

# Biffi ICON3000

Profibus DTM



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**NOTICE**

Biffi Italia has taken every care in collecting and verifying the documentation contained in this Installation, Operation and Maintenance Manual. The informations herein contained are reserved property of Biffi Italia.

# Section 1: The FDT/DTM Technology

The FDT technology allows the end user to integrate any device in any automation system. This technology consists of:

- FDT Frame Application resemble to a PC Software Environment, e.g. PACTware
- Device DTM (device type manager) is the “driver” that allows the Frame Application to know the field device feature.
- Comm DTM (device type manager) is the “driver” that represents communication devices like communication cards, couplers, gateways, and linking devices.

DTM (Device type manager) is an interface between field device and FDT Frame Application which has the standard FDT interface. This enables any FDT-enabled application (FDT Frame Application) e.g. engineering system or asset management tool to use it.

**Figure 1**

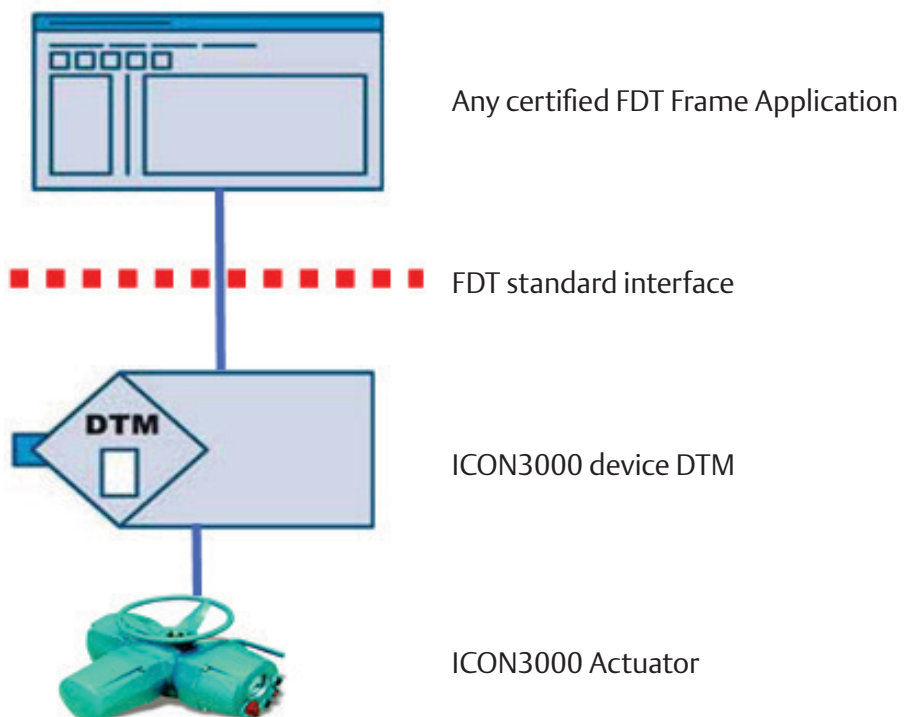
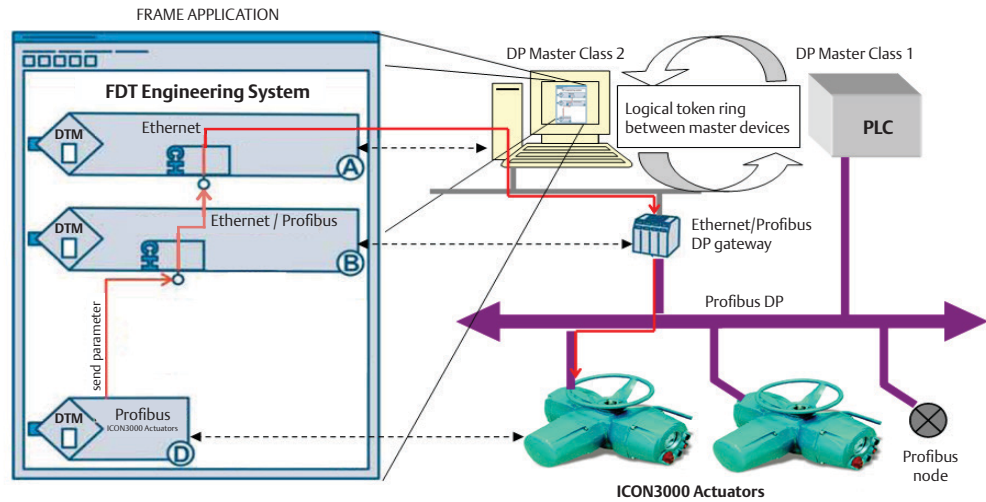


Figure 2 describes the network connection that uses FDT technology.

Figure 2



This manual has been writing by capturing some screenshot from a laboratory system that use the following devices and tools:

- Frame application: PACTware 4.0
- Ethernet/Profibus gateway: Softing FG-100 PB
- DP Master Class 1: SyCon CIF 60-PB

For more information about FDT/DTM technology visit the [www.fdtgroup.org](http://www.fdtgroup.org) website.

## Section 2: Introduction to ICON DTM for Profibus

This DTM, developed by Biffi, provides to customers an easier access to parameters of ICON3000 and ICON3000v2 actuators equipped with ICON2000v4\_DPV1 module interface.

The ICON3000v2 actuator can be recognized because when it is switched on, the name "ICON3000v2" appears on the local screen, as shown in Figure 3.

**Figure 3**



In this manual, we will refer generically with the terms ICON, ICON3000 or Actuator, without making any further distinction between ICON3000 and ICON3000v2.

The system requirements are:

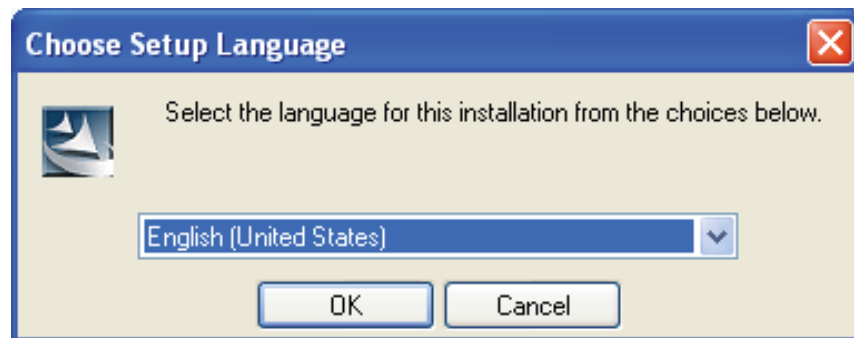
- OS: Windows 2000, Windows XP, Windows Vista and Windows 7
- FDT-Frame Application, e.g. PACTware
- .NET Framework 1.1, 2.0, 3.0 or 3.5
- PDF File Reader

