# Instruction Manual

| Type | Parameter loader for multi-loop module-type temperature controller (For version 2.2.0 or later) |
| --- | --- |
| PUM | |

## Fuji Electric Co., Ltd.

INP-TN5A1634a-E

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Thank you very much for purchasing Fuji's multi-loop module-type temperature controller. Please read this instruction manual carefully before using the instrument. Make sure that this instruction manual will be handed over to the final user of this software (PUM parameter loader).

**Note**

## Contents

# *1*   About the copyright of this software

The copyright of this software (PUM parameter loader) belongs to Fuji Electric Co., Ltd. Reproduction of any form or distribution of this software without permission is prohibited.

# *2*  Outline

This software (PUM parameter loader) is an auxiliary tool for setting parameters and tuning the module-type temperature controller. The setting conditions can be edited and saved with this software. By setting, editing, and saving parameters on your PC, the setting can be copied for multiple module-type temperature controllers. The PV, SV, and MV trend can also be displayed as an auxiliary tool for tuning the module-type temperature controllers.
Unless otherwise specified, the parameter loader for module-type temperature controllers (PUM) is referred to as "PUM parameter loader" or "this software" in this manual.

# *3*  Operating environment

| | |
|---|---|
| OS | : Windows XP, Windows 7 (English version) |
| RAM | : 128M bytes or more recommended |
| Free hard disk space | : 500M bytes or more recommended |
| Display resolution | : 1024 × 768 pixels or higher |
| Excel | : Microsoft ® Office Excel |
| Reader | : Adobe Reader |

### Note

- Windows® is a registered trademark of Microsoft Corporation.
- Excel® is a registered trademark of Microsoft Corporation.
- Adobe® and Reader® are registered trademarks of Adobe Systems Incorporated.

# *4* Installing/uninstalling the software

Parameter loader for PUM is installed to PC and enabled to use. When you delete the parameter loader for PUM, make sure to conduct to uninstall it.

## Installation

Install the parameter loader for PUM on your PC.

*1* Open the "PUM loader" folder which was downloaded and double click [PUMLoader-Installer- ∗∗∗ .exe]
Note: Please refer to "PUM parameter loader revision list (P.75)"

*2* Click [Next] to continue.



■**To stop installation, click [Cancel].**

*3* Enter user information as necessary, and then click [Next>].
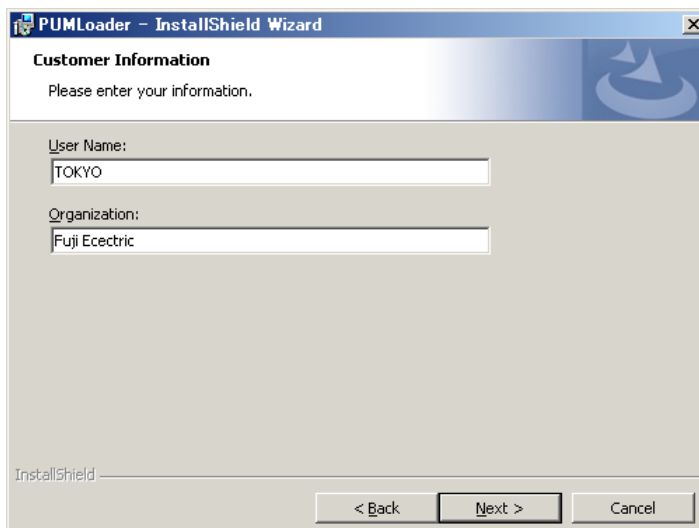
**4**   Select the installation folder and click [Next>].
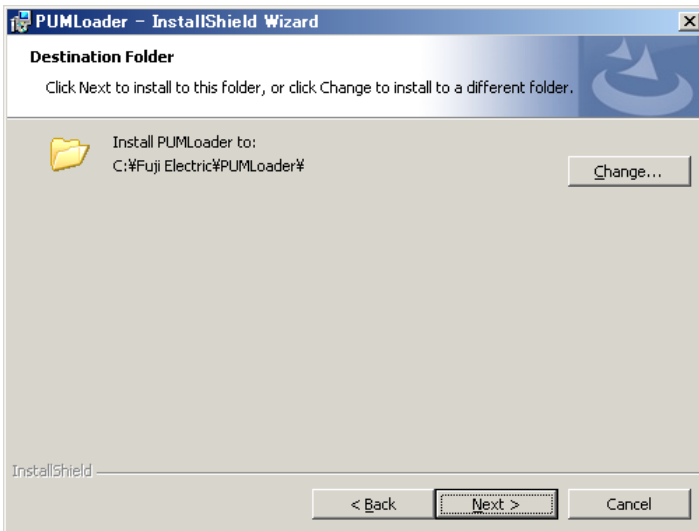


■**To return previous procedure, click [<Back].**

■**To stop installation, click [Cancel].**

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**Note**

When you use Windows7, do not install the parameter loader to "C:¥Program Files" Otherwise, parameter loader for PUM may not be operated properly.

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**5**   Confirm the installation and click [Install].
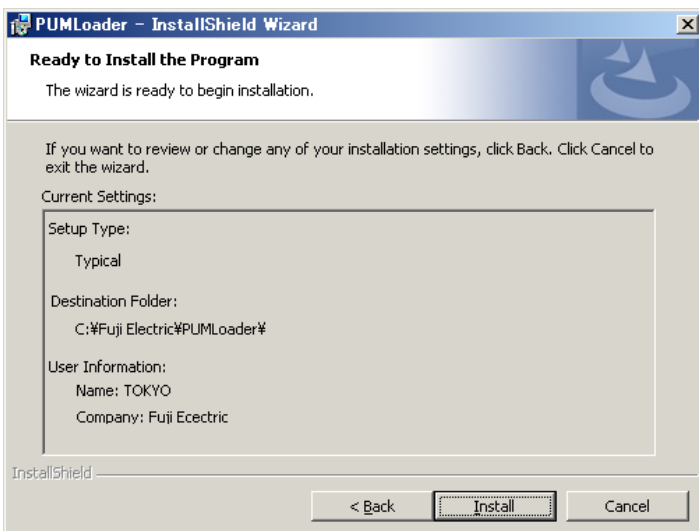


■**To return previous procedure, click [<Back].**

■**To stop installation, click [Cancel].**

**6** Installation begins.
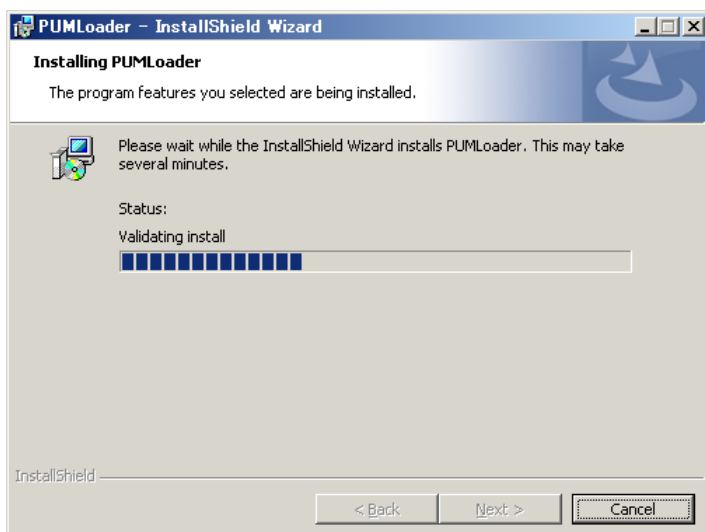


■**To stop installation, click [Cancel].**

**7** Click [Finish].
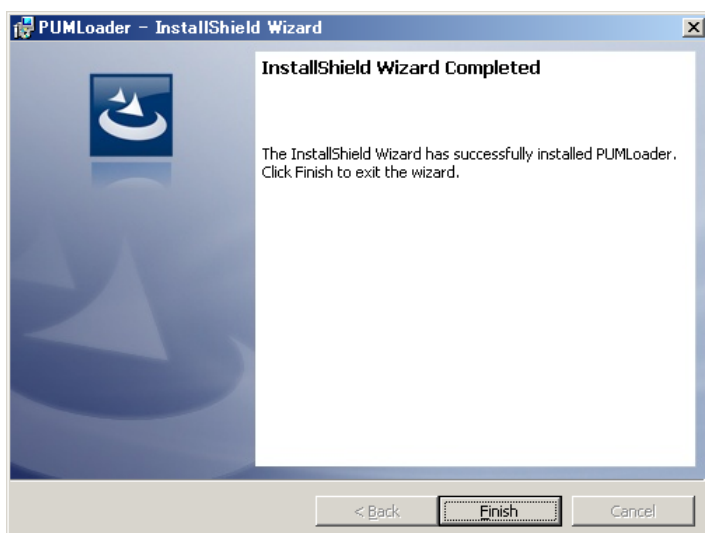


# Uninstallation

(1) Windows XP
"Control panel (C)" → "Program Add/Delete" from the start menu to uninstall the software.

(2) Windows 7
Select "Control panel (C)" → "Program" from the start menu to uninstall the software.

# 5 Connecting your PC to the module-type temperature controller

Connect your PC to the module-type temperature controller using the RS-232C interface.

> **Note**
>
> - Make the setting, being careful not to make the station Nos. of the module-type temperature controllers duplicate. The station number of the control module (PUMA/B) or the analog module is the station number configuration switch +1, and that of the event module (PUME) is the station number configuration switch +17.
> - Connection via RS-485 communication is not supported.
> - When operating the parameters of the enhanced communication module, connect the loader connecting cable to the loader communication port of the enhanced communication module.

## Connection with RS-232C

Provide the optionally available cable for loader connection (RS-232C, Type: PUMZ *L01). Connect the RS-232C port (D-sub 9 pin) and the loader communication port on the front face of the module-type temperature controller with the loader connecting cable.

### [When connecting the PUM parameter loader to a control module, an event module, and an analog module]

**<Connecting a single unit>**

**<Connecting multiple units>**
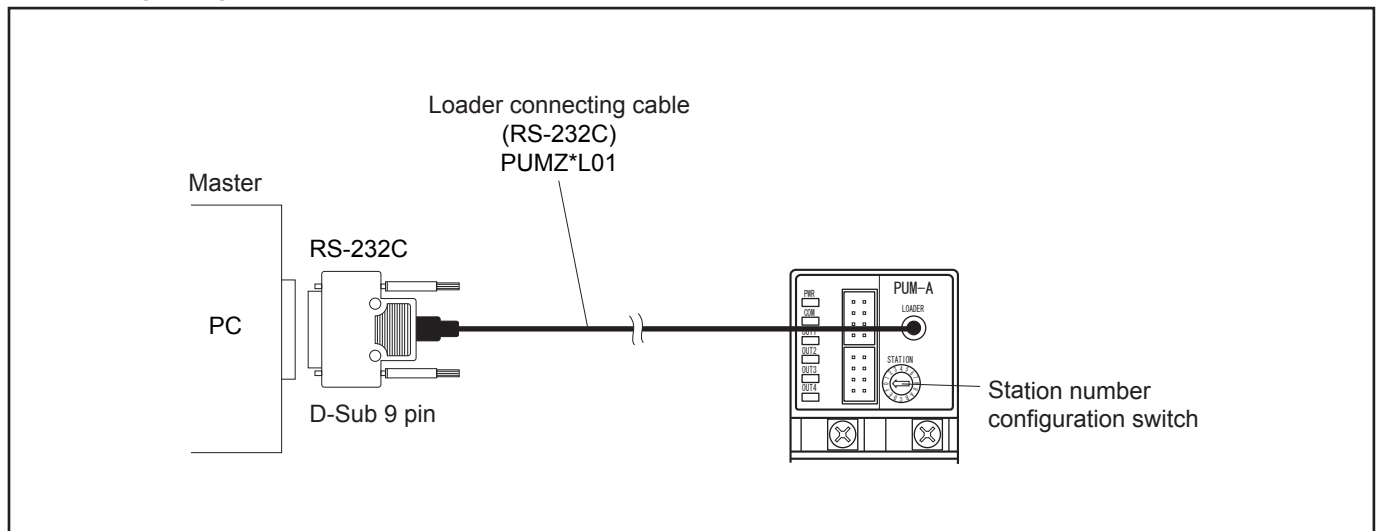
(1) Adjust the station number configuration switch to "0" position.
   * **The station number configuration switch can be adjusted a control/event/analog module in hexadecimal digits from 0 to F.**



Station number configuration switch

(2) Connect one unit only first, and then select on the tree structure in the left field of the "PUM parameters Support" screen (on P. 25) "Control module →1; Parameter → 6; Communication →6; Master/Slave" setting connected module to "Master". (See "Parameter setting" on P. 25 for details of the setting.)
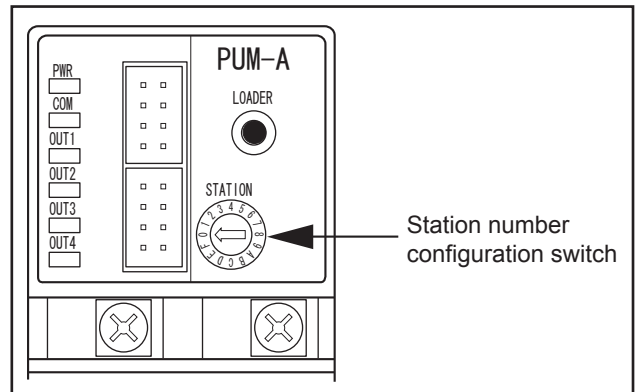   * **The multiple module-type temperature controller set in (2) above functions as the master..**
(3) Connect multiple module-type temperature controllers to the one set as the master clockwise.

**Note**

Be sure to turn off the power of the module-type temperature controllers before making connections.

(4) Set the station number configuration switches of the connected module-type temperature controllers as 1, 2, ……, F (station Nos.: 2, 3, ……, 16) consecutively from left.
   * **Control/Analog module :  Station number configuration switch set value + 1 = Station No.**
   **Event module        :  Station number configuration switch set value + 17 = Station No.**

**Note**

Set the station number of the control/analog module in the range of "1" to "16" without number duplication.

(5) Following the procedure "Parameter setting" (on P.25), check that "Control module → 1; Parameter → 6; Communication → 6; Master/Slave setting connected module is set to "Slave" except for the first one, which is set to "Master."

**Note**

When all the settings are completed, turn on the power again.

