	
Save As	
Export TagList	
Close	
Exit	
C:\Program Files\Smar\TagList an	d LC700 OPC Server v8.54\Working\Led08_v8.TAG

Figure 1- Creating a new project

To open an existing project, to save a project or to close the current project just click on the *File* menu then click on *Open*, *Save* or *Close* respectively, or click on the icons Open, Save or Close (Windows standard) on the toolbar.

Adding and Removing ports

The LC700 OPC Server supports all types of port combinations (COM1,COM2, Ethernet) having serial and Ethernet communication on the same configuration.

Once the user starts a new project, the TagList will open a window similar to Figure 2. Next, by right clicking the Communication item, Tag List will display a window where the user can configure the parameters described below.



Figure 2- Adding a new port

Note The user must certify that the chosen configuration option (Baud Rate, or IP address) is the same as the LC700 configuration, which will be monitored.

Connection	Settings				×
Connection					
Enet					
Settings					
Scan Period	1.00 se	c	Retry Period	1.00	sec
Timeout	500 ms	sec	Retries	2 🔻	i
-Interface					
O Serial					
СОМ	1 💌		Baud Rate	9600	~
			RTS Control	Disable	-
	🗖 CTS Out	tput Co	ntrol		
• TCP/IP					
IP Address	192 168	168			
			OK		Cancel

Fig 3- Communication Parameters

Port Settings

Port Name (Connection)

The user must create a Tag for the port to be configured on the TagList. This tag will be used to define the first Browser level on the TagList OPC Server.

Scan Period

It is the time it takes for the LC700 OPC Server to read the Tags (OPC Points) from all slave devices, that is, the time between cyclic questions.

Retry Period

When the OPC Server Client runs out of configured tries in Retries, it verifies each time interval established by Retry Period whether or not the connection is active.

Timeout

Waiting time for a response after a message from the LC700 Server is being sent to the slave. After this period of time, the LC700 OPC Server retries to establish communication, based on the number configured on Retries.

Retries

Number of times the LC700 OPC Server software will try a new communication after waiting for the specified value on the Timeout parameter.

Specific Configuration for the serial physical mean

If the user chooses to use serial communication, it can be through EIA-232 or EIA-485. The connection and cable specification are the same used in the communication between the LC700 e o CONF700 and are described in the "LC700 Manual".

Com

Allows the user to choose which serial port will be used for communication.

CTS Output Control

When this parameter is enabled, the OPC Server will transmit only when the CTS is active.

RTS Control

The options of this parameter are: **Disable**: RTS inactive (off) **Enable**: RTS active (on)

Handshake: Activates the RTS, if the receiver buffer is ³/₄ occupied and disables when the receiver buffer is less than half occupied.

Toggle: RTS will be activated if there are bytes to be transmitted, and RTS will be disables after every byte is transmitted.

Specific configurations for communication via Ethernet

IP Address

In case of Ethernet TCP/IP communication, the user should set the logic controller Ethernet card's IP address (MB700 or ENET700) which should be communicated.

💐 Connection	Settings		×
Connection			
Enet			
Settings			
Scan Period	1.00 sec	Retry Period	1.00 sec
Timeout	500 msec	Retries	2 💌
Interface			
C Serial			
СОМ	1 💌	Baud Rate	9600 🔽
		RTS Control	Disable 🔽
	🗖 CTS Output	Control	
TCP/IP			
IP Address	192 168 1	68 72	
		OK	Cancel

Figure 4- Adding an Ethernet Port

Adding a New Port

The user can add more serial ports or Ethernet if required. To add a new port, right-click at Communication Connections and select Add.



Figure 5- Adding a New Port

Editing/ Removing Ports

The user can edit or remove a communication Port, for that, just right click on the added port. So, it is possible to change its current settings, or remove the desired port, clicking on *Remove* button.

Redundancy

The LC700 OPC Server supports system redundancy. The OPC redundancy follows a main path philosophy and a redundant path (backup). When the system detects the main path is not communicating, the redundant path takes over communication. When communication on the main path returns, again, it becomes the active path and the redundant gets back to being the backup. The redundant path, even in a state of backup, it tests itself if everything is OK. Each port (main or backup) notifies its current status through Status.

Redundancy could take place even in different physical means/data link layer: MODBUS TCP and MODBUS RTU. For example, two Ethernet networks or even one Ethernet network and one EIA 485 network. The user can configure an existing redundant network on the system.

Application Example

Consider an application example shown in Figure A where the LC700 OPC Server monitors points from 3 LC700 in an Ethernet network. In this case it is used path redundancy for the LC700's, which in case of main path fails, the LC700 OPC Server uses an alternative path for supervision.



Figure 6- An application involving an LC700 OPC Server, LC700 and MB700.

The main path

Right after a new project is created, the Tag List Generator will ask how the LC700 OPC Server and the LC700 will communicate. The LC700 supports the communication via serial port (232 or 485) or via Ethernet (TCP/IP). In the case of the next figure, the main path is through the Ethernet port ("Main_Port")

Sconnection Settings	×
Connection	
Main_port	
_ Settings	
Scan Period 1.00 sec	Retry Period 1.00 sec
Timeout 500 msec	Retries 2 💌
Interface	
C Serial	
COM 1	Baud Rate 9600 💌
	RTS Control Disable
CTS Output	Control
TCP/IP	
IP Address 192 168	168 65
	OK Cancel

Figure 7- Choosing a communication channel

The redundant path

After configuring the main path, the user should add a new port (channel) which will be the redundant (backup).

🖼 Add Connection	×
Connection	
Redundant_port	
Settings	
Scan Period 1.00 sec Retry Period 1.00	sec
Timeout 500 msec Retries 2	I
Interface	
C Serial	
COM 1 Baud Rate 960	
RTS Control Disable	
CTS Output Control	
IP Address 192 168 168 21	
OK	Cancel

Figure 8- Adding a redundant port

Adding or Removing a Configuration

Before adding a new configuration, the user is supposed to create a configuration in the CONF700 *software*.



Adding a Configuration



The configuration must be a valid configuration generated by CONF700 from Smar.

To add a new configuration the user should open the menu $Edit \rightarrow Add$ or in the left pane of the Tag List Application.