## Section 3: Installation

### 3.1 Installation Procedure

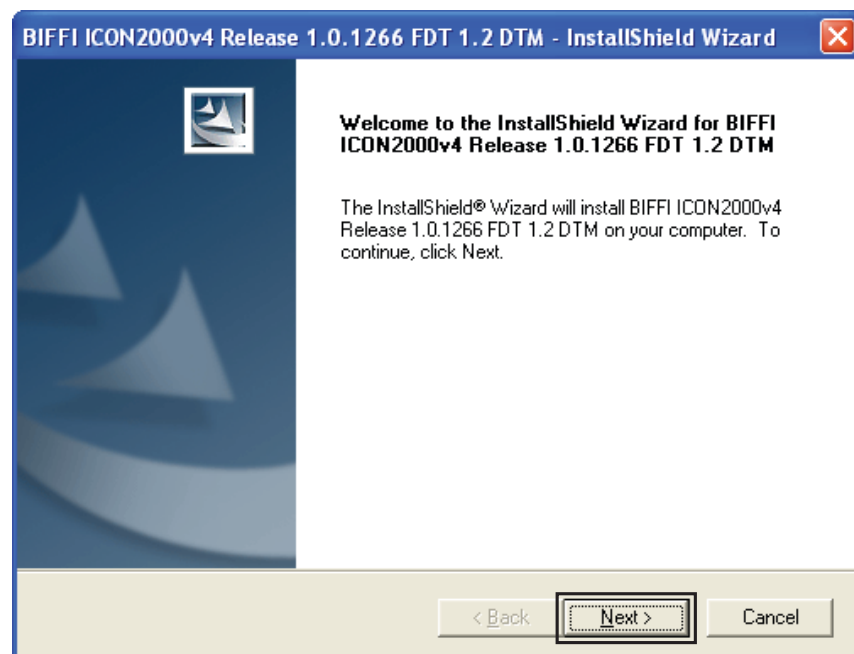
- Launch setup.exe
- Select the desired language for the installation

Figure 4



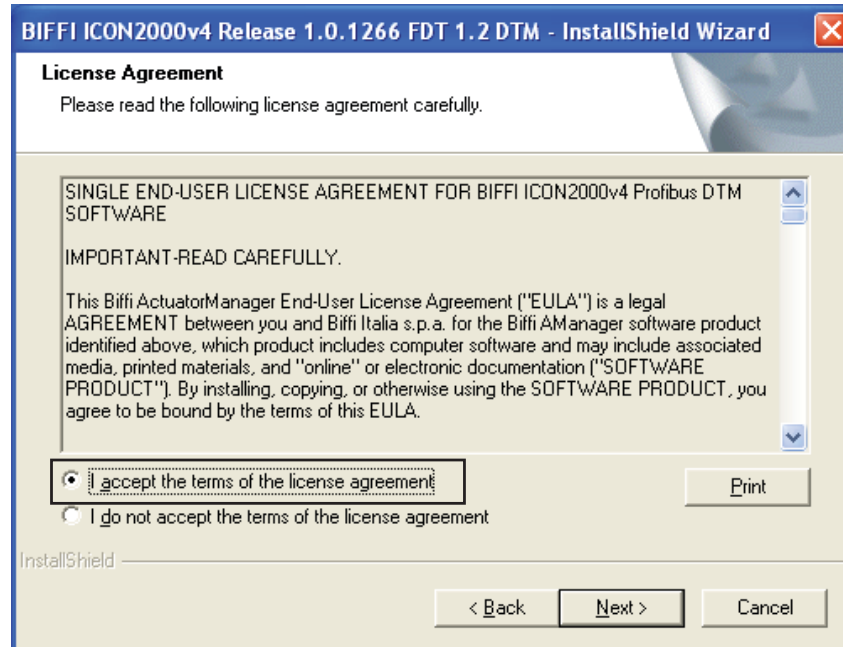
- Click “Next” to continue

Figure 5



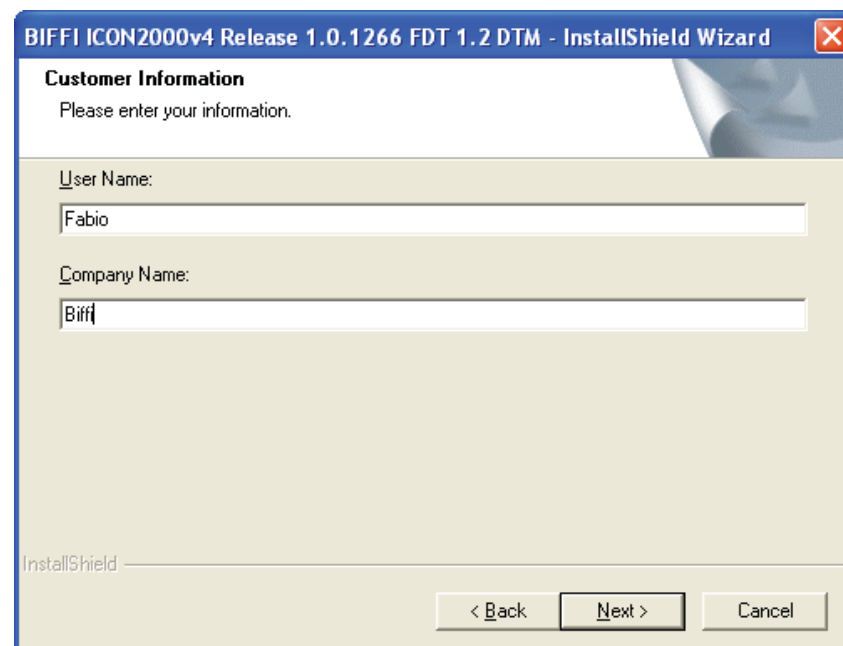
- Read the License Agreement and select “Accept”

Figure 6



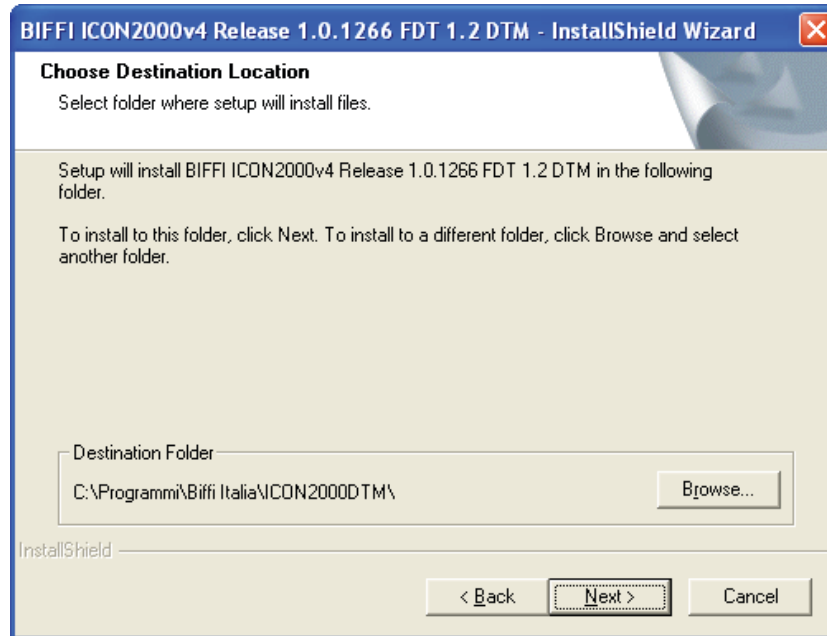
- Enter your information

Figure 7



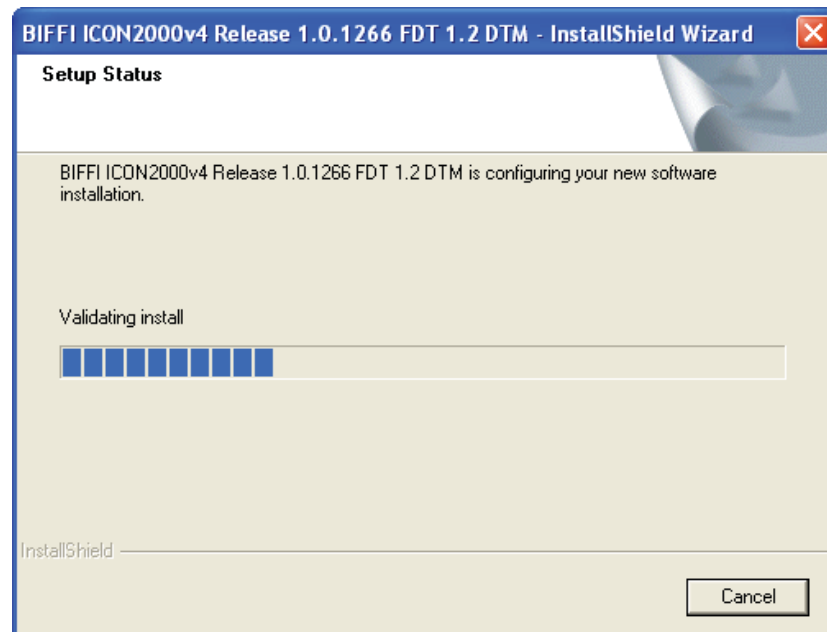
- Choose the destination folder for the DTM files