**Completed connections**



| | Control module + Analog I/O module (Total max. 16 units) | | | Event I/O module (Total max. 16 units) | |
|---|---|---|---|---|---|
| St. No. | ST1 | ST2 | ST16 | ST17 | ST32 |
| Set value of the St. No. configuration switch | 0 | 1 | F | 0 | F |
| | Master | Slave | Slave | Slave | Slave |
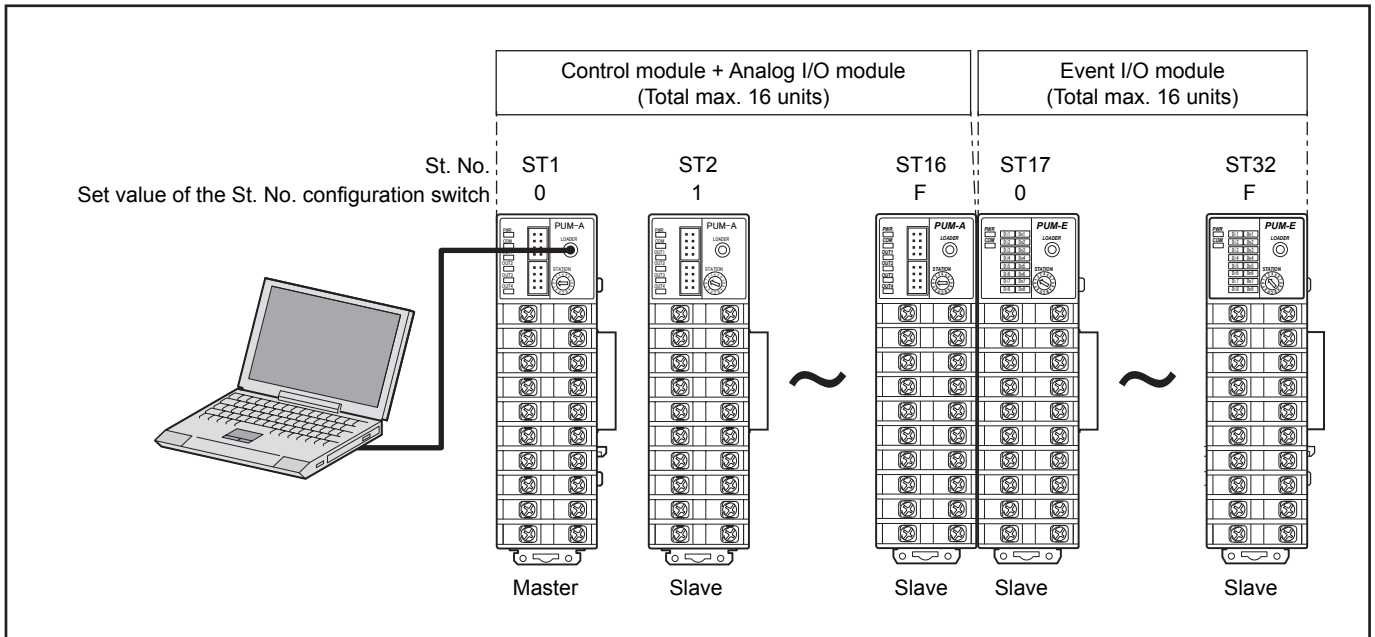
## [When connecting the PUM parameter loader to the enhanced communication module]



Loader connecting cable
(RS-232C)
PUMZ*L01

Master

RS-232C

PC

D-sub 9 pins

PUM-C

PWR
BUS
RX1
TX1
RX2
TX2

LOADER

STATION

St. No. configuration switch

*Figure above shows the case that Mitsubishi's programless communication (PUMCM) is used

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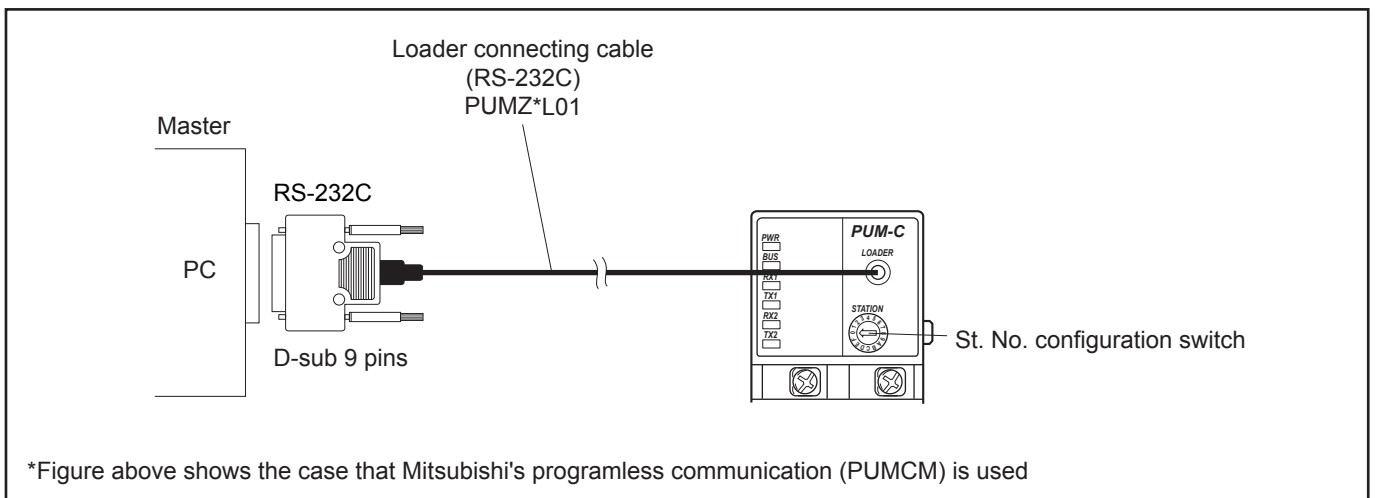
**Note**

When you operate parameters of an enhanced communication module, the loader connecting cable should be connected to the loader communication port on the enhanced communication module directly.

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When all the settings are completed, turn the power on again.

**<Completed connections>**



| | Enhanced communication module | Control module + Analog I/O module (Total max. 16 units) | | | Event I/O module (Total max. 16 units) | |
|---|---|---|---|---|---|---|
| St. No. | ST128 | ST1 | ST2 | ST16 | ST17 | ST32 |
| Set value of the St. No. configuration switch | 0 to 7 (Mitsubishi programless communication) 0 to 99 (Profibus communication) | 0 | 1 | F | 0 | F |
| | | Master | Slave | Slave | Slave | Slave |

*Figure above shows the case that Mitsubishi's programless communication (PUMCM) is used

Note

Always place the enhanced communication module on the left of the control module set as the master.

# *6* Starting the PUM parameter loader

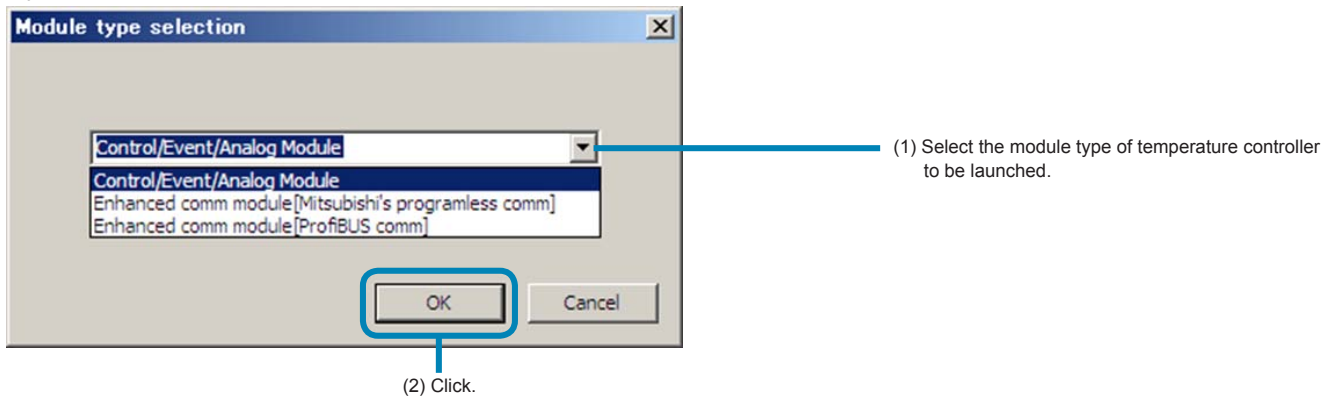When you launch "PUM loader" in start menu, "module type selection" is indicated.

*1* In "module type selection" screen, select the module type of temperature controller to be launched and click [OK].

If you click [Cancel], parameter loader for PUM is end.



(1) Select the module type of temperature controller to be launched.

(2) Click.

*2* "Startup mode" is indicated.

**Screen of control/ event / analog module at start-up.**
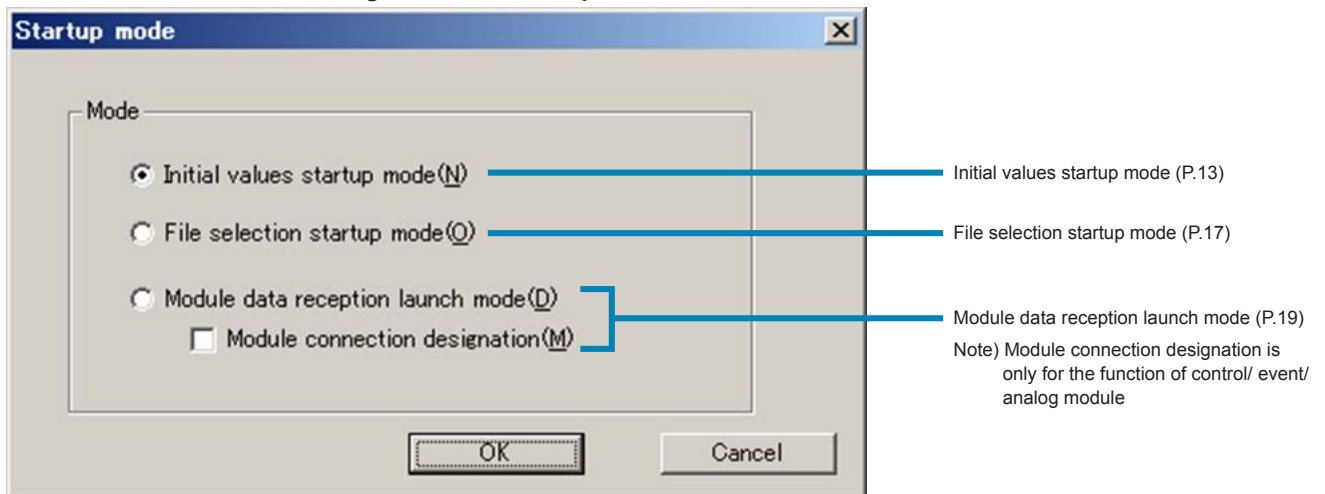


Initial values startup mode (P.13)

File selection startup mode (P.17)

Module data reception launch mode (P.19)

Note) Module connection designation is only for the function of control/ event/ analog module

**Screen of enhanced communication module /ProfiBUS communication module, Mitsubishi program less communication module, Ethernet communication module at start-up.**

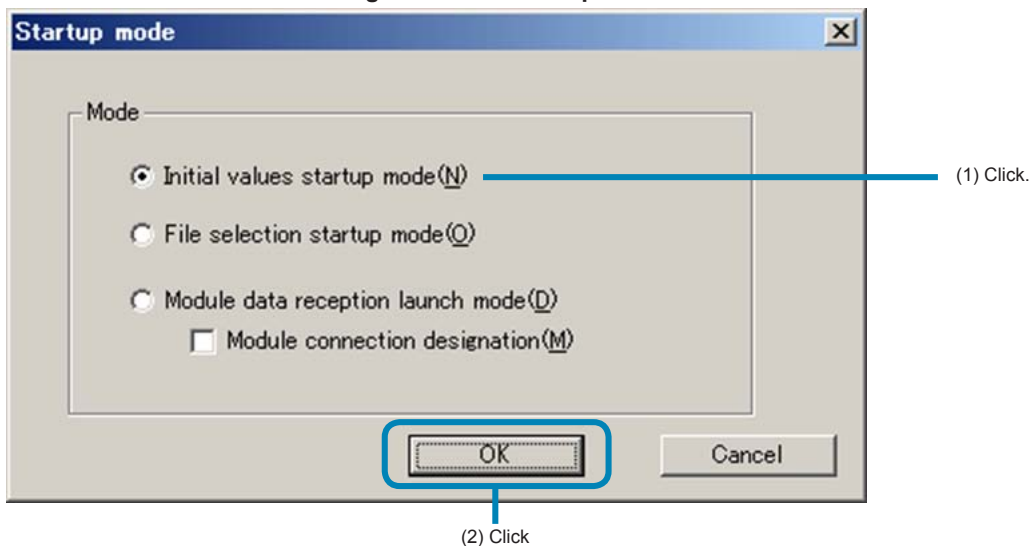| Startup mode | |
|---|---|
| **Mode** | |
| ⦿ Initial values startup mode(N) | ——— Initial values startup mode (P.13) |
| ○ File selection startup mode(O) | ——— File selection startup mode (P.17) |
| ○ Module data reception launch mode(D) | ——— Module data reception launch mode (P.19) |
| OK | Cancel |

---
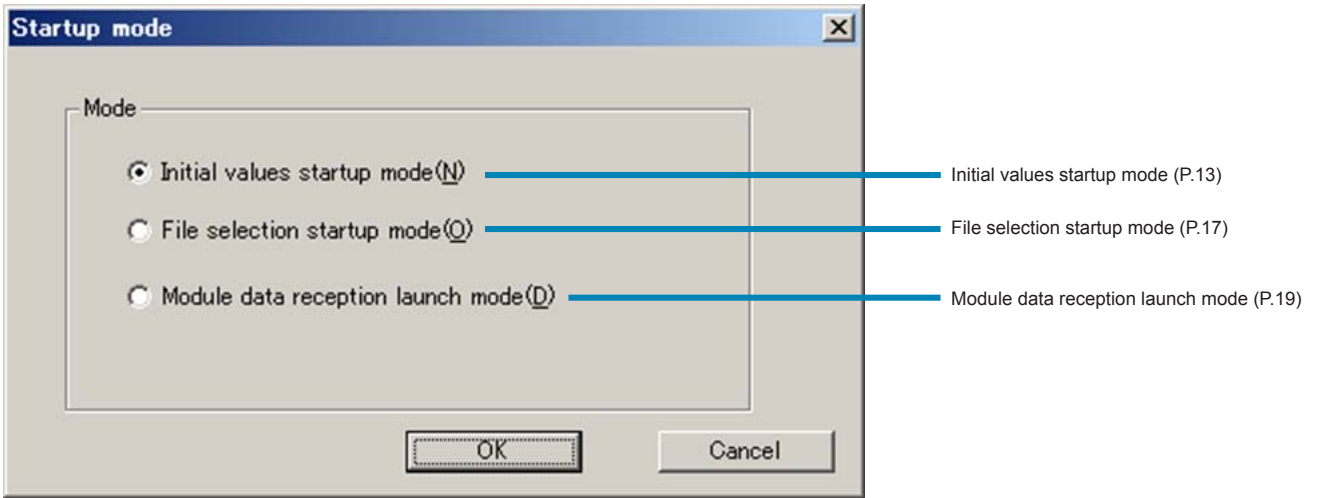
**Note**

In "module type selection" screen, in case you select the module type selection different from module type of temperature controller being connected, communication error will occur at upload and download. Make sure to select proper module type selection.
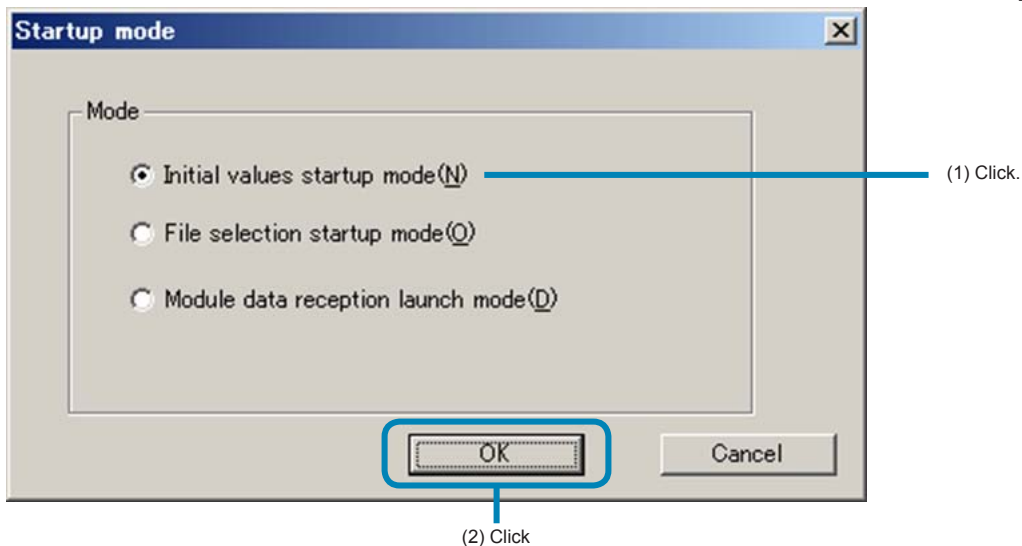
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# Startup mode/Initial values startup mode

Select the module type of temperature controller to be set and conduct the setting.
Make sure to conduct this function under a situation where PUM is not connected to PC.

*1* In "Startup mode" screen, select "Initial values startup mode" and click [OK].

**Screen of control /event / analog module at start-up.**



(1) Click.

(2) Click

**Screen of enhanced communication module /ProfiBUS communication module at start-up.**



(1) Click.