Figure 9- Adding a new configuration

After the user adds a configuration, the TagList will open a window (Figure 10) where the user should choose the file which contains the desired configuration.

Choose Configura	ation				? ×
Look jn:	🔁 Working		•	🗢 🗈 💣 🎟 •	
History Desktop My Documents	LED08_v8 LED08_v8x teste				
My Computer	, File <u>n</u> ame: Files of <u>t</u> ype:	LED08_v8 Configuration (*.PL7; *.PL8)		•	<u>O</u> pen Cancel
					//

Figure 10- Locating the configuration to be added

Note The user will not be able to include duplicate configuration names, even if in different subdirectories.

Next the TagList will open a window for the user to configure a few parameters regarding the chosen configuration. This configuration is present in the LC700 memory, so a reference is made to the device.

Add Device				×
🔽 Device Enabled	Devi	ce ID	1	
🔽 Use BlockView 🛛 🔽	Use Digital Blo	ck		
Device Tag:				
LED08_v8				
Directory:				
C:\Program Files\Smar\CO	NF700_v8_55\V	Vorking\		
Config. Name:				
LED08_v8.PL8				
Main Comm Port (MCP)				
Main_port]
Redundant Comm Port (RCI	-)			
Redundant_port]
🔽 Redundant Port Enable	д			
	OK		2 24	ĩ
	1110		- DECO	

Figure 11- Device Configuration

In the window above (Figure 11) the user must configure a few parameters regarding configuration and the recently added device.

- **Device Enabled:** Enables/disables the device. In case this parameter is not selected, the OPC Server will not monitor it.

Device ID: Device address in the MODBUS network.

- **Use Block View:** Enabling this parameter the user can compact the commands of the OPC Server, increasing communication speed.

- **Use Digital Block:** Enabling this parameter the user can read all digital points using only one command of the OPC Server, increasing communication speed.

- Redundant Enabled: Enabling this parameter, the user will have enabled the redundant channel.

The Redundant Enable ICON is displayed as (In GREEN) :



when it is enabled.

Redundant Disabled ICON is displayed as (In RED) :



Main Comm Port: the user should inform which port previously configured will be the main

channel.
Redundant Comm Port: In case redundancy is used, the user should inform which configured port will be used as redundant channel.

- **Directory:** Directory where the added configuration is located. Clicking in _____ is possible change this directory. This procedure is useful when the configurations (.tag and .pl8) are transferred from any computer to another.

- Configuration Name: Name of the configuration associated as a device (for example, LC700).

Device Tag: Is the Tag in which the device is referred by the OPC Server

After the ports are added and configured, the user should view a screen similar to the following picture. Two ports were included, a main serial port, a redundant port, through an Ethernet port.

Note:

The Block View and Digital Block features are only available for Smar devices.

Redundancy:

Just enable the *Redundant Enabled* and inform which one is the redundant channel/port.

Eile Edit OPC Help									
🖳 Untitled		Device Enabled	Port Name	Device ID	Device Name	Use Block View	Redunda		
🖻 🖳 Connections		۲	Main_port	1	LED08_v8	V			
Enet									
Main_port									
Redundant_port									
🖻 📲 Device List									
Conversions									
Complete Tag List									

Figure 12 - OPC Connection through a Serial Port/Ethernet port configured via TagList

Editing/Removing a Configuration / Device

To edit or remove a configuration, it is necessary to select the configuration on the main screen. Right click it, the edit/remove configuration dialog will appear, then just change the desired settings and click on OK for the changes to take place, or click on the *Remove* to remove the configuration.

Saving the Project

To compile the project (to generate the Tag List) it is necessary, first, to save the current project.

To save the project using the menu, click on *File*, then *Save* (if the project has already a name) or *Save As* (if a new you wish to save the project with a new name), or on the icon *Save (windows standard*) on the toolbar.

The OPC Menu

The OPC Menu has the following options:

- OPC Monitor
- Show Active TagList
- Register Active TagList



Figure 13- Accessing the OPC Menu

Registering the Project

After the project name is chosen, it should be registered in Windows, in order for the reading software of the LC700 OPC Server to recognize which configuration to search for. So every time a new project or project name is changed, it should be registered, to be indicated as the current project.

To register a project, click on the OPC menu and on Register Tag List. Or click on Register Configuration, on the Toolbar, as shown in the next figure.



Fig 14- Registering the current TagList

Generating the TagList Table

The program will generate the points monitored by the LC700 OPC Server. The Tag List Table associates the address/Tag in the LC700 with the name/Tag given to it by the OPC server.

While the tag List is being generated, the "Tag OPC" (name of the LC700 point that will appear for the user on the OPC client) is assembled as follows:

- If the user defined a User Label on the CONF700 for the point, then this will be defined as a name for the Tag OPC of the point.

- If the user did not define a User Label, then the Tag OPC will be the point's Default Label.

To generate the TagList Table, click on OPC and then Register Tag List, or click on the option Register Tag List on the Toolbar.

File Edit OPC Help			
🗋 🚔 🖬 📺 🐜 🐺 🧇			
🖳 Led08_v8	Device Enabled	Port Name	Device ID
		Main_port	1
Device List Device List Device List Conversions Conversions Complete Tag List	Register Tag List C:\Program Files\Smar\ v8.54\Working\Led08_	TagList and LC700 OPC Server v8.TAG OK TagList Registry updated OK	Cancel

Figure 15- Generating the TagList Table

After the project registration and the Tag List generation, the system is ready to monitor the LC700 points using the LC700 OPC Server. So, the Tag List program can be closed. The operational system automatically locates the current configuration for the LC700 OPC Server when activated by a HMI Software (OPC Client).

Note

Each change done in the configuration in the CONF700, a new TaglList Table must be generated. The user needs to open the current TagList project and execute the command to generate the TagList Table again.

Verifying the Active Tag List table

In case the user wishes to check which Tag List Project is registered on the computer, click on the *OPC* menu, then click on *Show Active Tag List*, then the program will show which is the active Tag List.

Viewing the Tag List Table

The user can check the table generated by the Tag List. In order to make it, click on (+) of the added configuration, two options are available: Tag List and MCT.

Tag List

The figure below shows the Tag List table generated for the current configuration.