Figure 8



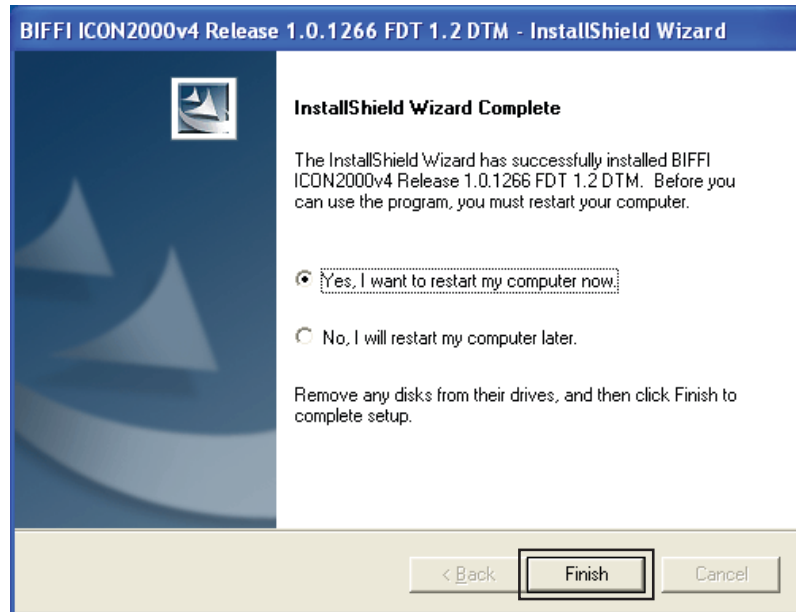
- Wait for the installation to complete

Figure 9



- Click “Finish” at the end of installation
  - X86.exe (net 1.1 SP1)

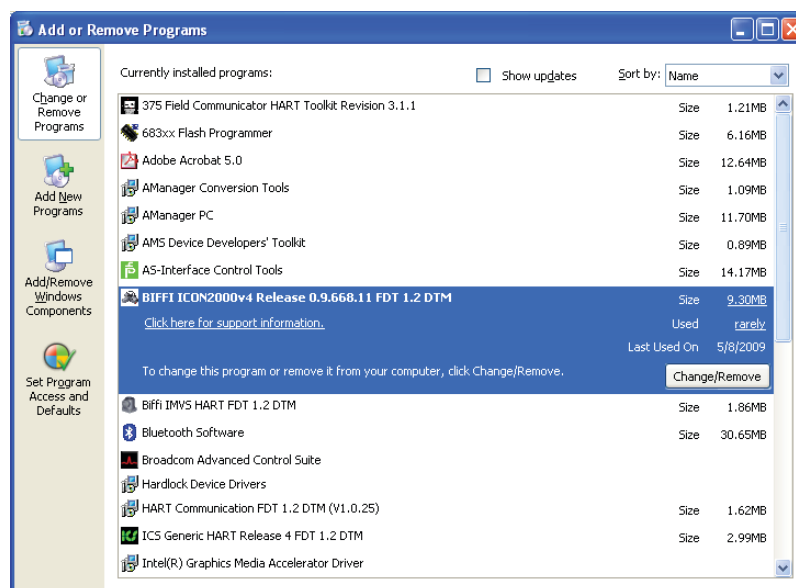
Figure 10



## 3.2 Uninstall

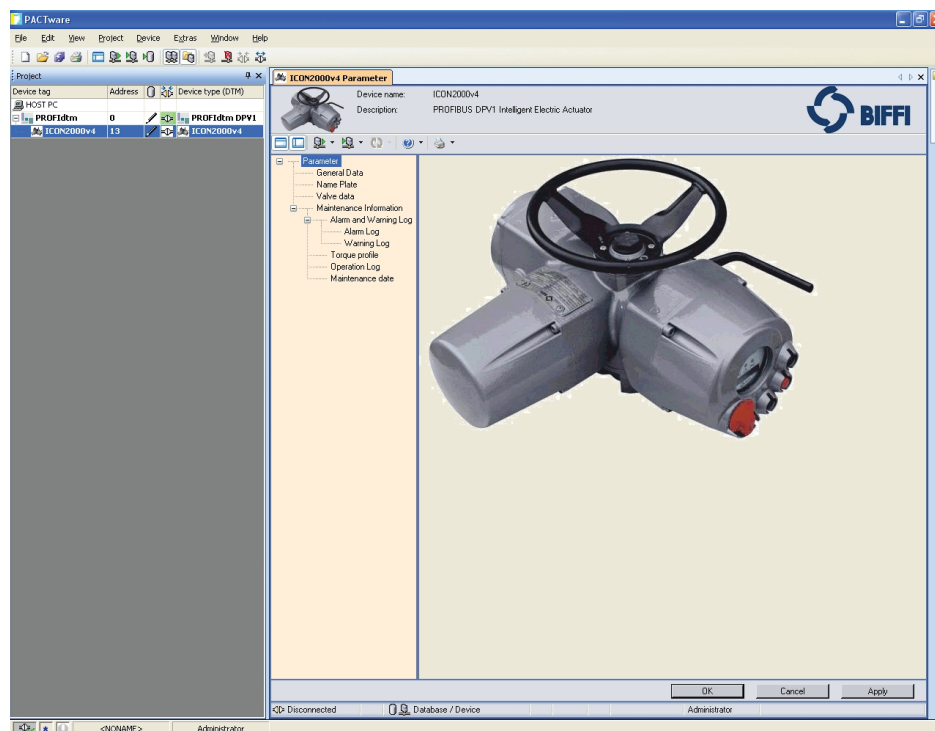
Go to “Control Panel”, select “Add or remove programs”, select “Biffi ICON2000v4...” and click “Change/Remove” button.

Figure 11




## Section 4: Parameters


Figure 12




These buttons are present in DTM toolbar to perform actions with Parameters.

 These buttons hide the identification area and/or the navigation area of DTM.

 This button performs a read of the parameter from the device.

 This button performs a write action of changed parameter from DTM to the device.

 This button enables a cyclic read request function of displayed parameters.

 This button opens the Manual of ICON3000 Actuator and Profibus DPV1 Module.

 This button allows print a list of parameters.

## 4.1 General Data

General Data folder collects the information about the actual discrete status of the actuator. All these parameters are READ ONLY.