(2) Click

**2** Station definition.

**Control / event / analog module.**



When click the [setting] button of the station No. to be set, "model code setting" screen appears. Set the last 10 digits of type code and click [Check] button.
When registration is completed, type code will be indicated at A in model code setting and then click [OK].
Set the station No. 1 to 16 for control /analog module, station No. 17 to 32 for event module.
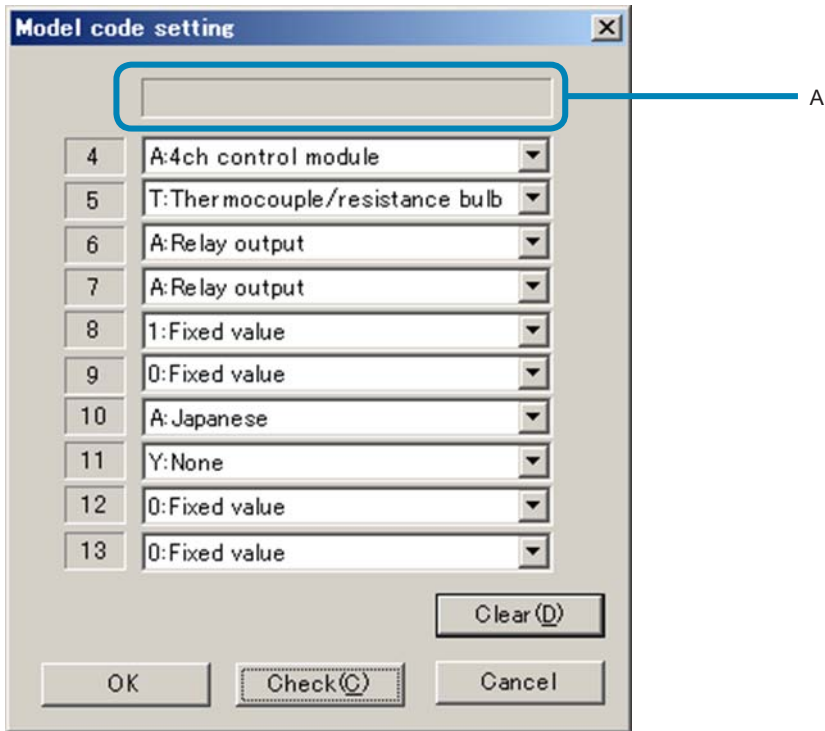
**Enhanced communication module [Mitsubishi program less communication]**

When you select the enhanced communication module [Mitsubishi program less communication], screen of station definition is not indicated and model code setting appears. Enhanced communication module [Mitsubishi program less communication] has the fixed model code, therefore do not change the model code setting and just click [Check] button and then click [OK] button after model code appears at A as shown Fig.5.
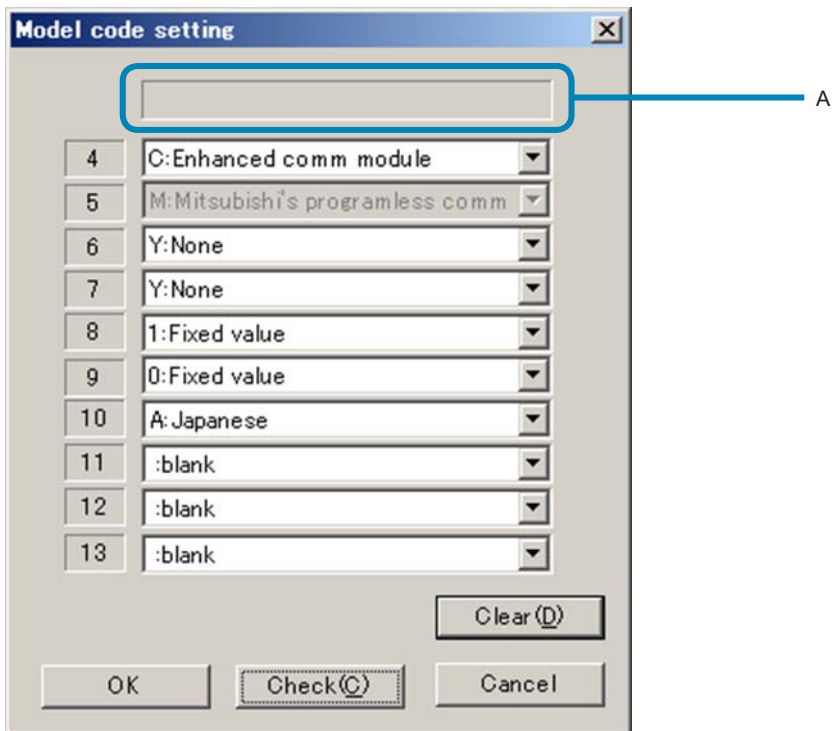


Fig.5  Model code setting

**ProfiBUS communication module [ProfiBUS communication]**

When you select ProfiBUS communication module [ProfiBUS communication], screen of station definition is not indicated and model code setting appears. ProfiBUS communication module [ProfiBUS communication] has the fixed model code, therefore do not change the model code setting and just click [Check] button and then click [OK] button after model code appears at A as shown Fig.6.
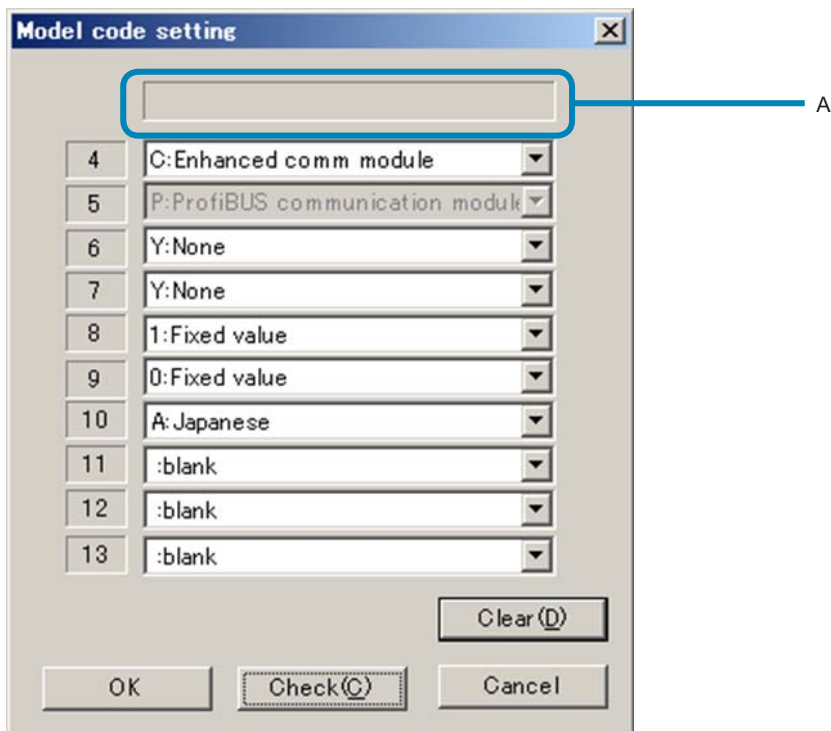


Fig.6  Mode code setting

In accordance with above procedures, PUM loader will be launched with parameter value of factory default corresponding to model code.

# Selecting mode/File selection startup mode

Read the parameter setting file stored previously as follows.

*1* Select "File selection startup mode" on the "Startup mode" screen, and then click [OK].

**The display screen of the control/event/analog module on start-up**



(1) Click.

(2) Click
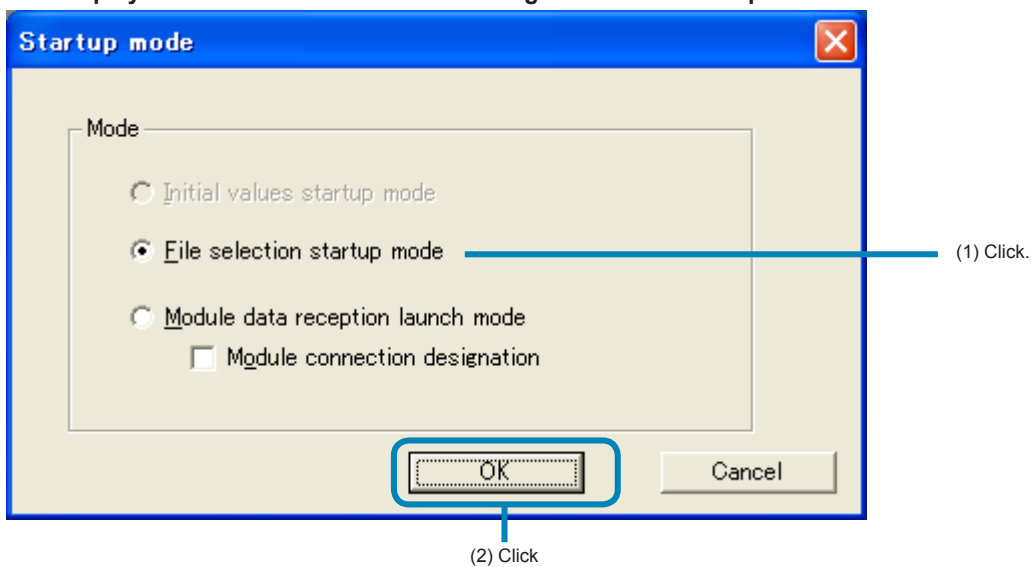
**The display screen of the enhanced communication module on start-up**
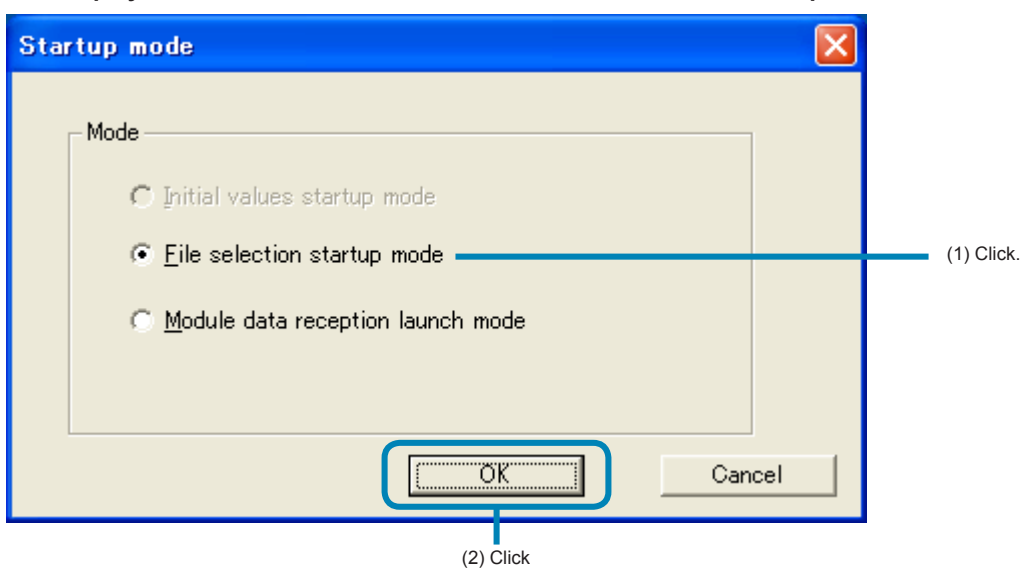


(1) Click.

(2) Click

**2** On the "File selection startup mode" screen, select the file or the parameter setting stored previously, and then click [Open].



(1) Select

(2) Click.
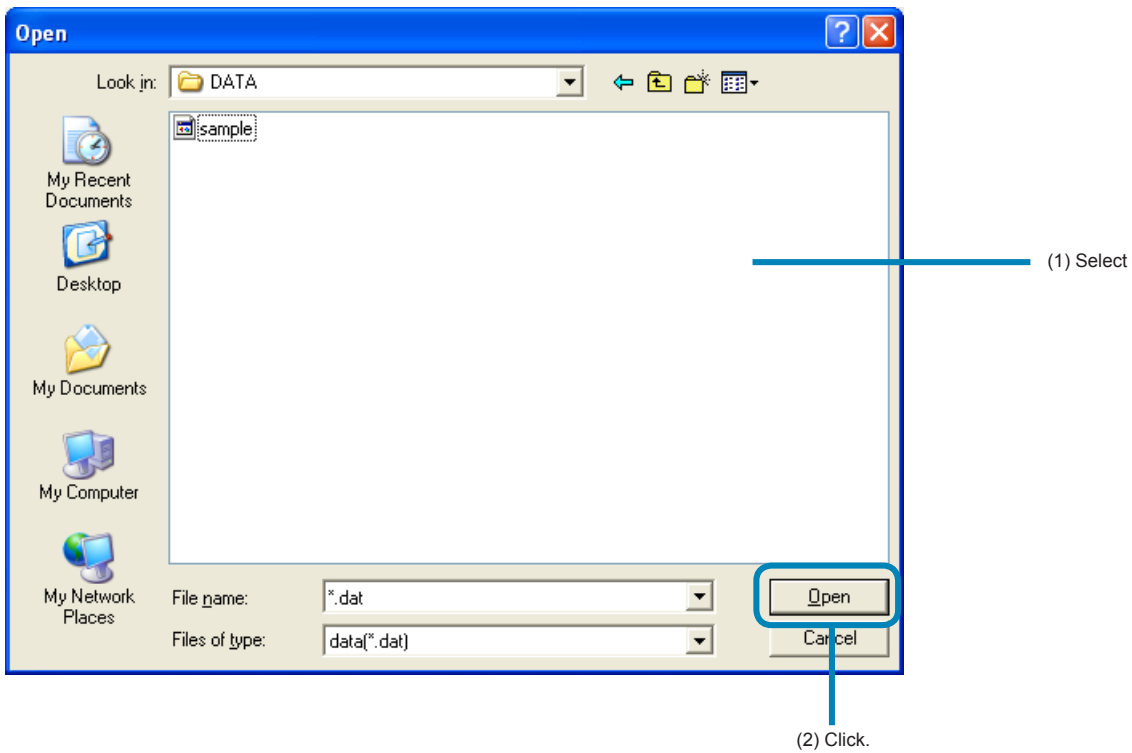
The "PUM loader-PUM parameters Support" screen appears (P.25).

# Selecting mode/module data reception launch mode

Read the parameter setting of the connected module-type temperature controllers as follows.

*1* On the "Startup mode" screen, select "Module data reception launch mode" and then click [OK].

**The display screen of the control/event/analog module on start-up**



(1) Click.

(2) Click.

**The display screen of the enhanced communication module on start-up**



(1) Click.