<u>File Edit O</u> PC <u>H</u> elp							
🖳 Led08_v8	Т	Tag	Address	Conversion	Туре	Description	
🗄 🖳 Connections		SAíDA 1	00001	<none></none>	BOOL	led0	
🚽 Enet 🔽		M-122G1B40003.1	00002	<none></none>	BOOL	led1	
		M-122G1B40003.2	00003	<none></none>	BOOL	led2	
🖳 🚣 Redundant_port		M-122G1B40003.3	00004	<none></none>	BOOL	led3	
🖻 📲 Device List		M-122G2B40003.4	00005	<none></none>	BOOL	led4	
🖻 🍿 LED08_v8 (MCP: Main_port) (RCP: Redundant_por		M-122G2B40003.5	00006	<none></none>	BOOL	led5	
🛄 Tag List		M-122G2B40003.6	00007	<none></none>	BOOL	led6	
± • 💼 MCT		M-122G2B40003.7	00008	<none></none>	BOOL	led7	
- 🔁 Conversions		VM1BG1T1I1.0	02001	<none></none>	BOOL		
🛄 Complete Tag List		VM1BG1T1I1.1	02002	<none></none>	BOOL		
ſ		VM1BG1T1I1.2	02003	<none></none>	BOOL		
ſ		VM1BG1T1I1.3	02004	<none></none>	BOOL		
ſ		VM1BG1T1I1.4	02005	<none></none>	BOOL		
		VM1BG1T1I1.5	02006	<none></none>	BOOL		
		VM1BG1T1I1.6	02007	<none></none>	BOOL		
		VM1BG1T1I1.7	02008	<none></none>	BOOL		
		TEMPO	02009	<none></none>	BOOL		
		TEMP1	02010	<none></none>	BOOL		
ſ		TEMP2	02011	<none></none>	BOOL		
ſ		TEMP3	02012	<none></none>	BOOL		
ſ		TEMP4	02013	<none></none>	BOOL		
ſ		TEMP5	02014	<none></none>	BOOL		
ſ		TEMP6	02015	<none></none>	BOOL		
f		TEMP7	02016	<none></none>	BOOL		
f		NAOUSADO	02017	<none></none>	BOOL	Entrada ENO não utlizada por bloco de fun	
f		FALSO	02018	<none></none>	BOOL	Entrada	
ſ		VM1BG1T1I3.2	02019	<none></none>	BOOL		
ſ		VM1BG1T1I3.3	02020	<none></none>	BOOL		
ſ		VM1BG1T1I3.4	02021	<none></none>	BOOL		
ſ		VM1BG1T1I3.5	02022	<none></none>	BOOL		
ſ		VM1BG1T1I3.6	02023	<none></none>	BOOL		
ſ		VM1BG1T1I3.7	02024	<none></none>	BOOL		
ſ		ENTRADA 1	10001	<none></none>	BOOL		
l l		ENTRADA 2	10002	<none></none>	BOOL		
l l		M-020G1B8I002.2	10003	<none></none>	BOOL		
l l		M-020G1B8I002.3	10004	<none></none>	BOOL		
l		M-020G1B8I002.4	10005	<none></none>	BOOL		
L.	_					-	

Figure 16- Viewing the Tag List table

In the above table, it can be seen:

- Tag: configuration point names.
- Address: Modbus addresses of the configuration points.
- Conversion: filed to convert the data types.
- Type: data type.
- **Description:** description done in the CONF700 through the Global Table (it can be done also in the Tag List).

МСТ

In this option the user can choose which points will be monitored by the device that uses the Modbus protocol. Clicking on (+) at left of MCT, two folders will be showed:

- Working
- Device

Туре	Discrete Outputs	Discrete Inputs	Analog Inputs	Analog Outputs
	(0x)	(1x)	(3x)	(4x)
Nº of points	250 points	250 points	250 points	500 points

Working

Clicking on this folder, four Address Ranges will be open. This folder becomes available the points which are done download.

- 0x – Digital Outputs and Virtual Points.

- 1x Digital Inputs.
- 3x Analog Inputs.
- 4x Analog Outputs, Function Blocks and Special Registers.

Device

Clicking on this folder, four Address Ranges will become available to visualize the configuration points.

- 0x Digital Outputs and Virtual Points.
- 1x Digital Inputs.
- 3x Analog Inputs.
- 4x Analog Outputs, Function Blocks and Special Registers.



Figure 17- MCT Option

Using the MCT

When one of the address ranges is selected in the Working folder, a table at left of the Address table appears. In this table the addresses are added which must be configured. Four buttons also appear below the screen to do the Tag List table.

Button	Description
•	Move the Tags between the lines up and down
Remove Tag	Remove Tag from the table
Add Cell	Add lines in the table
Add All Cells	Add the whole table at once
Delete Cell	Delete lines



Figure 18- MCT Option

Description of the Address Table Columns

- Tag: Name of the point
- Address: Point Address
- MCT: Counter of how many times the Tag was added in the MCT table
- Conversion: Allows scale conversion
- Description: Point description

Configuring the MCT table

To configure the MCT table, follow the steps:

1) Click on the Add Cell button.

One line will be added in the table.

	Tag	MCT	Address	_	Tag	Address	MCT	Conversion	Description
►		07001			FALSO	02018	0	<none></none>	Entrada
					M-122G1B40003	00002	0	<none></none>	led1
					M-122G1B40003	00003	0	<none></none>	led2
					M-122G1B40003	00004	0	<none></none>	led3
					M-122G2B40003	00005	0	<none></none>	led4
					M-122G2B40003	00006	0	<none></none>	led5
					M-122G2B40003	00007	0	<none></none>	led6
					M-122G2B40003	00008	0	<none></none>	led7
					NAOUSADO	02017	0	<none></none>	Entrada ENO não utlizada p
					SAÍDA 1	00001	0	<none></none>	led0
					TEMPO	02009	0	<none></none>	
					TEMP1	02010	0	<none></none>	
					TEMP2	02011	0	<none></none>	
					ТЕМРЗ	02012	0	<none></none>	
					TEMP4	02013	0	<none></none>	
					TEMP5	02014	0	<none></none>	
					TEMP6	02015	0	<none></none>	
					TEMP7	02016	0	<none></none>	
					VM1BG1T1I1.0	02001	0	<none></none>	
					VM1BG1T1I1.1	02002	0	<none></none>	
					VM1BG1T1I1.2	02003	0	<none></none>	
					VM1BG1T1I1.3	02004	0	<none></none>	
					VM1BG1T1I1.4	02005	0	<none></none>	
					VM1BG1T1I1.5	02006	0	<none></none>	
	- 1			1	VM1BG1T1I1.6	02007	0	<none></none>	-
닏			<u> </u>	1					<u> </u>
	▲ ▼	Remove Tag	Add Ce						

Figure 19- Configuring the MCT table

2) Click with the left button on the point which will be added in the table.