Figure 13

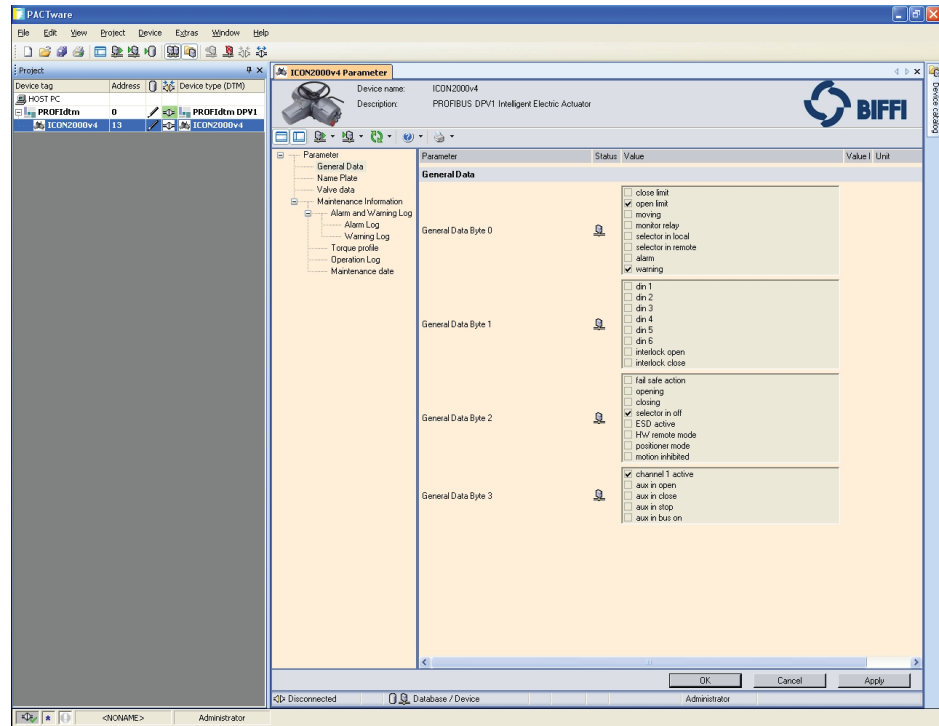


Table 1.

Byte	bit	Description	Help
General data Byte 0	0	close limit	Valve in close position
	1	open limit	Valve in open position
	2	moving	Valve is moving
	3	monitor relay	Monitor relay status
	4	selector in local	Local selector in LOCAL position
	5	selector in remote	Local selector in REMOTE position
	6	alarm	Indicates an alarm present
	7	warning	Indicates a warning present

Table 2.

Byte	bit	Description	Help
General data Byte 1	0	din 1	Status of configurable DIN1 condition
	1	din 2	Status of configurable DIN2 condition
	2	din 3	Status of configurable DIN3 condition
	3	din 4	Status of configurable DIN4 condition
	4	din 5	Status of configurable DIN5 condition
	5	din 6	Status of configurable DIN6 condition
	6	interlock open	Interlock open active
	7	interlock close	Interlock close active

Table 3.

Byte	bit	Description	Help
General data Byte 2	0	Fail-Safe action	The actuator is performing the Fail-Safe Action
	1	opening	Valve is moving in open direction
	2	closing	Valve is moving in close direction
	3	selector in off	Local selector in OFF position
	4	ESD active	ESD command active
	5	HW remote mode	Hardwired mode enables
	6	positioner mode	Actuator ready to follow the setpoint
	7	motion inhibited	Motor will not open or close

Table 4.

Byte	bit	Description	Help
General data Byte 3	0	channel 1 active	Channel 1 active
	1	aux in open	Auxiliary input open active
	2	aux in close	Auxiliary input close active
	3	aux in stop	Auxiliary input stop active
	4	aux in bus on	Auxiliary input bus active

## 4.2 Name Plate

Name Plate folder collects the information about the actuator Name Plate. All these parameters are READ ONLY.

Figure 14

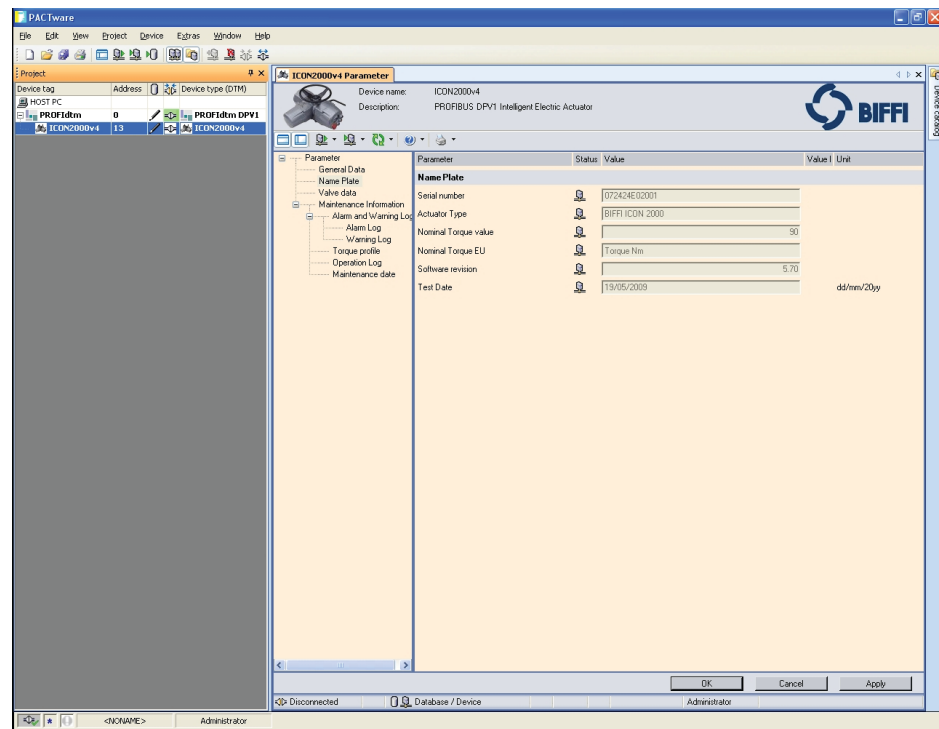


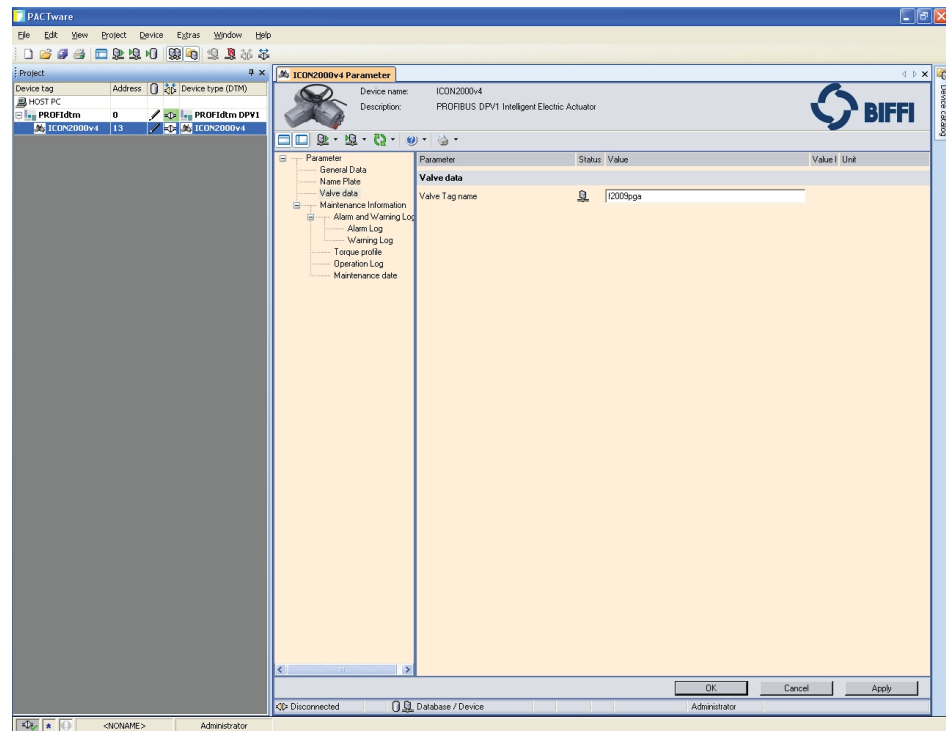
Table 5.