(2) Click.
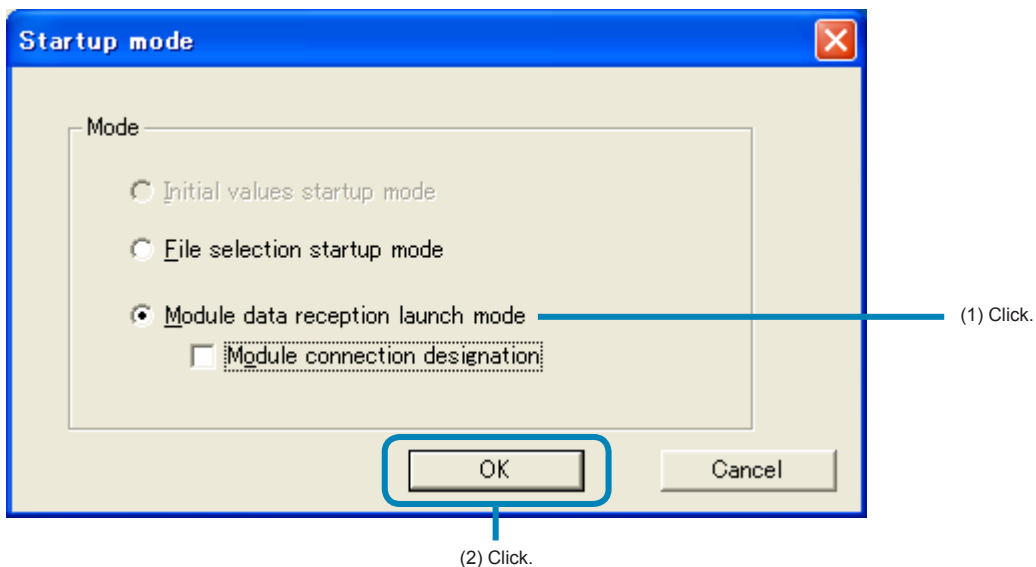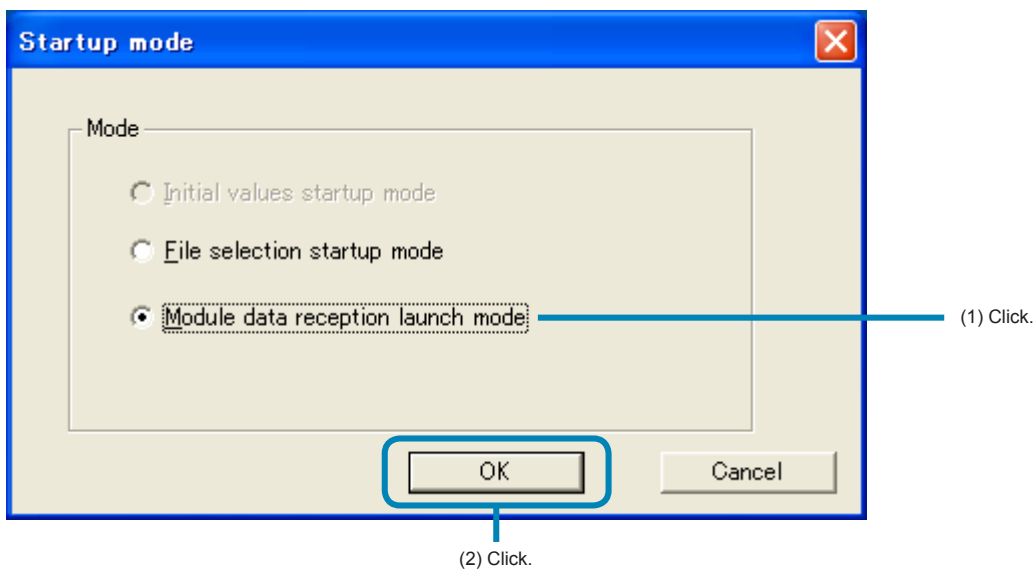
**2** The "PUM loader-PUM Parameters Support" screen appears (P.25).

Check the connected module-type temperature controllers automatically, and then read the set value out.

■**To cancel reading**
Press the [Esc] key on the keyboard to cancel reading.

Note

- Approximately 20 seconds are required to read the parameter settings per module-type temperature controller. Do not perform other communication operations while the settings are read.
- Do not turn off the power of the module-type temperature controller while the settings are read.
- Do not pull out the loader connection cable while the settings are read.

## Reading the setting by selecting the Station No. of the module-type temperature controllers connected

This method is not available when selected the "Enhanced comm module [Mitsubishi's programless comm]", "Profibus comm module [Profibus comm]", "Ethernet comm module [Ethernet comm]" on the "module type selection".

**1** Select "Module data reception launch mode" on the "Startup mode" screen, check "Module connection designation," and click [OK].

**Startup mode**

Mode

○ Initial values startup mode

○ File selection startup mode ──────────────────────── (1) Click.

⦿ Module data reception launch mode ──────────────
　　☑ Module connection designation ──────────────── (2) Check.

[ OK ]　　[ Cancel ]

(3) Click.

**2** Check the St No. of the module-type temperature controller to be read on the "Station definition" screen, and then click [OK].

**Station definition**

| Control module | | | Event input/output module | | |
|---|---|---|---|---|---|
| St. No. | Connect | | St. No. | Connect | |
| 1 | ☑ | | 17 | ☑ | |
| 2 | ☑ | | 18 | ☐ | |
| 3 | ☐ | | 19 | ☐ | |
| 4 | ☐ | | 20 | ☐ | |
| 5 | ☐ | | 21 | ☐ | |
| 6 | ☐ | | 22 | ☐ | |
| 7 | ☐ | | 23 | ☐ | |
| 8 | ☐ | | 24 | ☐ | |
| 9 | ☐ | | 25 | ☐ | |
| 10 | ☐ | | 26 | ☐ | |
| 11 | ☐ | | 27 | ☐ | |
| 12 | ☐ | | 28 | ☐ | |
| 13 | ☐ | | 29 | ☐ | |
| 14 | ☐ | | 30 | ☐ | |
| 15 | ☐ | | 31 | ☐ | |
| 16 | ☐ | | 32 | ☐ | |

(1) Check.
*1

[ OK ]　　[ Cancel ]

*1: Select from the Station Numbers of "Control module" with Analog module.

(2) Click.
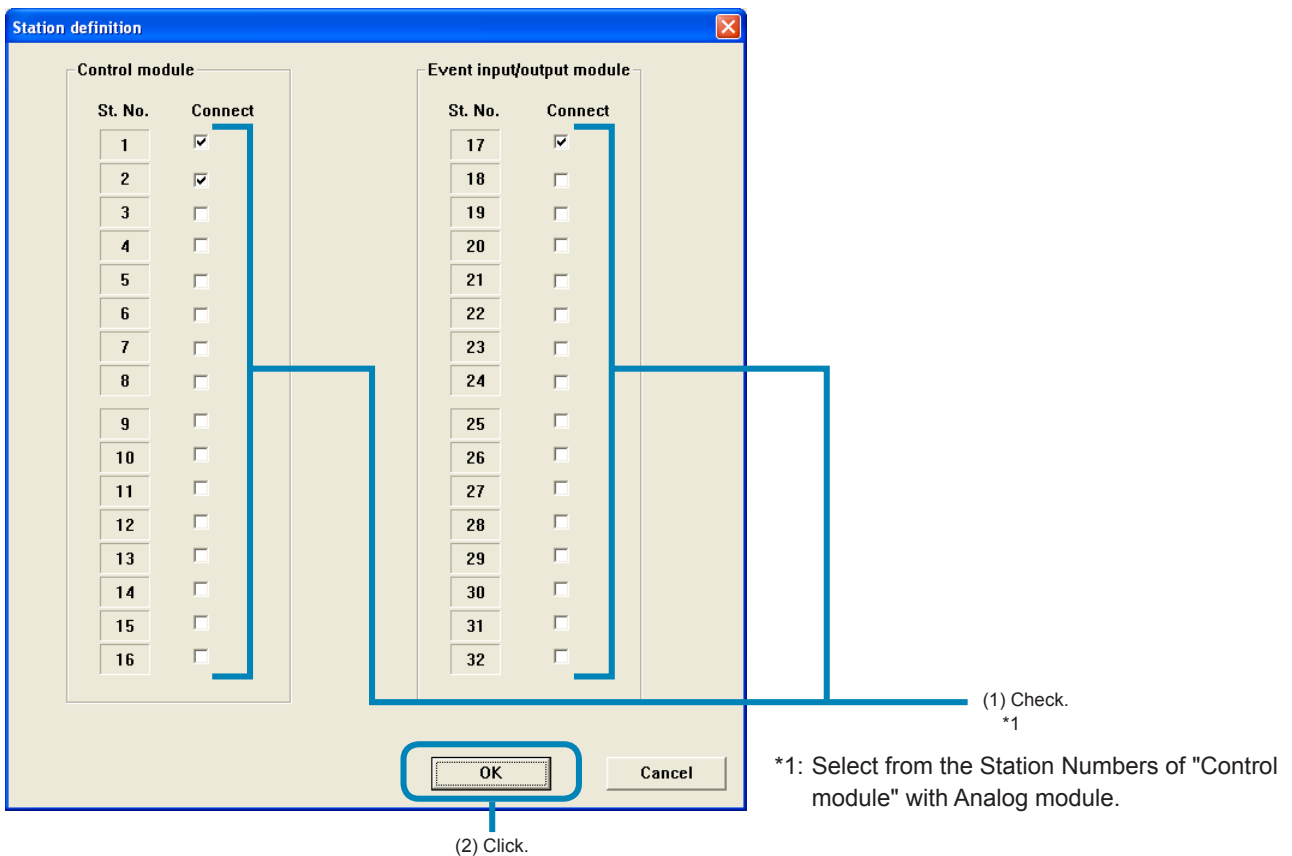
**Note**

Do not check the ST No. of the controller that is not connected. Otherwise a communication error occurs. The "communication error" message does not appear in this case. (The reading from the module-type temperature controller connected is performed normally.)

*3*   The "PUM loader – PUM Parameters Support" screen appears (P.25).

Read the parameter set value out from the module-type temperature controller of the St. No. that was checked in the box.
■**To cancel reading**
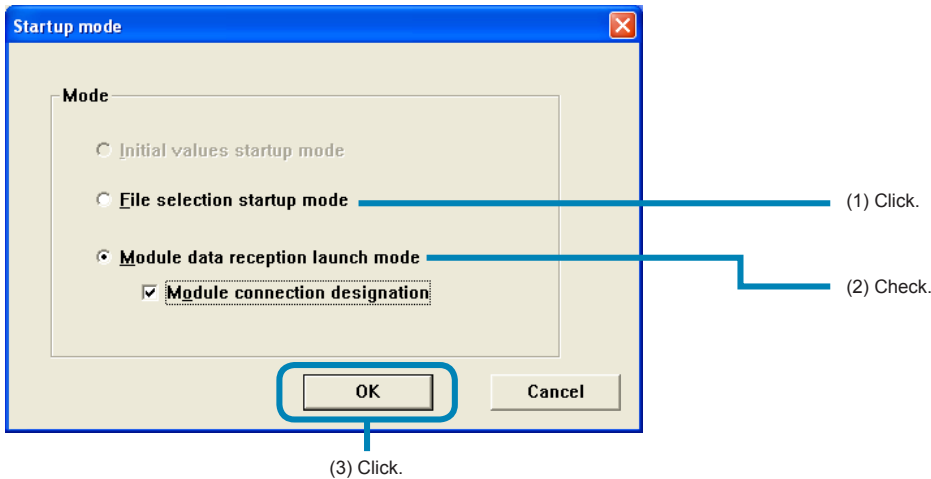  Press the [Esc] key on the keyboard to cancel reading.

**Note**

●  Approximately 20 seconds are required to read the parameter settings per module-type temperature controller. Do not perform other communication operations while the settings are read.
●  "Offline: STNo." is displayed in (1) and a bar indicating progress status is displayed in (2) while communication is carried out. "Offline: " is displayed in (1) and nothing is displayed in (2) when communication is not carried out.



(1)                                                      (2)
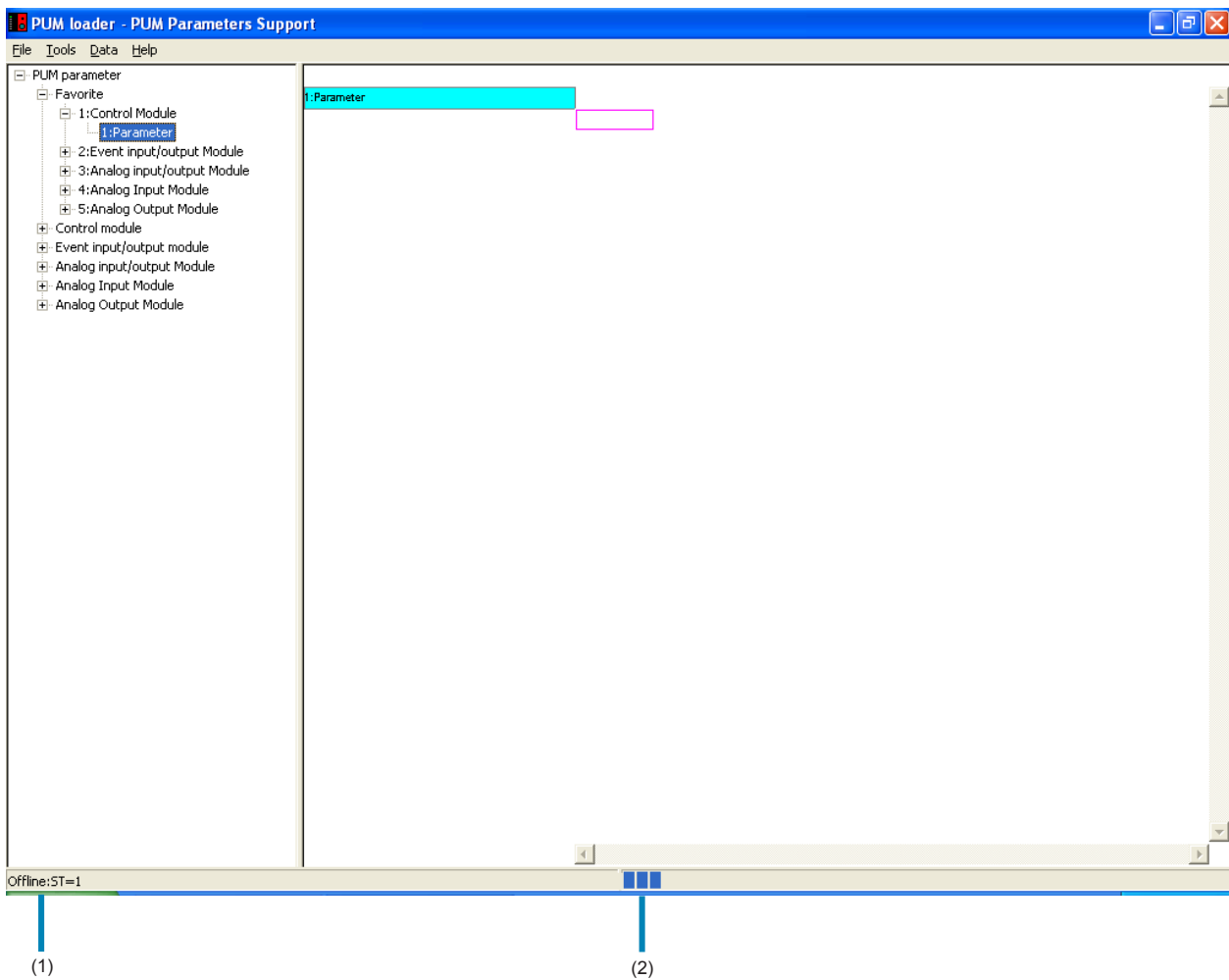
# 7 Initial setting

Perform initial setting of the PUM parameter loader as follows.

*1* On the "PUM loader – PUM Parameters Support" screen, select "Initial setting" on the "File" menu.
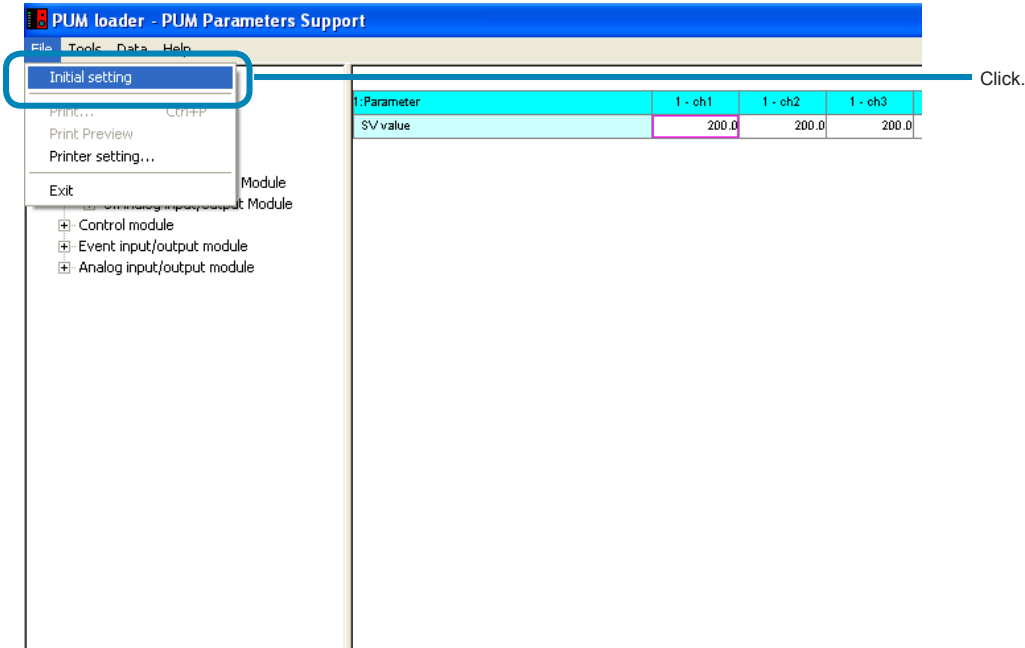


*2* Set required items on the "Initial setting" screen, and then click [OK].