	Tag	MCT	Address	<u> </u>	Tag	Address	MCT	Conversion	Description
Þ		07001			FALSO	02018	0	<none></none>	Entrada
					M-122G1B40003	00002	0	<none></none>	led1
					M-122G1B40003	00003	0	<none></none>	led2
					M-122G1B40003	00004	0	<none></none>	led3
					M-122G2B40003	00005	0	<none></none>	led4
					M-122G2B40003	00006	0	<none></none>	led5
					M-122G2B40003	00007	0	<none></none>	led6
					M-122G2B40003	80000	0	<none></none>	led7
					NAOUSADO	02017	0	<none></none>	Entrada ENO não utlizada p
					SAíDA 1	00001	0	<none></none>	led0
					TEMPO	02009	0	<none></none>	
					TEMP1	02010	0	<none></none>	
					TEMP2	02011	0	<none></none>	
					ТЕМРЗ	02012	0	<none></none>	
					TEMP4	02013	0	<none></none>	
					TEMP5	02014	0	<none></none>	
					TEMP6	02015	0	<none></none>	
					TEMP7	02016	0	<none></none>	
					VM1BG1T1I1.0	02001	0	<none></none>	
					VM1BG1T1I1.1	02002	0	<none></none>	
					VM1BG1T1I1.2	02003	0	<none></none>	
					VM1BG1T1I1.3	02004	0	<none></none>	
					VM1BG1T1I1.4	02005	0	<none></none>	
					VM1BG1T1I1.5	02006	0	<none></none>	
				· .	VM1BG1T1I1.6	02007	0	<none></none>	
민			•	•					Þ
		Bemove Tax		1					
		Add All Cells	Delete Ce						
		-		_					

Figure 20- Selecting the points for the Tag table

Tag	MCT	Address	1	Tag	Address	MCT	Conversion	Description
▶ NAOUSADO	07001	02017		FALSO	02018	0	<none></none>	Entrada
				M-122G1B40003	00002	0	<none></none>	led1
				M-122G1B40003	00003	0	<none></none>	led2
				M-122G1B40003	00004	0	<none></none>	led3
				M-122G2B40003	00005	0	<none></none>	led4
				M-122G2B40003	00006	0	<none></none>	led5
				M-122G2B40003	00007	0	<none></none>	led6
				M-122G2B40003	00008	0	<none></none>	led7
				🖉 NAOUSADO	02017	1	<none></none>	Entrada ENO não utlizada p
				SAÍDA 1	00001	0	<none></none>	led0
				TEMPO	02009	0	<none></none>	
				TEMP1	02010	0	<none></none>	
				TEMP2	02011	0	<none></none>	
				TEMP3	02012	0	<none></none>	
				TEMP4	02013	0	<none></none>	
				TEMP5	02014	0	<none></none>	
				TEMP6	02015	0	<none></none>	
				TEMP7	02016	0	<none></none>	
				VM1BG1T1I1.0	02001	0	<none></none>	
				VM1BG1T1I1.1	02002	0	<none></none>	
				VM1BG1T1I1.2	02003	0	<none></none>	
				VM1BG1T1I1.3	02004	0	<none></none>	
				VM1BG1T1I1.4	02005	0	<none></none>	
				VM1BG1T1I1.5	02006	0	<none></none>	
			1	VM1BG1T1I1.6	02007	0	<none></none>	
								•

3) Click with the right button on the line and drop to the added cell.

Figure 21- Adding points in the Tag table

4) Repeat the steps above to add all the points which must be monitored.

Note

The TagList configuration must be the same which is running in the LC700.

The user can upload the configuration points without do the download previously, in order to check the LC700 configured points. If the configurations have the same name, it is impossible.

Consistency Check

If any point is configured in the MCT Table, in the Working folder, and it is not in the Total Point Table, its address will be red.

If any address in the MCT Table, in the Device folder, is red, it means this address is not in the configuration that is running in the CPU-700.

Download to the Device

To configure the MCT Table, it is necessary to do the download of the added points. In order to make it, click with the right button on each one of the address ranges in the Working folder. A popup menu will be opened, select the *Download to Device* option. Or click on the toolbar **Edit** \rightarrow **Download to Device**. See the following picture:



Figure 22- Doing the Download to Device

After doing the download of the all points that were added in the MCT Tag Table, a message about the Successful Download will appear.

TagList v8 for the LC700 OPC 2.0 Se	📮 Download to Device	×			
File Edit OPC Help	Use Device Connection				
🗋 🛎 🖩 📺 🏧 🐼 🖉	Device ID 1				
🖳 Nova configuração	Interface		-	Tag	Add
🖻 🖳 Connections	🖲 Serial	Llose		FALSO	020
🖻 📲 Device List	Port:	Leek		M-122G1B40003	000
🖻 🦏 LED08_v8 [MCP: Main_port] [RC		LOOK		M-122G1B40003	000
🛅 Tag List	Baud Rate: 9600 💌	Stop Looking		M-122G1B40003	000
⊡ MCT	Parity:			M-122G2B40003	000
⊡ • 🔲 Working		Download		M-122G2B40003	000
<u> </u>] Ox				M-122G2B40003	000
	(0=Disable RTS/CTS)			M-122G2B40003	000
				NAOUSADO	020
				SAÍDA 1	000
				TEMPO	020
U UX				TEMP1	020
1X (a) 2.	Additional Time out:			TEMP2	020
	Additional rime out. 500			TEMP3	020
	Number of Retries: 2			TEMP4	020
Complete Teg List	Comm	unication Status			020
	Device Information			P6	020
	Device: LC700/V14.54.85) MCT Downlo	ad Success	ful. 8617111.0	020
	V			BG1T1111	020
	Configuration: LED08_v8		_	BG1T111.2	020
	Version: 14.54.85	OK		BG1T111.3	020
				BG1T1I1 4	020
	Pup Force	d 🔊 E-sult		VM1BG1T1I1.5	020
	Turi Turice U Hold	u 🚽rault		VM1BG1T1I1.6	020
				VM18G1T1I1 7	020

Figure 23- MCT Download Successful

Note

The Upload function can not be done successful if the TagList and LC700 configuration is not the same.