Name	Description
Serial number	Actuator serial number
Actuator Type	Actuator Type: ICON2000v4 or F01
Nominal Torque value	Nominal torque/thrust
Nominal Torque EU	Torque engineering unit
Software revision	Software version of base and fieldbus card
Test Date	Date of factory commissioning

## 4.3 Valve Data

It is possible to write and read the “Valve Tag name” parameter in Valve Data folder.

Figure 15



## 4.4 Alarm Log

Alarm Log folder shows the last 5 alarms occurred in ICON3000 actuator. The alarm #1 is the latest and the 5 is the oldest.

Figure 16

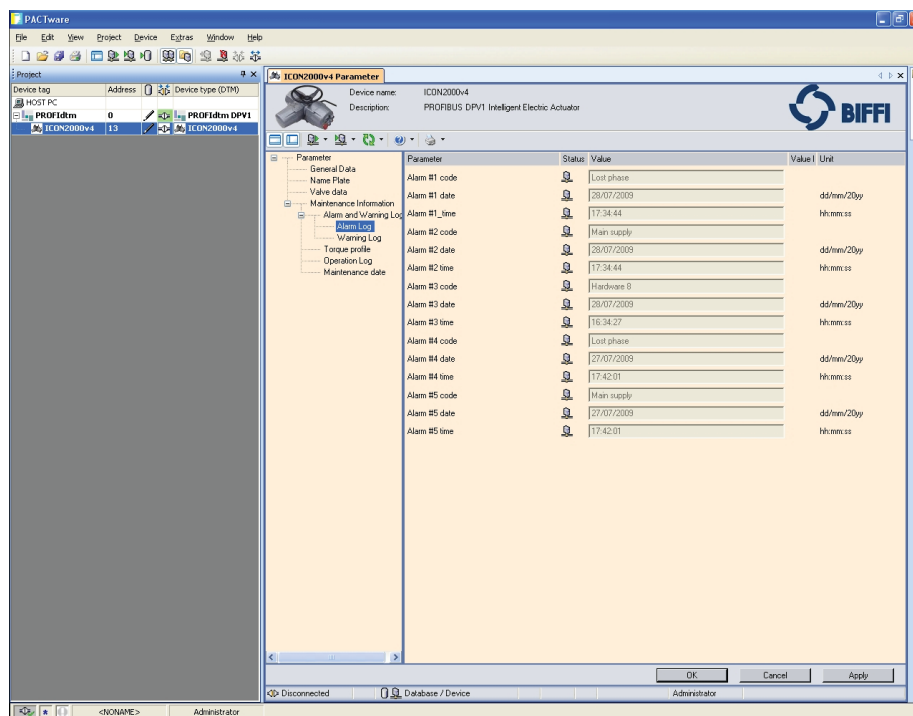


Table 6.

Name	Description
Alarm #1 code	#1 alarm occurrence code
Alarm #1 date	#1 alarm occurrence date
Alarm #1_time	#1 alarm occurrence time
Alarm #2 code	#2 alarm occurrence code
Alarm #2 date	#2 alarm occurrence date
Alarm #2 time	#2 alarm occurrence time
Alarm #3 code	#3 alarm occurrence code
Alarm #3 date	#3 alarm occurrence date
Alarm #3 time	#3 alarm occurrence time
Alarm #4 code	#4 alarm occurrence code
Alarm #4 date	#4 alarm occurrence date
Alarm #4 time	#4 alarm occurrence time
Alarm #5 code	#5 alarm occurrence code
Alarm #5 date	#5 alarm occurrence date
Alarm #5 time	#5 alarm occurrence time

## 4.5 Warning Log

Warning Log folder shows the last 5 warnings occurred in ICON3000 actuator. The warning #1 is the latest and the 5 is the oldest.

Figure 17

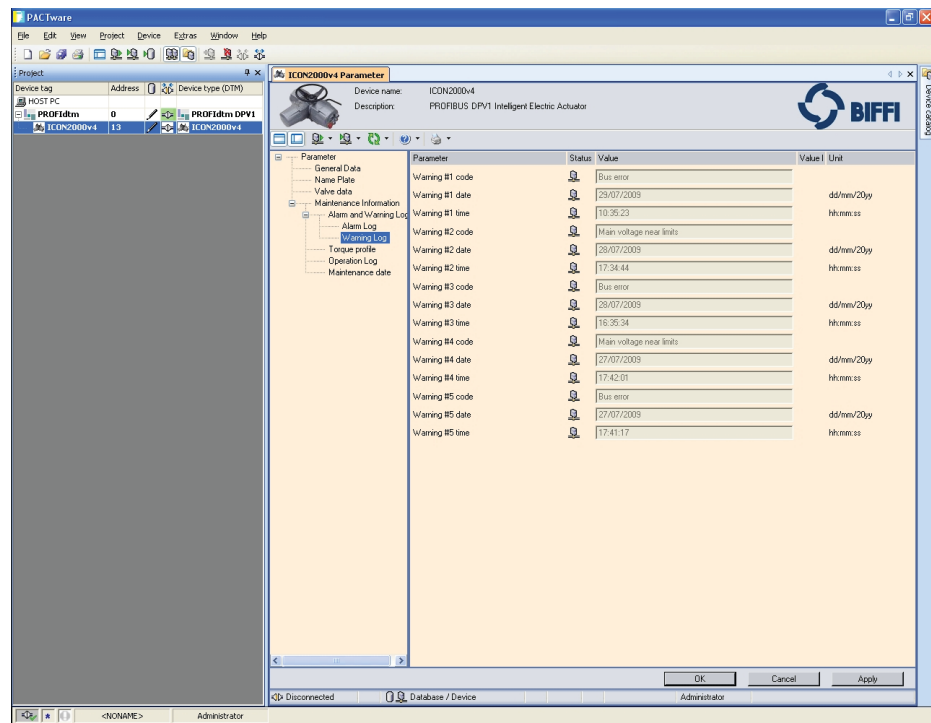


Table 7.

Name	Description
Warning #1 code	#1 warning occurrence code
Warning #1 date	#1 warning occurrence date
Warning #1 time	#1 warning occurrence time
Warning #2 code	#2 warning occurrence code
Warning #2 date	#2 warning occurrence date
Warning #2 time	#2 warning occurrence time
Warning #3 code	#3 warning occurrence code
Warning #3 date	#3 warning occurrence date
Warning #3 time	#3 warning occurrence time
Warning #4 code	#4 warning occurrence code
Warning #4 date	#4 warning occurrence date
Warning #4 time	#4 warning occurrence time
Warning #5 code	#5 warning occurrence code
Warning #5 date	#5 warning occurrence date
Warning #5 time	#5 warning occurrence time

## 4.6 Torque Profile

Torque Profile folder collects the information about the ICON3000 torque profile. All the parameters are read only access, except “Set Torque Reference” is a write access and allow set the last torque profile as to be the Reference.

Figure 18

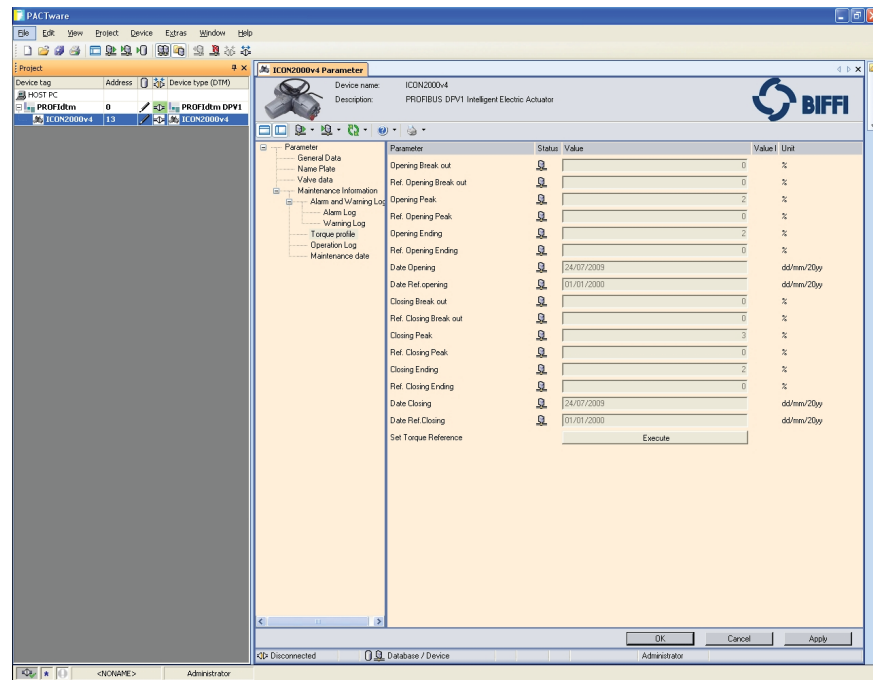


Table 8.