Select COM port.

Baud rate: 19200 (Fixed)

Parity: None (Fixed)

Data length: 8 (Fixed)

Stop bit: 1 (Fixed)

Connection: Control/communication (Fixed)
* Note 1

"Online function" (P.38)

Language: English (Fixed)

Click.
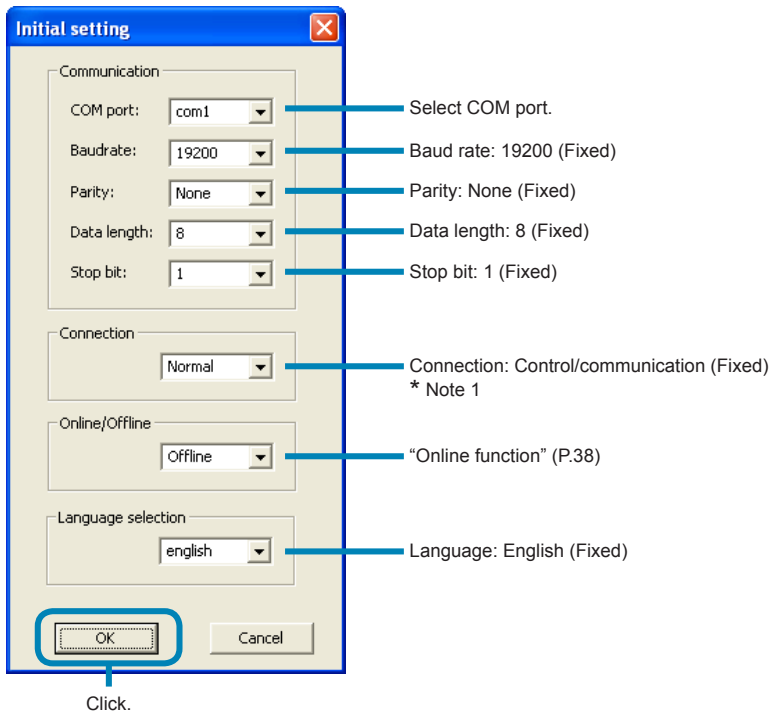
* Note 1: Connection method is not selectable when started up with the enhanced communication module.

# *8* Parameter setting

In parameter setting, frequently-used parameters can be registered in Favorite, parameter settings can be changed, state of the connected module-type temperature controllers can be checked, trend can be displayed, and parameters can be copied.

## "PUM loader – PUM Parameters Support" screen

On the "PUM loader – PUM Parameter Support" screen, parameter tree is displayed on the left, and setting can be made on the right field.

### [The display screen of the control/event/analog module on start-up]

Parameter tree is displayed.

"Station No. – (Channel)"

| 1:Operation | 1 – ch1 | 1 – ch2 | 1 – ch3 | 1 – ch4 | 2 – ch1 | 2 – ch2 | 2 – ch3 | 2 – ch4 |
|---|---|---|---|---|---|---|---|---|
| SV value | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| MV value | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Manual mode switch | Auto | Auto | Auto | Auto | Auto | Auto | Auto | Auto |
| Run/Stanby switch | Run | Run | Run | Run | Run | Run | Run | Run |
| Remote mode switch | Local | Local | Local | Local | Local | Local | Local | Local |
| Auto-tuning RUN command | Stop/End | Stop/End | Stop/End | Stop/End | Stop/End | Stop/End | Stop/End | Stop/End |
| Digital output latch release command | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ALM1 set value 1 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| ALM1 set value 2 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| ALM2 set value 1 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| ALM2 set value 2 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| ALM3 set value 1 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| ALM3 set value 2 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| ALM4 set value 1 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| ALM4 set value 2 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| ALM5 set value 1 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| ALM5 set value 2 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |

PUM loader – PUM Parameters Support

File  Tools  Data  Help

- PUM parameter
  - Favorite
    - 1:Control Module
      - 1:Parameter
    - 2:Event input/output Module
    - 3:Analog input/output Module
    - 4:Analog Input Module
    - 5:Analog Output Module
  - Control module
    - 1:Parameter
      - 1:Operation
        - 1:SV value
        - 2:MV value
        - 3:Manual mode switch
        - 4:Run/Stanby switch
        - 5:Remote mode switch
        - 6:Auto-tuning RUN comman
        - 7:Digital output latch release
        - 8:ALM1 set value 1
        - 9:ALM1 set value 2
        - 10:ALM2 set value 1
        - 11:ALM2 set value 2
        - 12:ALM3 set value 1
        - 13:ALM3 set value 2
        - 14:ALM4 set value 1
        - 15:ALM4 set value 2
        - 16:ALM5 set value 1
        - 17:ALM5 set value 2
      - 2:Control[PID]
      - 3:Setup
      - 4:System
      - 5:Alarm
      - 6:Communication
      - 7:Configuration
    - Event input/output module
    - Analog input/output Module
    - Analog Input Module
    - Analog Output Module

Parameters are displayed.

Set values are displayed.

# [The display screen of the enhanced comm module [Mitsubishi's programless comm] on start-up]

Parameter tree is displayed.



| 1:Parameter | | | | |
|---|---|---|---|---|
| PLC communication speed | 000Bh | | | |
| PLC transmission setting | 000E | | | |
| MC Protocol | 5.Form5 | | | |
| PLC communication interspace time | 100 | | | |
| PLC communication starting time | 10 | | | |
| PLC response monitoring time | 100 | | | |
| Number of retry times | 5 | | | |
| Operation on the communication faults | 0000h | | | |

Parameters are displayed.

Set values are displayed.
* Blank cell cannot be set.

INP-TN5A1634-E

# [The display screen of the enhanced comm module [Profibus comm] on start-up]
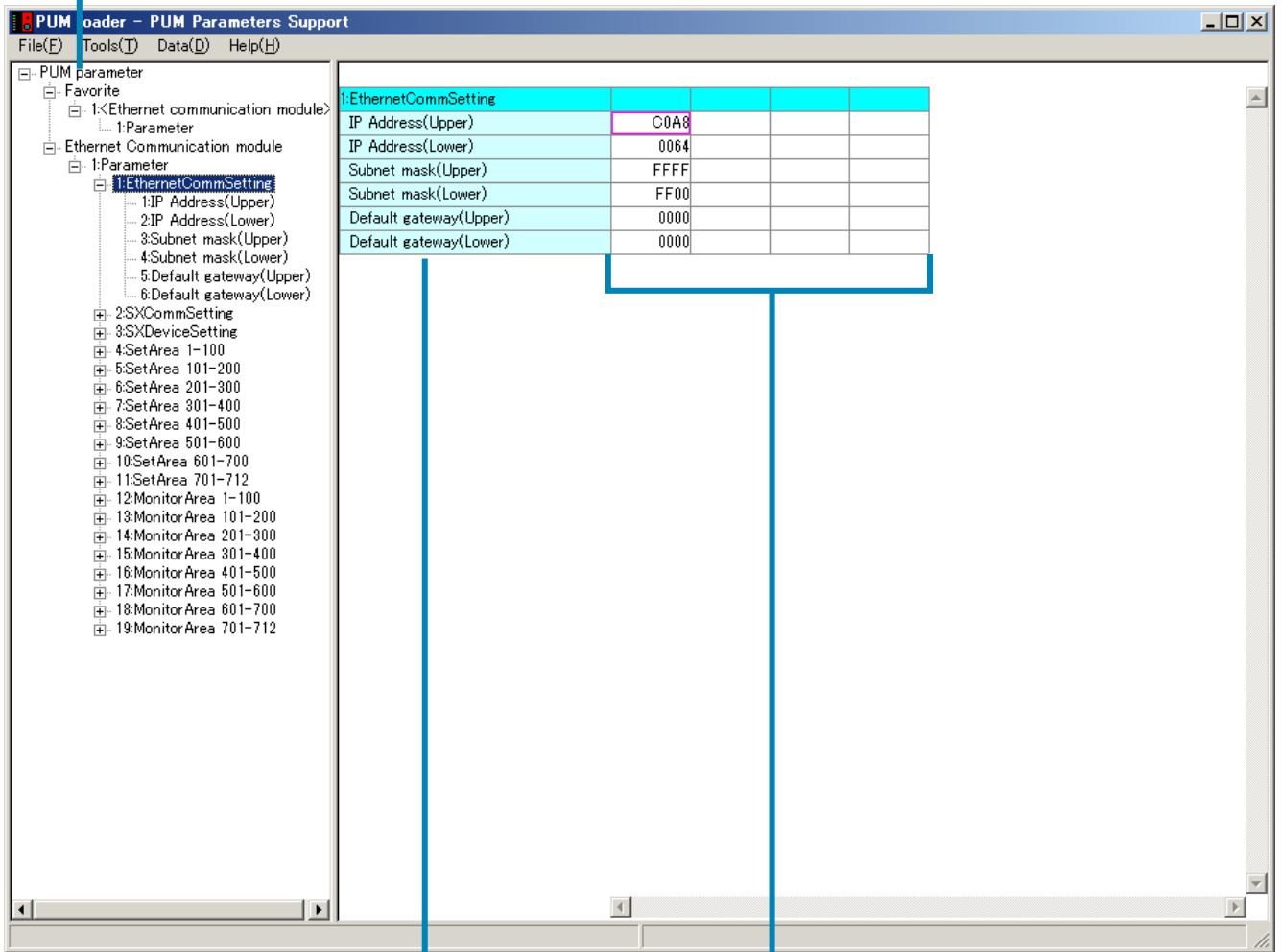
Parameter tree is displayed.
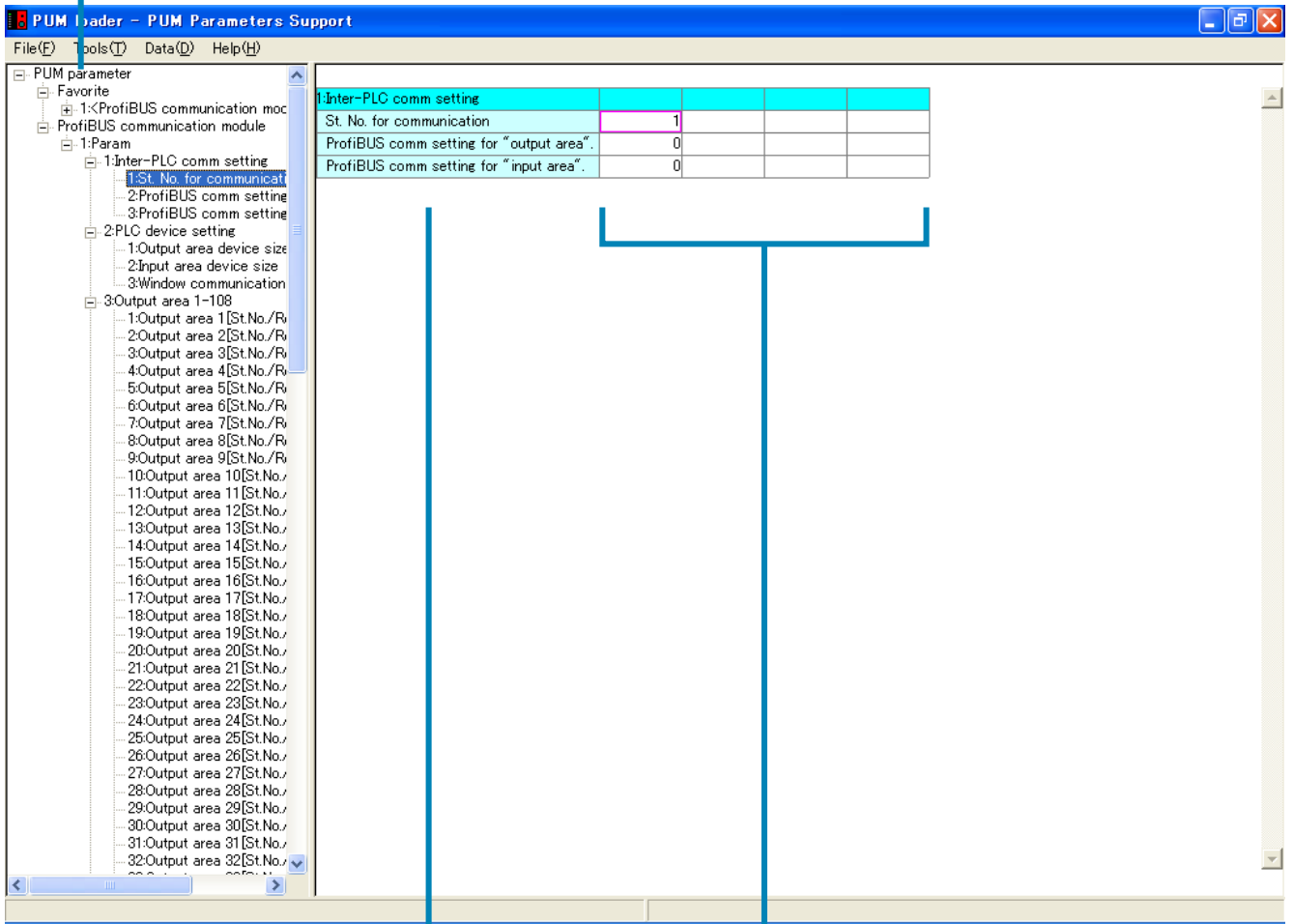


Parameters are displayed.

Set values are displayed.
* Blank cell cannot be set.

## [The display screen of the enhanced comm module [Ethernet comm] on start-up]

Parameter tree is displayed.

| 1:EthernetCommSetting | | | | |
|---|---|---|---|---|
| IP Address(Upper) | C0A8 | | | |
| IP Address(Lower) | 0064 | | | |
| Subnet mask(Upper) | FFFF | | | |
| Subnet mask(Lower) | FF00 | | | |
| Default gateway(Upper) | 0000 | | | |
| Default gateway(Lower) | 0000 | | | |

Parameter tree:
- PUM parameter
  - Favorite
    - 1:<Ethernet communication module>
      - 1:Parameter
  - Ethernet Communication module
    - 1:Parameter
      - 1:EthernetCommSetting
        - 1:IP Address(Upper)
        - 2:IP Address(Lower)
        - 3:Subnet mask(Upper)
        - 4:Subnet mask(Lower)
        - 5:Default gateway(Upper)
        - 6:Default gateway(Lower)
      - 2:SXCommSetting
      - 3:SXDeviceSetting
      - 4:SetArea 1-100
      - 5:SetArea 101-200
      - 6:SetArea 201-300
      - 7:SetArea 301-400
      - 8:SetArea 401-500
      - 9:SetArea 501-600
      - 10:SetArea 601-700
      - 11:SetArea 701-712
      - 12:MonitorArea 1-100
      - 13:MonitorArea 101-200
      - 14:MonitorArea 201-300
      - 15:MonitorArea 301-400
      - 16:MonitorArea 401-500
      - 17:MonitorArea 501-600
      - 18:MonitorArea 601-700
      - 19:MonitorArea 701-712

Parameter are displayed.

Set values are displayed.
* Blank cannot be set.

*Device size setting for setting/monitor area during mapping communication can be found in [3. SX device setting].

# Setting parameters

This section describes how to set parameters.