Upload from Device

After all points of the MCT Tags Table have been sent to device, the upload of these points must be done in order to compare them. In order to make it, click with the right button on the Address ranges in the Device folder, a popup menu will be open, choose *Upload from Device*. Or click on the toolbar **Edit** → **Upload from Device**.

📆 TagList v8 for the LC700 OPC 2	Upload from Device		
File Edit OPC Help	Use Device Connection		
🗋 😂 🖬 📩 🐜 🜄 🧇	Device ID 1		
📃 Nova configuração	Interface	Tag	Address
🗄 🖳 Connections	Serial	• VM1BG1T1I3.7	02024
🖻 📲 Device List	Port:	VM1BG1T1I3.6	02023
📄 🌆 LED08_v8 (MCP: Main_pot		VM1BG1T1I3.5	02022
🗌 🛅 Tag List	Baud Rate: 9600	VM1BG1T1I3.4	02021
і — 💼 мст	Parity: EVEN VI	VM1BG1T1I3.3	02020
🖻 💼 Working		VM1BG1T1I3.2	02019
(i) Ox		VM1BG1T1I1.7	02008
<u>@</u> 1x	(0=Disable RTS/CTS)	VM1BG1T1I1.6	02007
<u>(a)</u> 3x	СТСРИР	VM1BG1T1I1.5	02006
⊡ 4x		VM1BG1T1I1.4	02005
🖻 💼 Device	IP Address	VM1BG1T1I1.3	02004
		VM1BG1T1I1.2	02003
<u>1</u> x	Additional Time and	VM1BG1T1I1.1	02002
<u>1</u> 3x	Additional Line out	VM1BG1T1I1.0	02001
□ 4x	Number of Retries: 2	TEMP7	02016
		TEMP6	02015
E Complete I ag List	Device Information Communication Status	×	02014
	Device: 1 0700 A/14 54 85		02013
	Upload Successful, MCT E	nabled.	02012
	Configuration: LED08_v8		02011
	Version: 14 54 85		02010
	OK		02009
		400	000017
	Service Strate Service	M 122628 40002	02017
		M-12202840003	00008
1		M-122G2B40003	100007

Figure 24- Upload Successful

Do the Upload for all Addresses ranges.

Comparing the Tag Tables

Finishing the Upload for all points, it is possible to compare the Working and Device Tables. Click with the right button on one of the address ranges in the Working or Device folder, a popup menu will be opened, choose the *Compare MCT Tables* option, or do this clicking on the toolbar **Edit** \rightarrow **Compare MCT Tables**.

۹,	Compare MCT T	ables								_ 🗆 ×
Γ	Working MCT Table						[Device MCT Table		
	Tag	MCT Address	Original Address	Comment		Tag	MCT Address	Original Address	Comment	
	ENTRADA 1	16001	10001	Ok	▶	ENTRADA 1	16001	10001	Ok	
	ENTRADA 2	16002	10002	Ok		ENTRADA 2	16002	10002	Ok	
									Replace	Close

Figure 25- Comparing the Tag Tables

It can observe:

- **OK:** The Device and Working original addresses are the same.
- Tag Mismatch: The Device and Working original addresses are different.
- Not found in Device: the original address was in Working was not found in Device.

There are also two buttons on the right lower corner:

- Replace: replace all points from the Device table to Working table.
- Close: close the active window.

Conversions

For each Tag, the user can select if this Tag Value will have Conversion from Device Range to Engineering Units, or Not. First the USER needs to create a "Conversion Type" that will apply for a Tag Value. After having created a Conversion Type, the USER needs to assign this Conversion to a Tag, or assign to a group of Tags, that use the same conversion type.

When the OPC reads the value from the Device, it will convert this value using the conversion rules created, and provide the converted value to the OPC Client.

Note Only Tags with DATA TYPES: WORD, DWORD, INT, and REAL, are allowed to have CONVERSION, the Other DATA TYPES are NOT allowed. Only Tags that can be represented in Eng. Units (EU) can be converted.

The Tags with DATA TYPE: BOOL and BYTE do not allow conversion to EU.

File Edit OPC Help				
🗋 🖻 🖬 📩 🐜 🐺 🧇				
🖳 Led08_v8		Conv Name	Conv Type	Low EU
🗄 🖳 Connections		Conversão	Linear 💌	0
🖻 📲 Device List	*		Conv Type	
ED08_v8 [MCP: Main_port] [RCP: Redundant_por			Float	
👘 Tag List			Linear	
🗄 值 Working				
⊡ Device				
🗄 🔄 Conversions				
Emilia Complete Tag List				

Figure 26- Conversions

Type of conversion

There are three types of Conversion:

Floating Point Conversion

If the USER checks the Option: "Floating Point Conversion", the OPC Server will convert the data into float data type, but will not change the value itself.

Linear Conversion

The OPC Server will use linear conversion between EU and Device scale, if the option: "Linear Conversion" is checked.

There are two types of units:

EUEngineering Unit (client scale)DeviceDevice range (device scale)

Square Root Conversion

This conversion performs the following operations:

$$Ri = \sqrt{Y} = \sqrt{(Y - y1)} * \sqrt{(y2 - y1)}$$
$$Rf = LowEU + \left[\frac{(HighEU - LowEU) * (Ri - y1)}{(y2 - y1)}\right]$$

Where: Ri: Intermediate Result Rf: Final Result after the linear conversion Y: Tag value y1: Value defined for Low Device y2: Value defined for High Device

Ri=0

For this conversion, there is the Cut Off parameter. When the Tag value (Y) is lower than the value defined for Cut Off, the result of the conversion is zero. When the Tag value is higher or equals to, the result of the conversion is obtained according to the equations showed above. The linear conversion is applied to the obtained result, considering the values defined in High Device, Low Device, High EU and Low EU.