Name	Description
Opening Break out	Max. % of torque to unseat the valve in last opening stroke
Ref. Opening Break out	Max. % of torque to unseat the valve in reference opening stroke
Opening Peak	Max. % of torque when the valve runs from breakout to ending in last opening stroke
Ref. Opening Peak	Max. % of torque when the valve runs from breakout to ending in reference opening stroke
Opening Ending	Max. % of torque to seat the valve in last opening stroke
Ref. Opening Ending	Max. % of torque to seat the valve in reference opening stroke
Date Opening	Date of the last opening stroke
Date Ref. Opening	Date of the reference opening stroke
Closing Break out	Max. % of torque to unseat the valve in last closing stroke
Ref. Closing Break out	Max. % of torque to unseat the valve in reference closing stroke
Closing Peak	Max. % of torque when the valve runs from breakout to ending in last closing stroke
Ref. Closing Peak	Max. % of torque when the valve runs from breakout to ending in reference closing stroke
Closing Ending	Max. % of torque to seat the valve in last closing stroke
Ref. Closing Ending	Max. % of torque to seat the valve in reference closing stroke
Date Closing	Date of the last closing stroke
Date Ref. Closing	Date of the reference closing stroke
Set Torque Reference	Set Torque Reference

## 4.7 Operation Log

This folder collects the information of Operation Log of ICON3000 Actuator. All the parameters are read only access, except “Clear Recent Data Log” is a write access and perform a clear of recent data log.

Figure 19

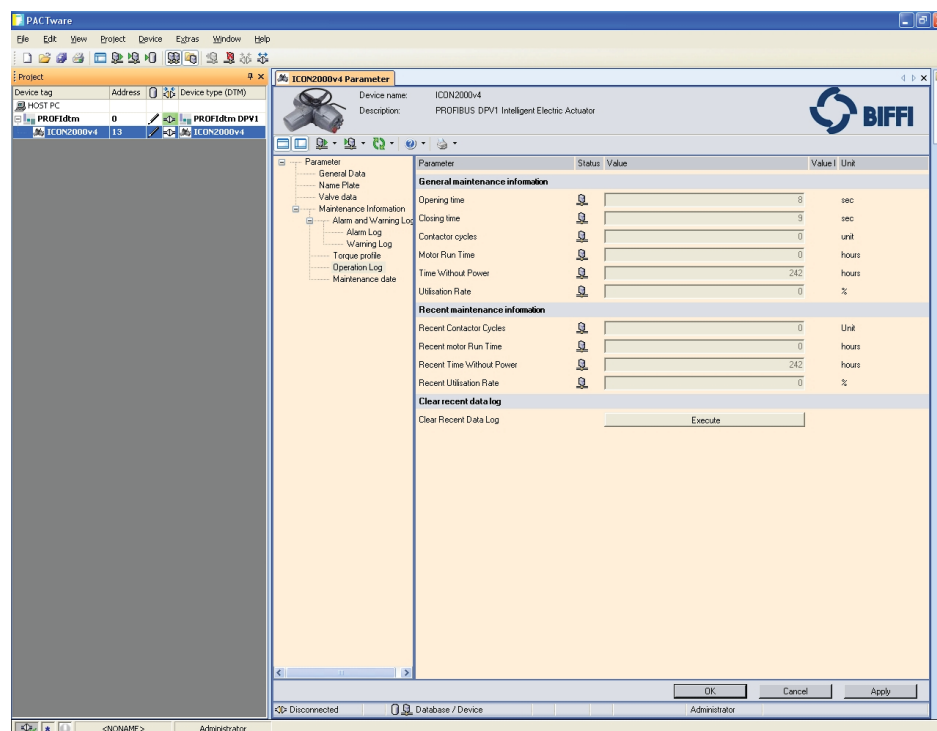


Table 9.

Name	Description
Opening time	Time necessary to the valve to move from the close position to the open position
Closing time	Time necessary to the valve to move from the open position to the close position
Contactor cycles	General log - count of the cycles of contactors K1 and K2
Motor Run Time	General log - count of the hours with motor energized
Time Without Power	General log - count of the hours without electrical power
Utilisation Rate	General log - incremented every 200 full strokes of the actuator
Recent Contactor Cycles	Recent log - count of the cycles of contactors K1 and K2
Recent motor Run Time	Recent log - count of the hours with motor energized
Recent Time Without Power	Recent log - count of the hours without electrical power
Recent Utilisation Rate	Recent log - is incremented every 200 full strokes of the actuator
Clear Recent Data Log	Allows to clear the counters of the recent operation log

## 4.8 Maintenance Date

This folder collects the important date of actuator service. From this folder, these parameters are read only, but it is possible to write them from the “Maintenance Command” folder.

Figure 20

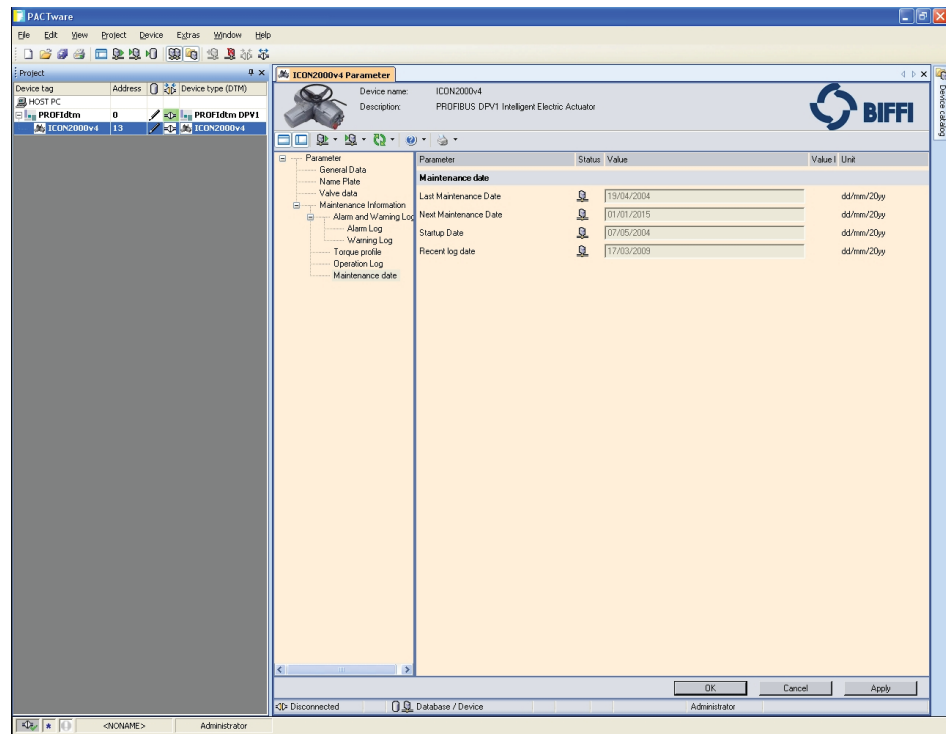


Table 10.