***1*** On the "PUM loader – PUMP Parameters Support" screen (on P.25), select the parameter group to be changed, and on the setting screen on the right, double-click the setting to be changed.
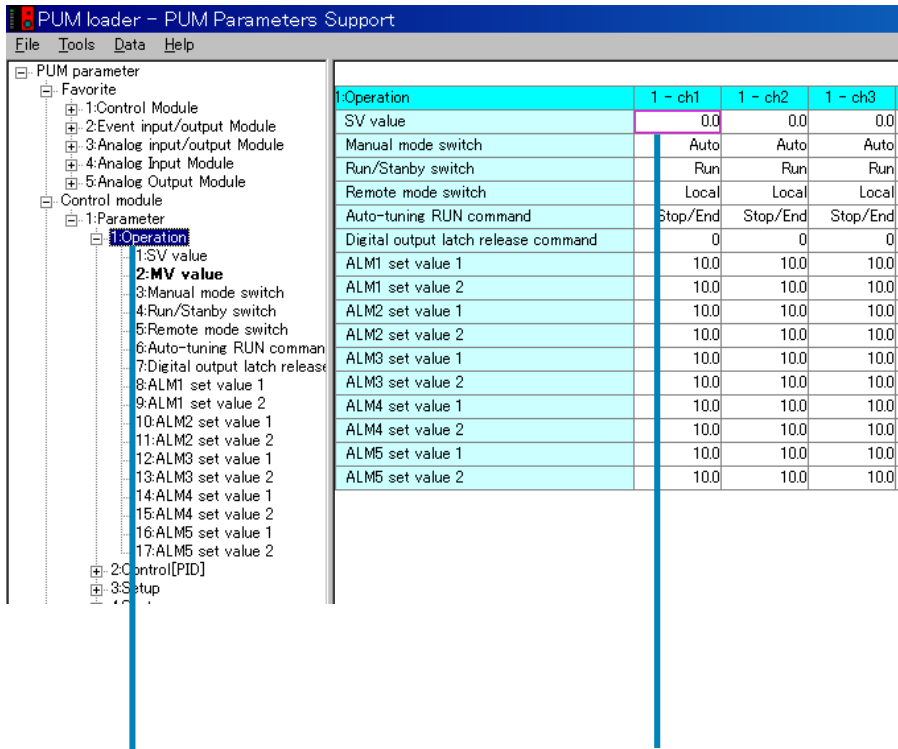


(1) Select the parameter group from the Parameter tree.          (2) Double-click the setting to be changed.

***2*** Set a desired value on the "Please set the value" window, and then click [OK].



Displays the parameter setting range

(1) Enter or select desired setting.
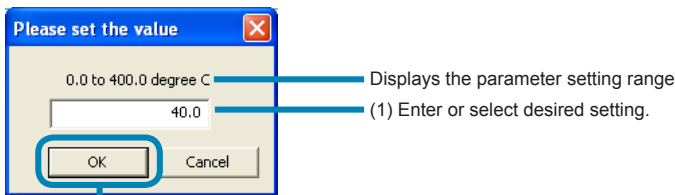
(2) Click.

■**To transmit the changed setting to the module-type temperature controller**
See Downloading (transmission from PC to PUM) (on P.65).

- When entering or selecting values from the pull-down menu, be careful not to select or enter those other than the set values (such as character strings) or "No function" display other than "0: No function."
- Do not set the same value for "PV input scale lower" and "PV input scale Upper"
- The term "Logic output" used for event module parameters represents event output.
- When PV input type, PV input scale upper/lower limit, or decimal point position is changed, review all the industrial value parameters, which are displayed in %FS unit.
- When the parameter display is scrolled, parameters of a different group may be displayed. In this case, display a different group first, and then display the desired group.
- The setting range display may exceed the value that can actually be set.
- Do not directly enter numeric values for the parameters for which pull-down menu is displayed. (The values that do not fall within the setting range may be set.)
- Some values banned setting are included in the setting range displaied in the enhanced communication module. Refer to the detailed parameter manual in the relevant parameters (P.36) about the values banned setting.

- Press the [Enter] key on the keyboard while the setting to be changed is selected, and the setting entry or selection screen is displayed. If the [F5] key on the keyboard is pressed, the focus is switched between the parameter tree screen (on the left side) and the setting screen (on the right side).
- The settings that have been changed are displayed in red. The red display is kept valid until they are uploaded.
- <SV limit value>
  The SV value is limited and automatically changed according to the change of SV limit.
- <Automatic industrial value conversion>
  The parameters displayed in industrial values are automatically converted into values within the setting range in accordance with the change of PV input type, PV scale, and decimal point position.
- <Automatic alarm setting conversion>
  The alarm settings are automatically converted into values within the setting range in accordance with the DO output event type setting.

# Favorite

Frequently-used parameters can be set in "Favorite" in the parameter tree screen on the left side. Up to 200 parameters per module can be registered.



Displays parameters set in "Favorite."

## Registering in "Favorite"

*1* On the parameter tree of the "PUM loader – PUM Parameters Support" screen (on P.25), right-click the parameter you want to register in "Favorite" and then click "Favorite Add/Delete."



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Point .............................................................................................................................................................................

Press the [F2] key on the keyboard while a parameter is selected on the parameter tree on the left side, and the parameter can be registered in Favorite.

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## Deleting the registration in "Favorite"

*1*  Right-click a parameter within the "Favorite" tree on the "PUM loader – PUM Parameters Support" screen (on P.25), and then click "Favorite Add/Delete."
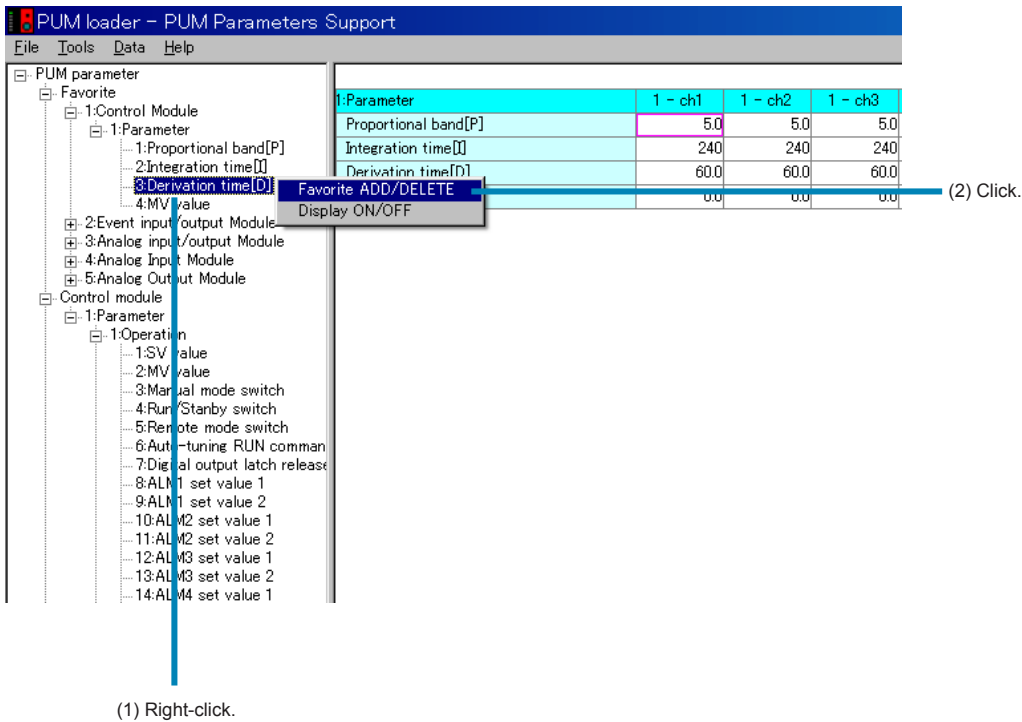


(1) Right-click.

(2) Click.

| Point |

Press the [F2] key on the keyboard while a parameter is selected on the parameter tree screen on the left side, and the parameter can be deleted from Favorite.

## Save "Favorites files save"

**1** In the screen of "PUM Parameters Support" (P.25), select the "Favorites Files Save(A)" from "Data(D)" menu.
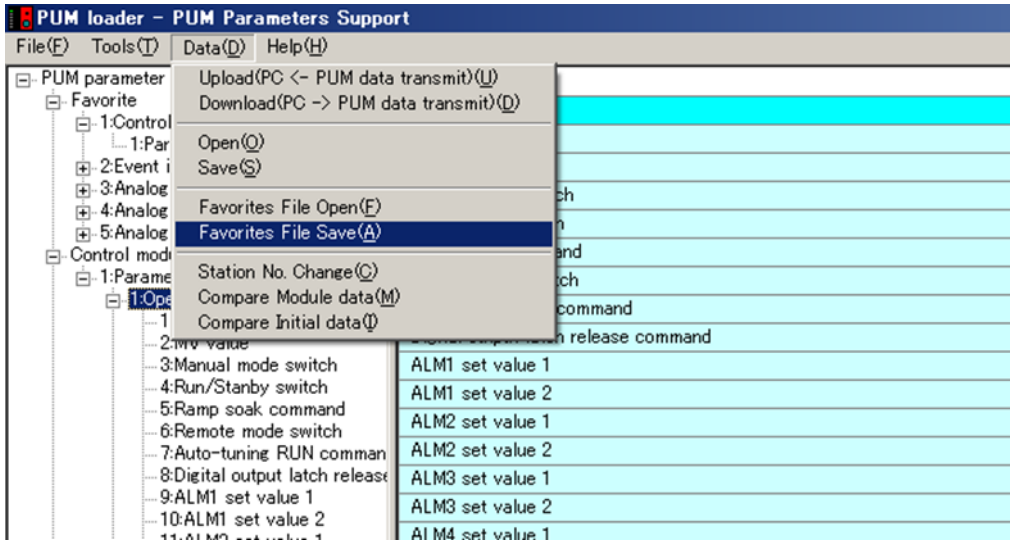


"Save As" dialog appears, input a file name and then click [Save(S)].

## Open favorites file

**1** In the screen of "PUM Parameters Support" (P.25), select the "Favorites File Open" from "Data(D)" menu.



"Open file" dialog appears, input a file name or select a file and then click [Open(O)].

# Switching between display ON and OFF

Parameter display on the setting screen on the right side can be changed between ON and OFF.



Parameters set as "OFF" are not displayed on the setting screen on the right side.

Parameters set as "OFF" are displayed in boldface type.

## Switching between display ON and OFF

*1* Right-click the parameter to be or not to be displayed on the parameter tree screen (on the left side) of the "PUM loader – PUM Parameters Support" screen (on P.25), and click "Display ON/OFF."
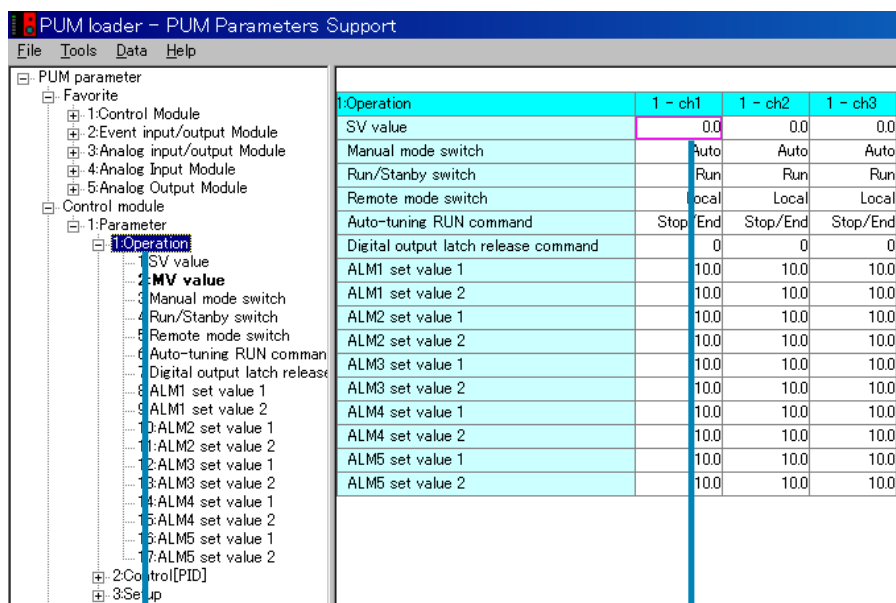


(2) Click.

(1) Right-click.
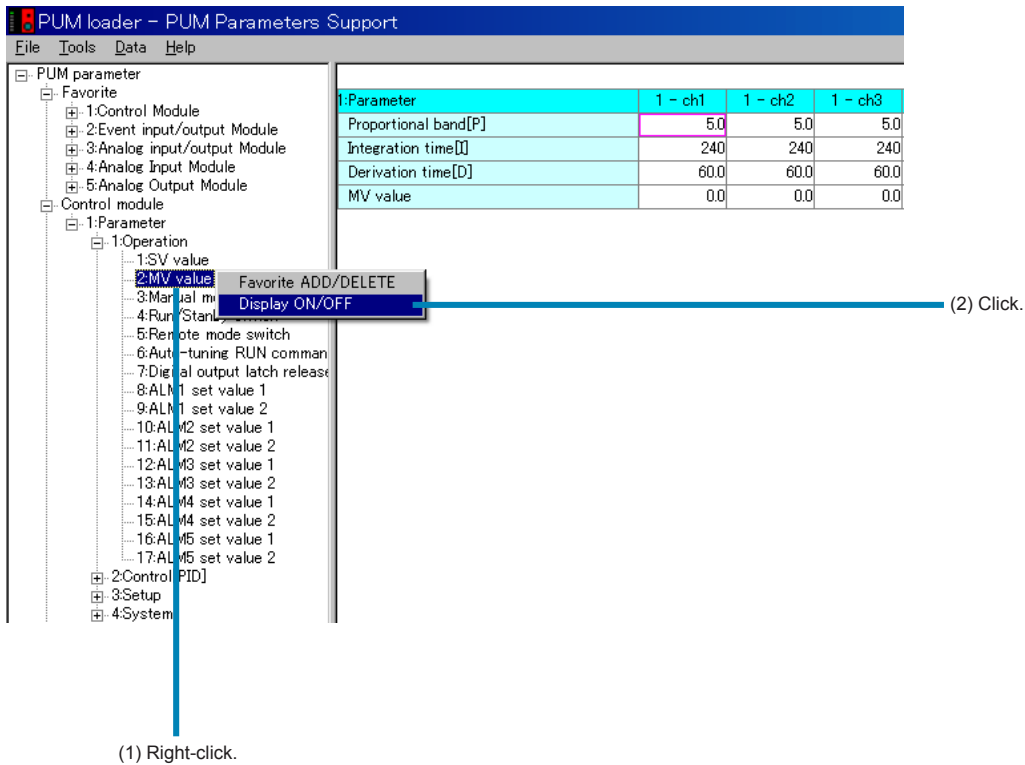
| Point |
| --- |

• You can also press the [F4] key on the keyboard while the parameter is selected on the parameter tree screen (on the left side) to switch between ON and OFF.
• You can also double-click the parameter on the parameter tree screen (on the left side) to switch between ON and OFF.

# Relevant parameters

Detailed description of the selected parameters can be displayed. Detailed display/settings of related parameters can also be made.

*1* Select a parameter from the parameter tree screen on the left side of the "PUM loader – PUM Parameters Support" screen (on P.25), and then right-click the setting that displays a related parameter on the setting screen (on the right side).



(1) Select a parameter from the tree.

(2) Right-click the setting that displays a related parameter, or press the [F1] key on the keyboard.

**2** Check the related parameter on the "Relevant parameters" screen.

| Relevant parameter | | | | |
|---|---|---|---|---|
| 000000Sv | SV value | Setting of setting value when local operation is running | 100.1 |
| 00000SvL | SV Lower Limits | Setting of lower limited value of setting value (SV) | 0.0 |
| 00000Svh | SV Upper Limits | Setting of upper limited value of setting value (SV) | 400.0 |
| 0000SvoF | SV value shift | Setting of quantity of off set against SV | 0.0 |
| 0000rEM0 | RSV zero adjustment | Setting of zero adjustment value of remote SV input | 0.0 |
| 0000rEMS | RSV span adjustment | Setting of span adjustment value of remote SV input | 0.0 |
| 00000rST | RSV input master Station No. | Setting of the station number of input channel refering as remote SV | 0 |
| 00000rLP | RSV input master Ch. No. | Setting of the channel number of input channel refering as remote S | 1 |

Manual    Cancel

Displays related parameters. Setting change can also be made.

Click to display detailed manual of the parameter.

■**To display detailed manual of the parameter**
Click [Manual], and detailed manual of the parameter is displayed.