If **Y < Cut Off** Then

$$Rf = LowEU + \left[\frac{(HighEU - LowEU)*(Ri - y1)}{(y2 - y1)}\right]$$

If Y ≥ Cut Off

Then

$$Ri = \sqrt{Y} = \sqrt{(Y - y1)} * \sqrt{(y2 - y1)}$$

$$Rf = LowEU + \left[\frac{(HighEU - LowEU) * (Ri - y1)}{(y2 - y1)}\right]$$

Example: For the Square Root conversion, it considers the values below: Low Device: 0 High Device: 10000 Low EU: 10 High EU: 50 Cut Off: 10

It has the following results according to the tag values showed below, and the equations presented above:

Y	Ri	Rf
(Tag value)	(Intemediate result)	(in Engineering Unit)
11	331.6625	11.3267
10	316.2278	11.2649
9	0*	10

Edit Conversion			2
lame Conversão			
Conversion			
C Floating Point Conv	ersion		
C Linear Conversion		Square Ro	ot
		Cut Off	10
Low Device	0	Low EU	10
High Device	10000	High EU	50
Clamping			
🔽 Clamp	E.	ow Clamp	5
	Н	igh Clamp	15
	Ĩ	ок (Cancel

Figure 27- Conversion Types

Note If the "Clamp" option is selected, the data value will be limited by High Clamp and Low Clamp. The Clamp occurs after the conversion.

After setting a conversion type, the user can set the conversion for the specific TAG directly in the Device Tag List. Just choose the TAG, and in the conversion FIELD, click at it and choose the type of conversion in a drop down list as the following picture shows:

	Tag	Address	Conversion	Туре	Description
	TON7.CTA	42520	<none></none>	INT	
	TON7.PST	42521	<none></none>	INT	
	TON1.STS	42522	<none></none>	WORD	
	TON1.CTA	42523	<none></none>	INT	
	TON1.PST	42524	<none></none>	INT	
	TP1.STS	42525	<none></none>	WORD	
	TP1.CTA	42526	<none></none>	INT	
	TP1.PST	42527	<none></none>	INT	
►	TP3.STS	42529	<none></none>	WORD	
	TP3.CTA	42530	Conv Name [🔺	INT	
	TP3.PST	42531	<none></none>	INT	
	TP4.STS	42532	Conversão 🗸	WORD	
	TP4.CTA	42533	<none></none>	INT	
	TP4.PST	42534	<none></none>	INT	
	TP5.STS	42535	<none></none>	WORD	
	TP5.CTA	42536	<none></none>	INT	
	TP5.PST	42537	<none></none>	INT	
	TP6.STS	42538	<none></none>	WORD	
	TP6.CTA	42539	<none></none>	INT	
	TP6.PST	42540	<none></none>	INT	
	TP7.STS	42541	<none></none>	WORD	

Figure 28-Using The Conversion

Status provided by the LC700 OPC Server

After generating the Tag List table, the OPC Client (an HMI interface for example) can read the variables referred by the Tags. Also, the OPC Server provides some status which contains additional information.

- Status_Port.<Configured Port Tag >
- CommID: A number is attributed to the configured port by the TagList.
- **CommPortStatus:** Shows the status on the port.
 - 1 Normal Communication on the port.
 - 0 Communication failure on the port.
- ActualScan: It is the period the LC700 OPC Server takes to read all devices connected to the configured port.
- ScanPeriod: It is the value of the Scan Period parameter configured for the port.
- **RetryPeriod:** It is the value of the Retry Period parameter configured for the port.
- **Timeout:** It is the value of the Timeout parameter configured for the port.
- Retries: It is the value of the Retries parameter configured for the port.

Status_Device.<Device Tag containing the configuration>

- **MainPortStatus:** Indicates the main path's communication status for the device. 1 - Communication without problems
 - 0 Failure on the main channel
- **RednPortStatus:** Indicates the redundant path's communication status for the device. 1 - Communication without problems
 - 0 Failure on the Redundant channel
 - **UseBlockView:** Indicates if the user has configured the "Block View" option.
- 0 the user disabled this option
- 1 the user enabled this option
- UseDigitalBlock: Indicates if the user has configured the "Digital Block" option.
- 0 the user disabled this option
- 1 the user enabled this option

- **MainPortID:** Indicates the main port number where the device is connected. This value is equal to CommID for the specified port.

- **RednPortID:** Indicates the redundant port number where the equipment is connected. This value equals to CommID for the specified port.

ActivePort: Indicates which path is active.

- 0 the Main Path is active
- 1 the Redundant Path is active
- 2 no path is being used or reading failure
- Enabled: Indicates if the user has enabled or not the device.

- **MainScanInterval:** Indicates the real time interval between cyclic readings of all Tags/variables from the current device, through the main path.

- **RednScanInterval:** Indicates the real time interval between cyclic readings of all Tags/variables from the current device, through the redundant path.

- **MainActualScan:** it indicates the real time taken to read all tags/variables from the current device, through the main path.

- **RednActualScan:** it indicates the real time taken to read all tags/variables from the current device, through the redundant path.

- **NbrCommCmmd:** it indicates the number of Modbus commands that the OPC Server is sending in order to supervise the requested points.

- **ViewStatus:** Indicates the current status of the Block View current used by the OPC for scanning the device. The status composition is as follows:

- ViewStatus0x:
 - 0 = Block View not being used
 - 1 = Block View is being used
 - > 1 = Error on view assembly or view is still being assembled by the OPC.