Name	Description
Last Maintenance Date	This is the date of the last maintenance operation
Next Maintenance Date	This is the date of the next scheduled actuator maintenance
Startup Date	This is the date of the actuator start-up
Recent log date	The date of the last clearing of recent Log. This is updated after entering the command "Clear Recent Data Log"

# Section 5: Additional Functions

## 5.1 Maintenance Commands

These folders give the possibility to write and change the maintenance date of ICON3000 actuator.

Figure 21

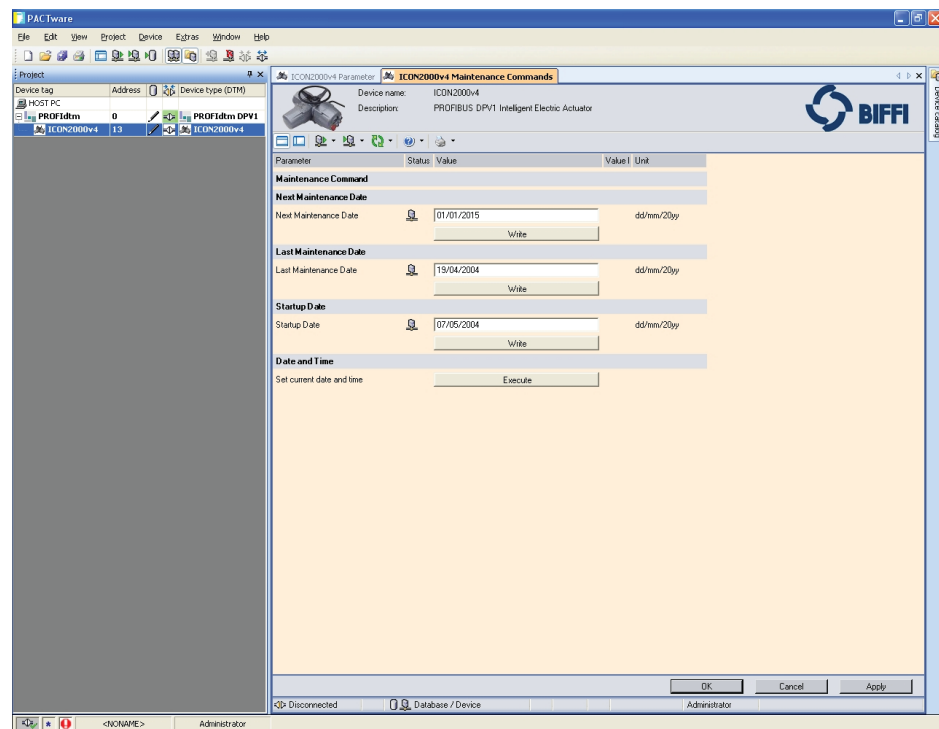


Table 11.

Name	Description
Next Maintenance Date	This is the date of the next scheduled actuator maintenance
Last Maintenance Date	This is the date of the last maintenance operation
Startup Date	This is the date of the actuator start-up
Set current date and time	Synchronize actuator date and time with PC

## 5.2 Cyclic Communication DPV0

Module Selection parameter switches between 4 Module-Variants of Cyclic Communication DPV0. With the DTM, ICON3000 supports Profibus DPV0 channel parameter dependent on module selection.

These parameters are helpful for some control systems like ABB Control Builder 800F.

Figure 22

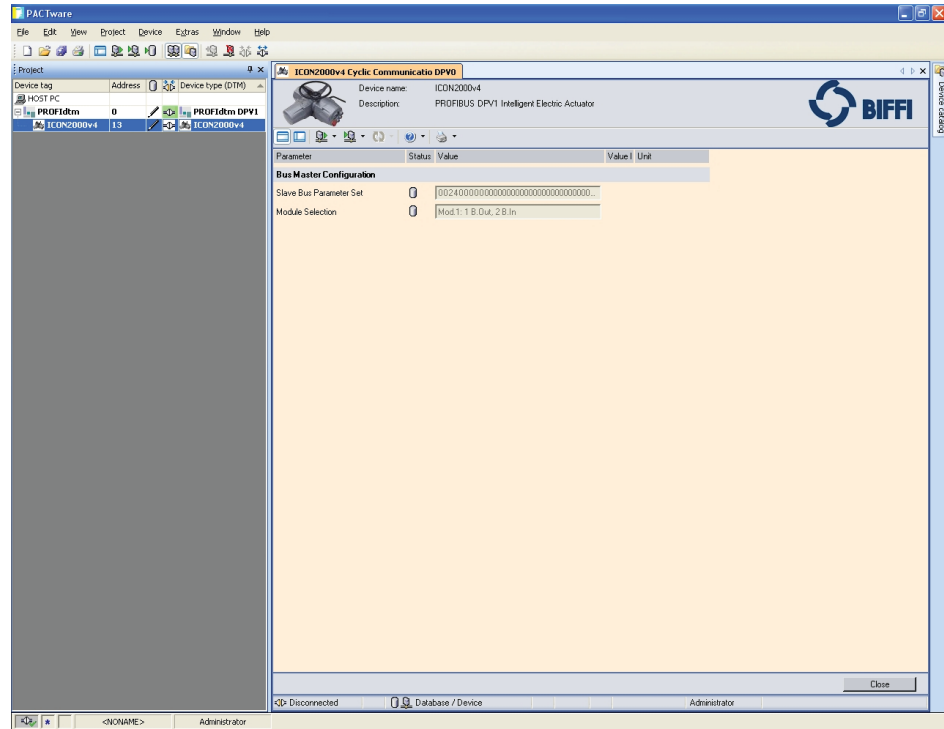


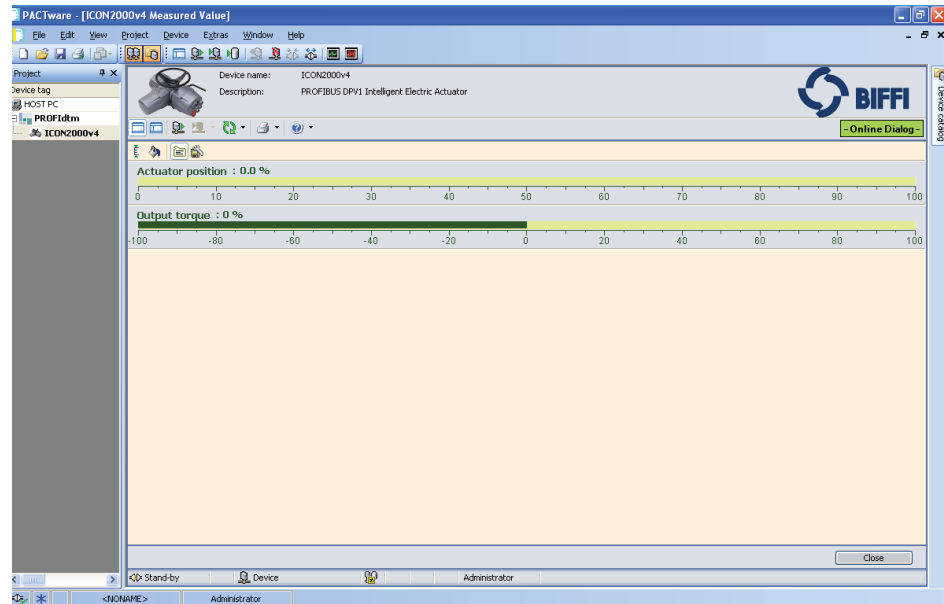
Table 12.