### SV value setting

Set the SV value which is used during Local operation. ▶ 4-10

Each channel (Ch1 to Ch4) has parameters shown below.

| Parameter | Range | Unit | Factory default | Attribute | Modbus register number (relative address) |
|---|---|---|---|---|---|
| SV value | SV lower limit to SV upper limit | %FS | 0 | R/W | Ch1: 40001 (0000h) 41001 (03E8h) Ch2: 40002 (0001h) 42001 (07D0h) Ch3: 40003 (0002h) 43001 (0BB8h) Ch4: 40004 (0003h) 44001 (0FA0h) |

SV values are limited by SV lower and upper limit set values.
See SV lower and upper limits setting ▶ 4-46
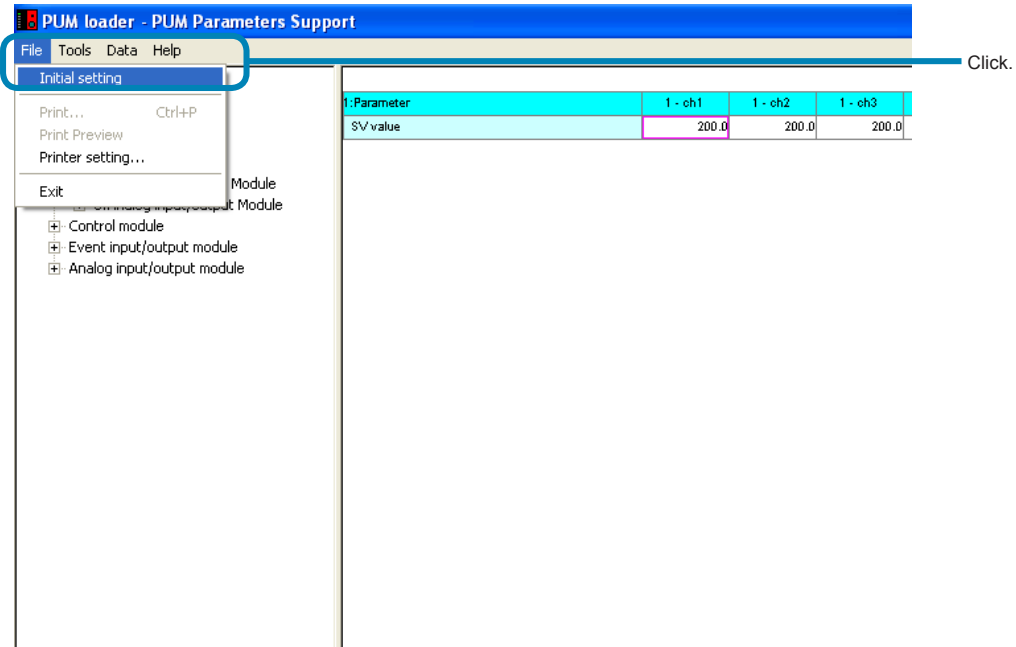
Also, offset values can be added to SV values.
See SV value shift setting ▶ 4-47

**Note**
Do not change Local SV values during Remote operation. ▶ 4-10

# Online function

As soon as the parameter is changed, the change can be written into the module-type temperature controller.

***1*** Select "Initial setting" on the "File" menu of the "PUM loader – PUMP Parameters Support" screen (on P.25).



Click.

***2*** Select "Online" on the "Initial setting" screen, and then click [OK].



(1) Select Online.

(2) Click.
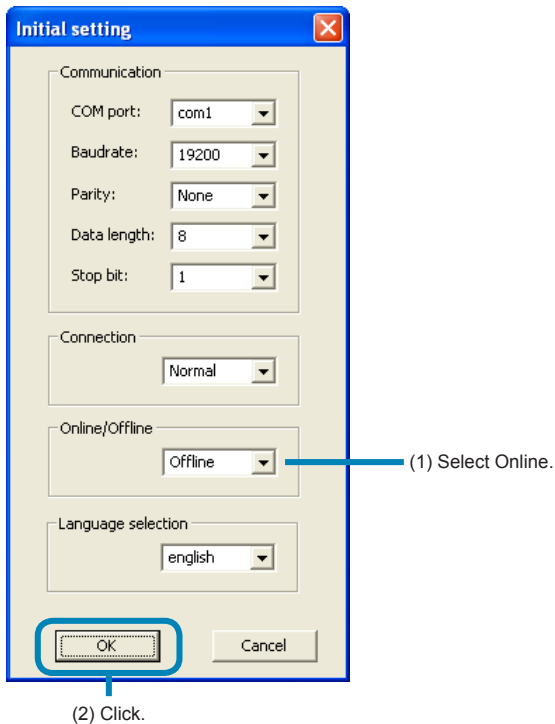
- The "Online/Offline" setting can be made only when startup is performed by selecting "Module data reception launch mode" in "Startup mode" (P.19).
- If a parameter that affects other parameters is changed online, all the parameters of the module-type temperature controller having the changed parameter are read. Reading takes approximately 20 seconds per module-type temperature controller.
- If a parameter that changes its value when processing is exited such as auto tuning start command, reading is continued until the value reaches "0."
- If "Offline" is selected in initial setting, do not set values for the following parameters other than those shown.
  "Auto - tuning RUN command" = Stop/End

  "Digital output latch release command" = OFF

  "Reset main unit" = None
- The setting is always "Offline" on start-up.

# Module composition

The composition of the connected module-type temperature controllers can be checked.

**1** Select "Module composition" from the "Tool" menu of the "PUMP loader – PUM Parameters Support" screen (on P.25).



Click.

**2** Check the composition of the module-type temperature controller on the "Module composition" screen.

## [Display screen of the control/event/analog module on start-up]
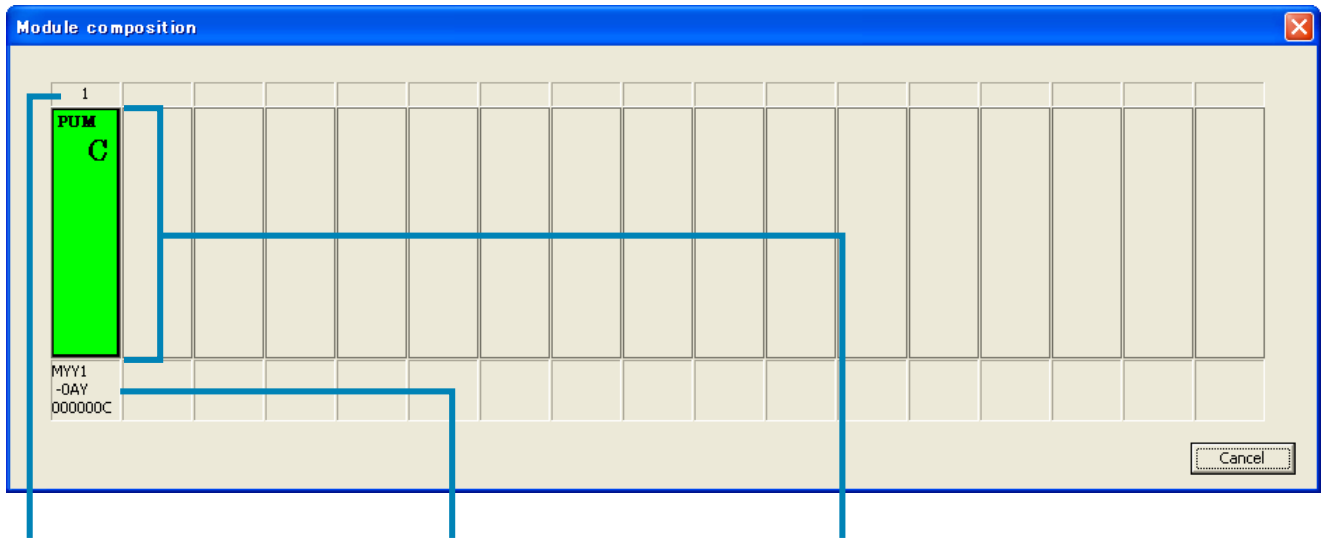


Displays Staion No.

Displays model code/serial code.

Displays the module-type temperature controller connected.

## [Display screen of the enhanced communication module on start-up]



It displays St. No. for enhanced communication. (*Note that this is different from the St. No. of the loader communication port)
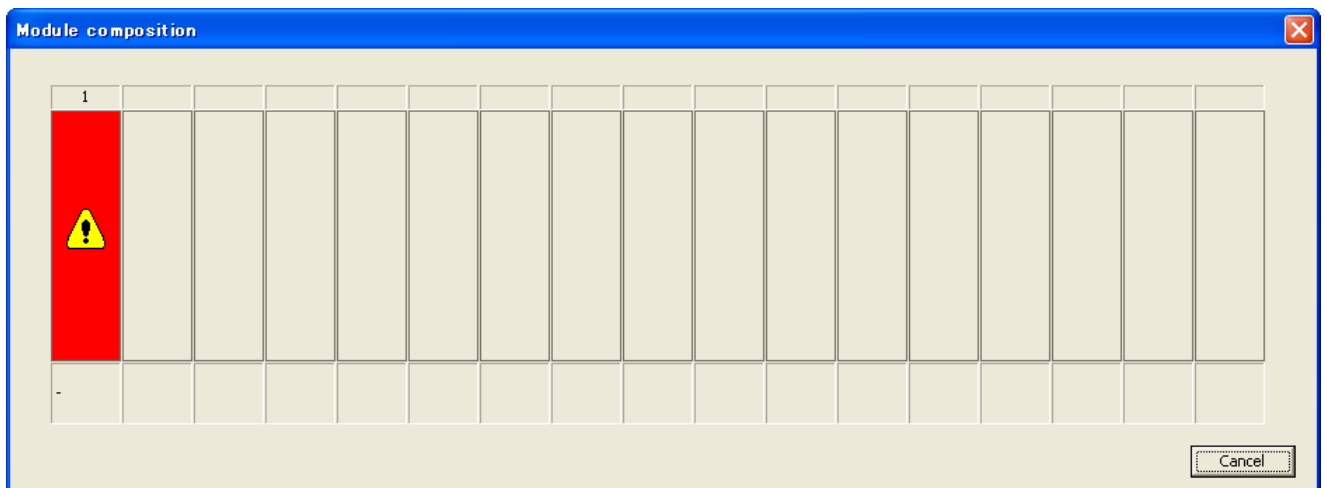
It displays model code/serial code.

It displays the connected module-type temperature controller.

### Note

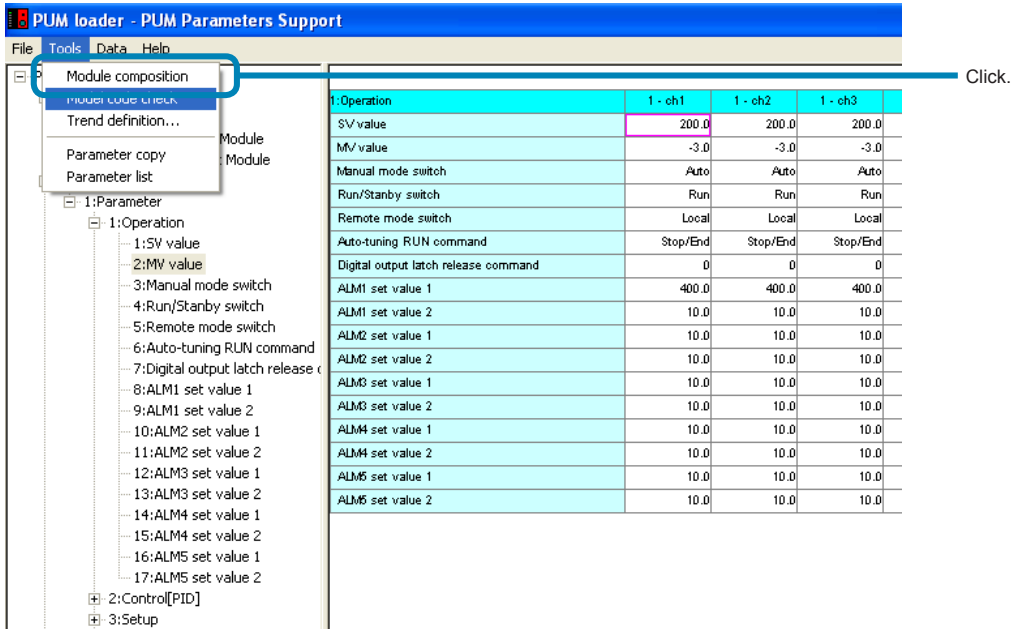Error is displayed if the module-type temperature controller is not connected properly.

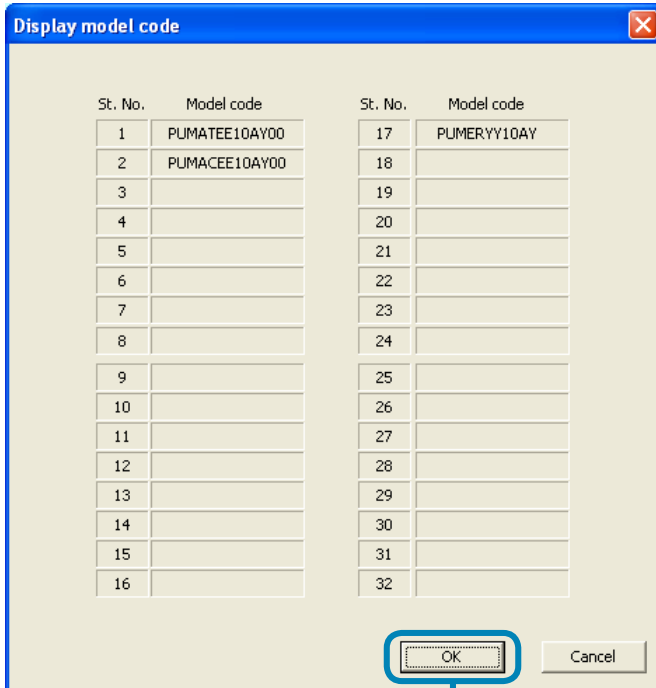## [Error display]

# Checking the type code

The type code of the module-type temperature controller currently edited can be checked.

**1** Select "Model composition" from the "Tool" menu of the "PUM loader – PUM Parameters Support" screen.



**2** Select a desired model code on the "Display model code" screen, and then click [OK].
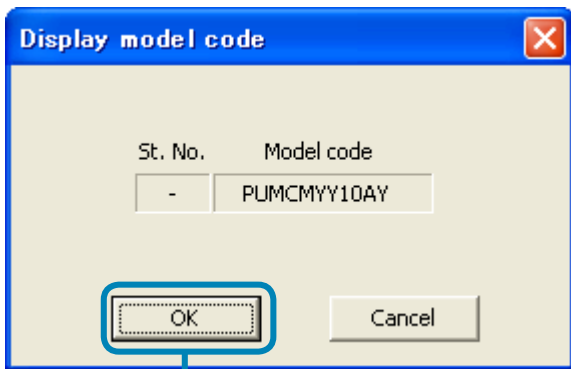
## [Display screen of the control/event/analog module on start-up]