Where ViewStatus0x:

- ViewStatus01 Block View Status 01
- ViewStatus02 Block View Status 02
- ViewStatus03 Block View Status 03
- ViewStatus04 Block View Status 04
- ViewStatus01 Block View Status 05
- ViewStatus02 Block View Status 06
- ViewStatus03 Block View Status 07

• ViewStatus04 - Block View Status 08

If the ViewStatus value is greater than 1, an error occurred on the assembly or ViewStatus is still being assembled. The value is a BIT combination, and to know what the status means, the configured BIT should be known according to the table below:

Block	View	Status	
-------	------	--------	--

BIT	DESCRIPTION	VALUE (DEC)	COMMENTS
0	Block View OK	1	If the block view is OK the other Bits should be zero.
1	NEED ASSEMBLY	2	OPC has received a new configuration, and will assemble a new Block View.
2	IS ASSEMBLING	4	OPC Server is assembling the Block View.
3	USE COMMAND LIST	8	An error has occurred during the assembly. OPC is using MODBUS commands.
4	ASBL RSP CNF FAIL	16	Failure on Block View assembly – CONFIGURATION ERROR (Response Code 07(hex)). A possible cause would be an inexistent Modbus point. In this case the OPC Server is using individual commands.
5	ASBL RSP BVW FAIL	32	Failure on Block View Assembly - BLOCK VIEW IS FULL (Response Code 0B(hex)) A possible cause would be that there are other Modbus Masters (other servers for example) accessing the same slave device using view. In this case the OPC Server is using MODBUS command standards and as soon as one of the views is available, it will be read by VIEW.
6			
7	ASSEMBLY FAIL	128	Failure on Block View assembly- (communication failure) – This BIT will be 1, when the bits 4 and 5 fail.

The OPC Monitor Software

The TagList has a software that helps the configuration test and can be used to monitor points using the LC700 OPC Server, and check for errors in the configuration. It is the **OPC Monitor**. It is accessed through the OPC menu (see figure 12). Just access the menu **OPC**→ **OPC Monitor**.

The **OPC Monitor** is an OPC client that can work with any OPC Server. In case of LC700 OPC Server monitoring, it allows the user to view the values of the Configured variables/Tags and the status described on the previous item.

In case the LC700 OPC Server is used, initially the **OPC Monitor** will show the screen below, which the user should choose the Server Smar.LC700Server.1.

Smar LC700 OPC Client	
OPC Server List:	
Smar.IServer.0 Smar.DF65Server.1 Smar.LC700Server.1 Smar.Dfi0leServer.0 Smar.hseoleserver.0	
ServerName	
Smar.LC700Server.1	
Connect	Close

Figure 29- Choosing the OPC server for the OPC Monitor

 StatusPort_Serial-RS232
 Tag
 Value
 Type
 Quality
 Nbr Of Fails
 Time
 User Tag
 Desc

 # ① StatusDovice_OPC
 # ② OPC
 Dec
 Image: StatusDovice_OPC
 Image: StatusDovice_OPC</td

Right after, the OPC Monitor automatically opens the screen shown in the next figure.

Figure 30- The OPC Monitor

On the column on the left, there are (in this order): the channel status, device status and variables/Tags values. Note that the devices have a specific MODBUS ID and this order must be respected. Clicking on each item, they are expanded in sub-items. For further details see the previous item "Status provided by LC700 OPC Server".

With a left click on the mouse button, the user can select which status, and which variable to monitor. The screen below shows a few selected status. To remove some status from the monitor page, just double-click the status or variable in the screen on the left.



Figure 31- Viewing Status and Tags

The configurations are right below, and can be expanded. The user can choose which variables to monitor directly through this variable's Tag, without worrying about the MODBUS addresses. The OPC Monitor has some buttons on the lower screen. The "Start Monitoring" button starts the monitoring. "Add to Grid" means that the user can select only one tag or a group with tags (to select the initial tag uses Ctrl + left button of the mouse or just left-click, and to select the ending tag of the range uses Shift+ left button of the mouse) and then clicks in this button to add in the grid the tags will be monitored. "Clear Grid" erases the status selection and variables previously made. "Clear Fail Count" is used during monitoring to erase the failure messages on the communication. The "Close" button ends the program.

StatusPort Serial-RS232		Address	Value	Туре	Quality	Nbr Of Fails	Time	Desc	User Tag	Default Tag
CommID Status	Port_Serial-RS232.ScanPeriod		-	0						
CommPortStatus	v8.DIG IN.0	10001		0 BOOL				control start	DIG IN.0	M-020G1B8I002.0
ActualScan LED08	v8.DIG IN.1	10002		0 BOOL				key 1	DIG IN.1	M-020G1B8I002.1
ScanPeriod LED08	v8.DIG IN.2	10003		0 BOOL				key 2	DIG IN.2	M-020G1B8I002.3
StatusDevice LED08 v8 LED08	v8.DIG IN.3	10004		0 BOOL				key 3	DIG IN.3	M-020G1B8I002.3
MainPortStatus LED08	v8.DIG_IN.4	10005		0 BOOL				key 4	DIG_IN.4	M-020G1B8I002
RednPortStatus LED08	v8.DIG IN.5	10006		0 BOOL				key 5	DIG IN.5	M-020G1B8I002.5
UseBlockView LED08	v8.DIG IN.6	10007		0 BOOL				key 6	DIG IN.6	M-020G1B8I002.0
UseDigitalBlock LED08	v8.DIG IN.7	10008		0 BOOL				key 7	DIG IN.7	M-020G1B8I002.3
MainPortID LED08	v8.INTC 1	42560		0 INT				in the second	INTC 1	OUT1.ICT.1
BedpPortID LED08	V8INTC 2	42561		0 INT					INTC 2	OUT2ICT.1
ActivePort LED08	V8.INTC 3	42562		0 INT					INTC 3	OUT3.ICT.1
Enabled LED08	v8.TOTAL	42563		0 INT					TOTAL	OUT.ADD.1
MainScanCycle LED08	v8.RTC Sec	49951		0 WORD				Seconds (RTC)	RTC Sec	RTC Sec
BednScanCycle LED08	v8.RTC Min	49952		0 WORD				Minutes (RTC)	RTC Min	BTC Min
NbrCommCmmd LED08	v8.RTC Hour	49953		0 WORD				Hour (RTC)	RTC Hour	RTC Hour
ViewStatus(11 LED08	v8.RTC Dweek	49954		0 WORD				Dav-of-Week (RTC)	RTC Dweek	RTC Dweek
ViewStatus02 LED08	v8.BTC Day	49955		0 WORD				Day (RTC)	BTC Day	RTC Dav
ViewStatus03 LED08	v8.RTC Mon	49956		0 WORD				Month (RTC)	RTC Mon	RTC Mon
ViewStatus04 LED08	v8.RTC Year	49957		0 WORD				Year (RTC)	RTC Year	RTC Year
ViewStatus05	v8.ScanCvcleTime	49958		0 WORD				LC700 CPU Scan Cycle tin	ScanCycleTime	ScanCycleTime
ViewStatus/16 LED08	v8.TEMP0	02001		0 BOOL				first light	TEMPO	VM1BG1T1I1.0
ViewStatus07 LED08	v8.TEMP1	02002		0 BOOL				second light	TEMP1	VM1BG1T1I1.1
ViewStatus08	v8.TEMP2	02003		0 BOOL				third light	TEMP2	VM18G1T1I1.2
ED08 v8 LED08	v8.TEMP3	02004		0 BOOL				fourth light	TEMP3	VM1BG1T1I1.3
DIG OUT10 LED08	v8.TEMP4	02005		0 BOOL				fifth light	TEMP4	VM1BG1T1I1.4
DIG OUT11 LED08	v8 TEMP5	02006		0 8001				sixth light	TEMP5	VM18G1T1I1.5
	v8 TEMP6	02007		0 8001				seventh light	TEMP6	VM18G1T1I1.6
DIG UNITE LEDOS	v8.DIG_OUT1.3	00004		0 BOOL				led3	DIG OUT1.3	M-122G1B40003
DIG OUT25		A.								
TEMPO TEMPO										