Name	Description
Slave Bus Parameter Set	Slave Bus Parameter Set
Module Selection	Switch between 4 Module-Variants of Cyclic Communication DPV0

## Section 6: Measured Value

This window shows the actual position and torque of ICON3000 actuator.

Figure 23



Tools for this window:



Capture measurement range bring the scale in to visible range.



Bar-colour change the colour of bar.

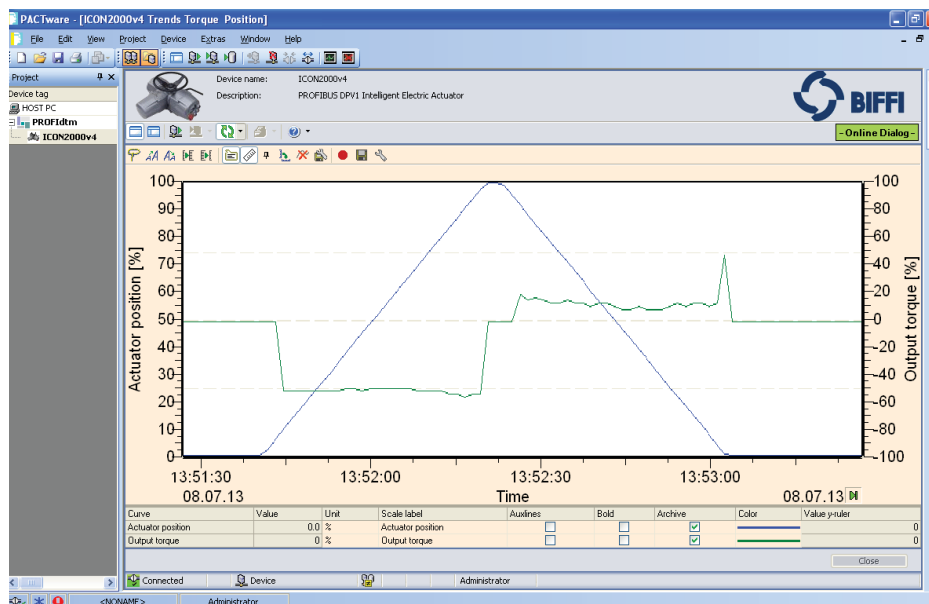


Enable and disable the tooltip.













## 6.1 Trends Torque and Position

This window allows the user to capture a trend curve of torque and position of actuator.

Figure 24



Tools for this window:

-  Show the entire curve in the graph area.
-  Enlarge/reduce the size of font.
-  Enlarge/reduce the graph area width.
-  Enable and disable the tooltip.
-  Enable/disable the ruler. Click the scale and drag in the graph area.
-  Allow the scale positioning.
-  Allow the exchange from X and Y scale, it works only with “Allow scale positioning” enabled.
-  Clear the graph area.
-  Save the actual settings.
-  Start and stop live recording of read value in archive file.
-  Save the entire graph in the archive file.
-  Setup of archive file.

## 6.1.1 How to Record an Actuator Signature




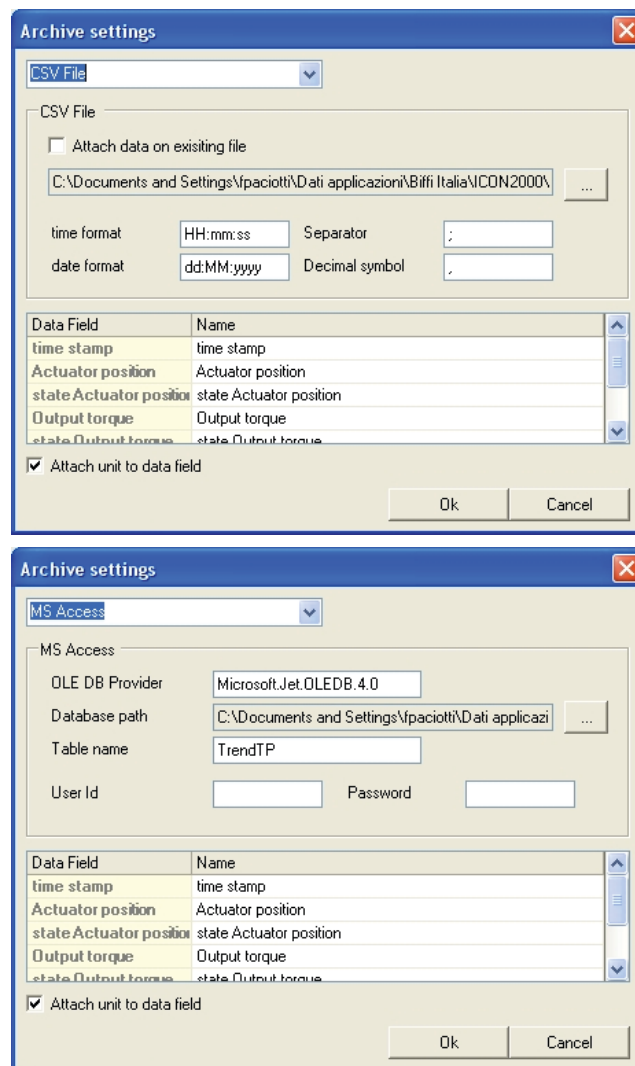
1. Close all the other tabs/windows of DTM (this is important to speed up the systems).
2. Click on “Settings” .
3. Select the type of archive file, “CSV File” or “MS Access” database.
4. Select the path where it is possible to create the archive file. If the file exists, it could be selected.
5. Click “OK” and close the setting.
6. Check the Archive flag for torque and position. Below the graph area.
7. Be sure that the actuator is FULLY CLOSED (for an open signature) or FULLY OPEN (for a close signature).
8. Click on  to start the continuous reading.
9. Click on  and all the value of trend are stored directly to the archive file.

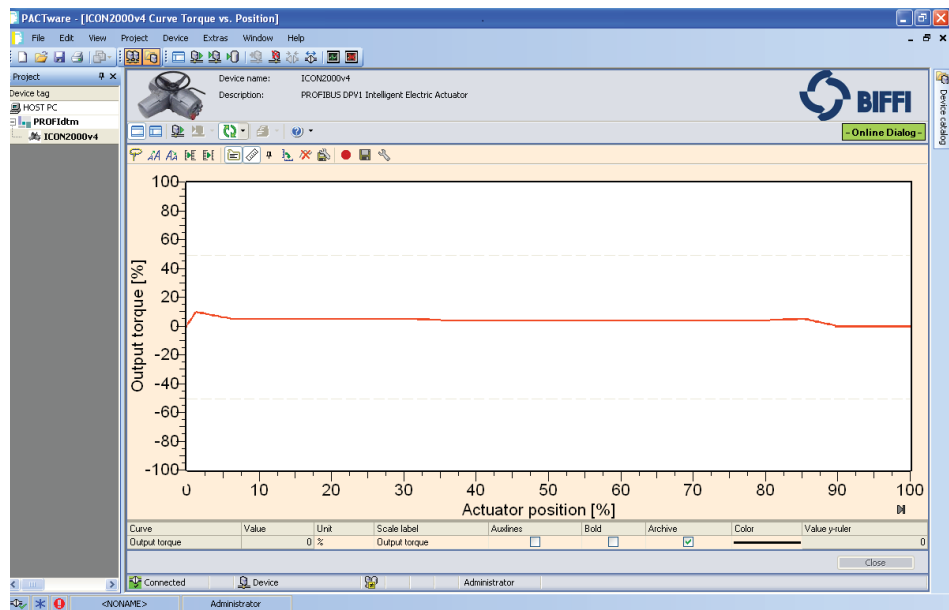
Figure 25



## 6.2 Curve Torque vs. Position

This window allows checking and saving a Curve Torque vs. Position. The tools and the functionality are the same of Trend Torque and Position window.

Figure 26



# Section 7: FDT Certificate

Figure 27



Figure 28



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