Figure 32- Adding and removing status and variables

To start the monitoring, click on "Start Monitoring". To end the monitoring, click on "Stop Monitoring".

ag	Address	Value	Туре	Quality	Nbr Of Fails	Time	Desc	User Tag	Default Tag
tatusPort_Serial-RS232.ScanPeriod		1000	1	Good	0	7:43:55 PM			
ED08_v8.DIG_IN.0	10001	0	BOOL	Good	0	1:34:51 PM	control start	DIG_IN.0	M-020G1B8I002.0
ED08_v8.DIG_IN.1	10002	C	BOOL	Good	0	1:34:51 PM	key 1	DIG_IN.1	M-020G1B8I002.1
ED08_v8.DIG_IN.2	10003	C	BOOL	Good	0	1:34:51 PM	key 2	DIG_IN.2	M-020G1B8I002.2
ED08_v8.DIG_IN.3	10004	C	BOOL	Good	0	1:34:51 PM	key 3	DIG_IN.3	M-020G1B8I002.3
ED08_v8.DIG_IN.4	10005	C	BOOL	Good	0	1:34:51 PM	key 4	DIG_IN.4	M-020G1B8I002.4
ED08_v8.DIG_IN.5	10006	C	BOOL	Good	0	1:34:51 PM	key 5	DIG_IN.5	M-020G1B8I002.5
ED08 v8.DIG_IN.6	10007	0	BOOL	Good	0	1:34:51 PM	key 6	DIG_IN.6	M-020G1B8I002.6
ED08_v8.DIG_IN.7	10008	C	BOOL	Good	0	1:34:51 PM	key 7	DIG_IN.7	M-020G1B8I002.7
ED08_v8.INTC_1	42560	1	INT	Good	0	1:34:51 PM		INTC_1	OUT1.ICT.1
ED08 v8.INTC 2	42561	2	INT	Good	0	1:34:51 PM		INTC_2	OUT2.ICT.1
ED08_v8.INTC_3	42562	3	INT	Good	0	1:34:51 PM		INTC_3	OUT3.ICT.1
ED08_v8.TOTAL	42563	3	INT	Good	0	1:34:51 PM		TOTAL	OUT.ADD.1
ED08_v8.RTC_Sec	49951	44	WORD	Good	0	1:34:51 PM	Seconds (RTC)	RTC_Sec	RTC_Sec
ED08_v8.RTC_Min	49952	33	WORD	Good	0	1:34:51 PM	Minutes (RTC)	RTC_Min	RTC_Min
ED08_v8.RTC_Hour	49953	10	WORD	Good	0	1:34:51 PM	Hour (RTC)	RTC_Hour	RTC_Hour
ED08_v8.RTC_Dweek	49954	4	WORD	Good	0	1:34:51 PM	Day-of-Week (RTC)	RTC_Dweek	RTC_Dweek
ED08_v8.RTC_Day	49955	1	WORD	Good	0	1:34:51 PM	Day (RTC)	RTC_Day	RTC_Day
ED08_v8.RTC_Mon	49956	E	WORD	Good	0	1:34:51 PM	Month (RTC)	RTC_Mon	RTC_Mon
ED08_v8.RTC_Year	49957	5	WORD	Good	0	1:34:51 PM	Year (RTC)	RTC_Year	RTC_Year
ED08_v8.ScanCycleTime	49958	10	WORD	Good	0	1:34:51 PM	LC700 CPU Scan Cycle tirr	ScanCycleTime	ScanCycleTime
ED08_v8.TEMP0	02001	C	BOOL	Good	0	1:34:51 PM	first light	TEMPO	VM1BG1T1I1.0
ED08_v8.TEMP1	02002	C	BOOL	Good	0	1:34:51 PM	second light	TEMP1	VM1BG1T1I1.1
ED08_v8.TEMP2	02003	C	BOOL	Good	0	1:34:51 PM	third light	TEMP2	VM1BG1T1I1.2
ED08_v8.TEMP3	02004	0	BOOL	Good	0	1:34:51 PM	fourth light	TEMP3	VM1BG1T1I1.3
ED08_v8.TEMP4	02005	C	BOOL	Good	0	1:34:51 PM	fifth light	TEMP4	VM1BG1T1I1.4
ED08_v8.TEMP5	02006	C	BOOL	Good	0	1:34:51 PM	sixth light	TEMP5	VM1BG1T1I1.5
ED08_v8.TEMP6	02007	C	BOOL	Good	0	1:34:51 PM	seventh light	TEMP6	VM1BG1T1I1.6
ED08_v8.DIG_OUT1.3	00004	C	BOOL	Good	0	1:34:51 PM	led3	DIG_OUT1.3	M-122G1B40003.3
LED08_v8.TEMP6 LED08_v8.DIG_OUT1.3	02006 02007 00004	((BOOL BOOL BOOL	Good Good	0	1:34:51 PM 1:34:51 PM 1:34:51 PM	sixtri light seventh light led3	TEMP5 TEMP6 DIG_OUT1.3	VM1BG11 VM1BG11 M-122G18

Figure 33-Monitoring example of the LC700 OPC Server using OPC Monitor