**[Display screen of the enhanced communication module on start-up]**
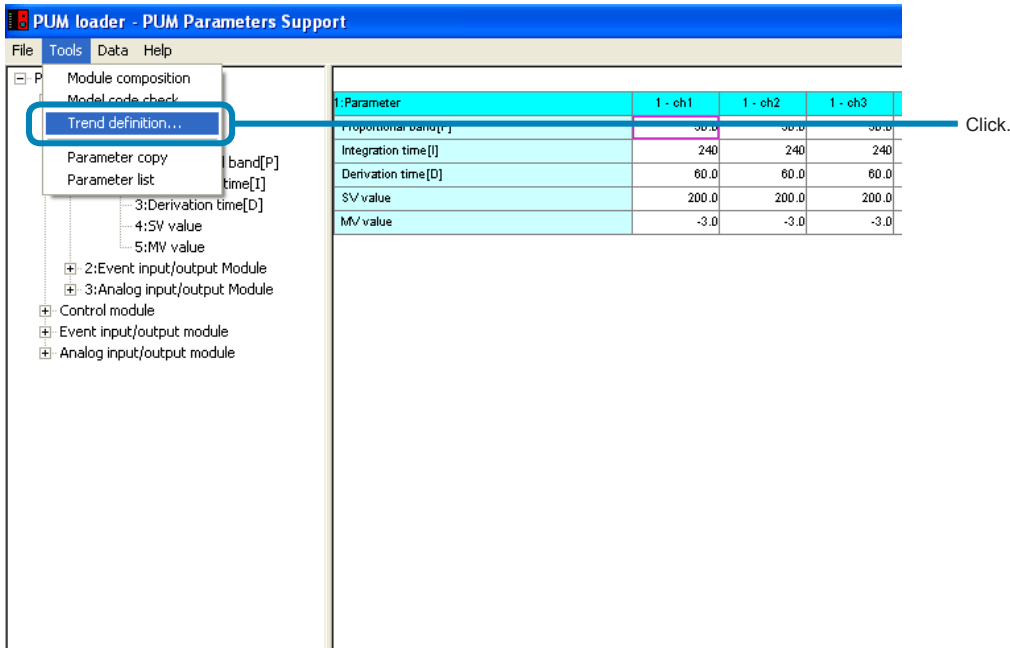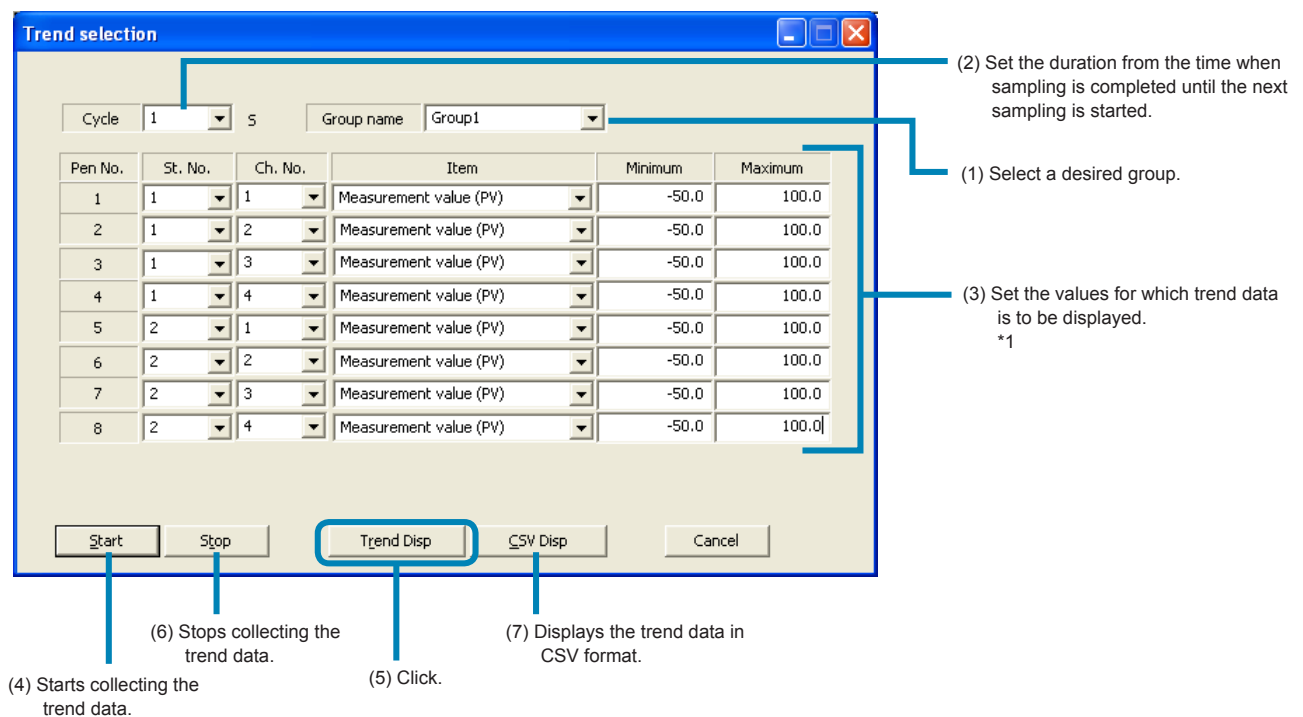


Click.

# Displaying trend

Data trend can be displayed. Pens can be defined for up to 10 groups, with 8 pens regarded as one group.
•This method is not available when selected the "Enhanced comm module [Mitsubishi's programless comm]", "Enhanced comm module [Profibus comm]", "Enhanced comm module [Ethernet comm]" on the "module type selection".

**1** Select "Trend definition" from the "Tool" menu of the "PUM loader – PUM Parameters Support" screen (on P.25).



**2** Set required items on the "Trend selection" screen, and then click "Trend Disp."



(2) Set the duration from the time when sampling is completed until the next sampling is started.

(1) Select a desired group.

(3) Set the values for which trend data is to be displayed.
*1

(6) Stops collecting the trend data.

(7) Displays the trend data in CSV format.

(4) Starts collecting the trend data.

(5) Click.

*1: When you select the St. No from the analog module, do not select "Set value (SV)", "Manipulating value (MV1)", or "Manipulating value (MV2)".

**3** Check the trend display on the "TrendDisplay – Trend" screen.
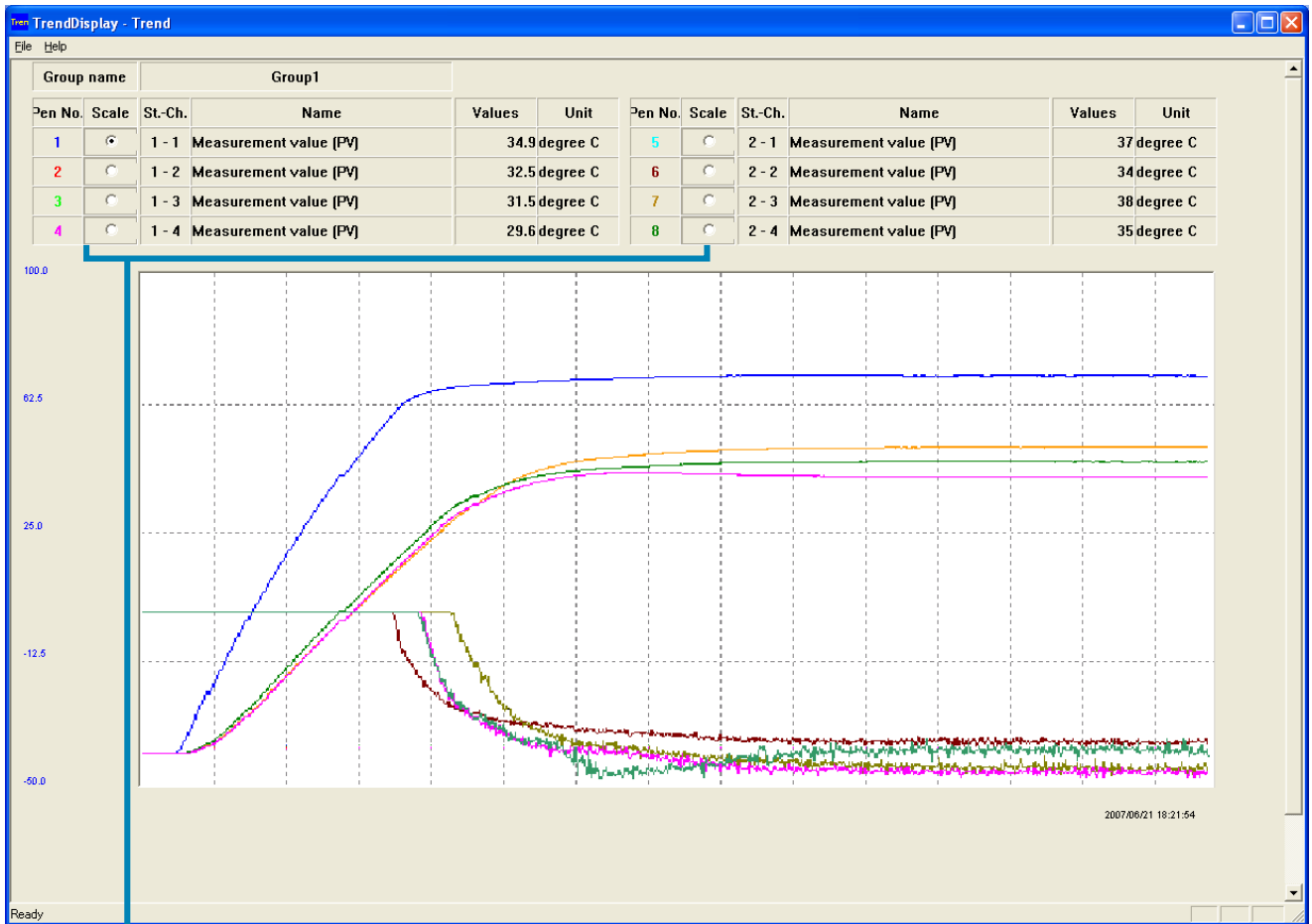


Select a pen for which scale is to be displayed.

> **Note**
>
> - Save the trend data, if required, in a CSV file by giving a name to it.
> - If the trend data is displayed in a CSV file, the CSV file previously displayed is overwritten.
> - If the displayed CSV file is saved, the time display becomes "00" (fraction omitted).
> - If sec. display is required, select "time" for display format in Excel cell format setting, change it into desired display format, and then save the data.
> - The first data at the start of trend display may differ from the actual value.
> - Do not press the "Start trend" button on the trend select screen while the trend is being displayed. Otherwise the trend is displayed overlapped.
> - The final data may not be displayed when the trend display is stopped. Check the data in CSV format in this case.
> - When you select the St. No from the analog module, do not select "Set value (SV)", "Manipulating value (MV1)", or "Manipulating value (MV2)".
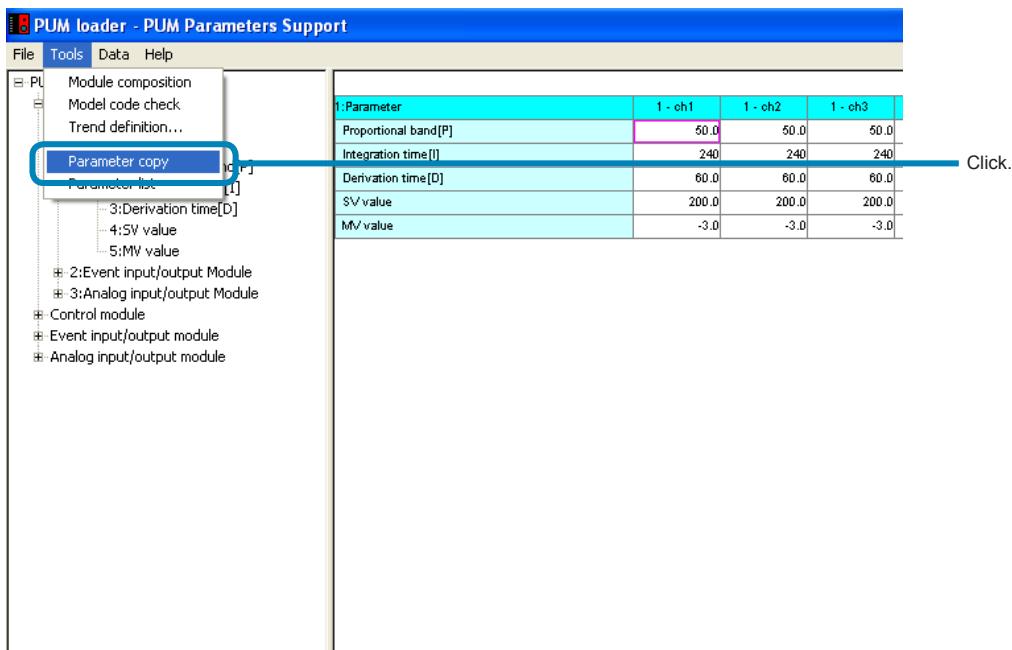
# Copying parameters

Parameter settings can be copied between channels or stations.
• This method is not available when selected the "Enhanced comm module [Mitsubishi's programless comm]", "Enhanced comm module [Profibus comm]", "Enhanced comm module [Ethernet comm]" on the "module type selection".
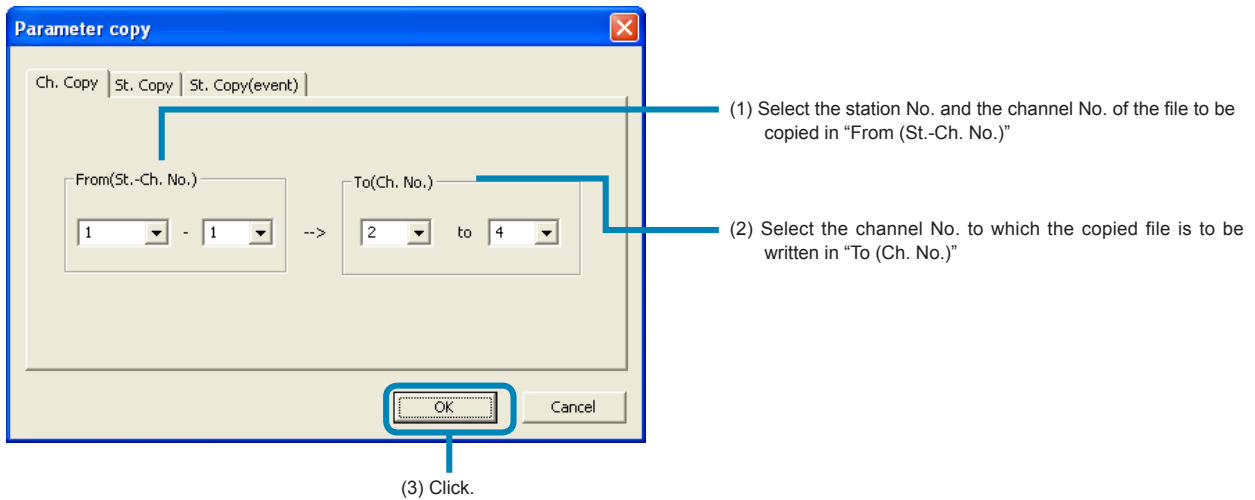
## Copying between channels

*1* Select "Parameter copy" from the "Tool" menu of the "PUM loader – PUM Parameters Support" screen (on P.25).
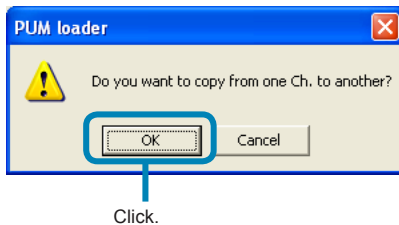


Click.

*2* Click the "Ch. Copy" tab on the "Parameter copy" screen.
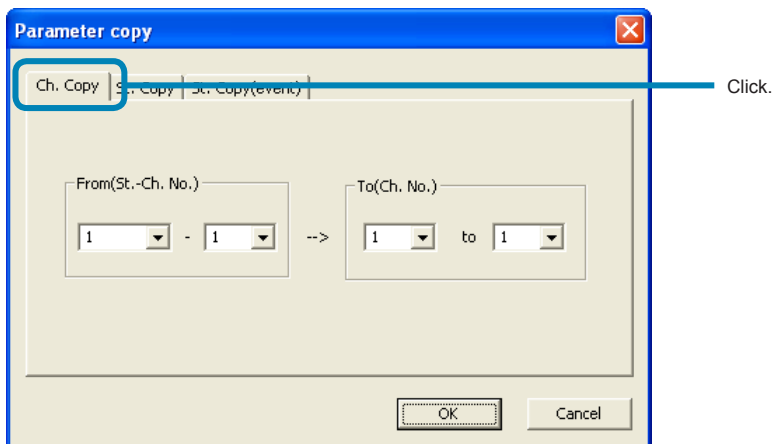


Click.

**3** Select the St-Ch No. from which the parameter is to be copied and that to which it is written, and then click [OK].



(1) Select the station No. and the channel No. of the file to be copied in "From (St.-Ch. No.)"

(2) Select the channel No. to which the copied file is to be written in "To (Ch. No.)"

(3) Click.

**4** Click [OK] on the "PUM loader" window.



Click.

■**To cancel parameter copying**
Click [Cancel].

---

Point ·········································································································································································

In Ch. copy, the data is copied only within the station specified in "From (St.-Ch. No.)".

··················································································································································································

Note ·········································································································································································

- Make sure that the channel No. on the left side becomes smaller than that of the right side when specifying the channel to which the parameter is to be written.
- Copied parameters are not written into the module-type temperature controller online.
- When "Ch. copy" in parameter copy function is used, do not specify the No. of the station that does not exist. Otherwise an erroneous value is copied.
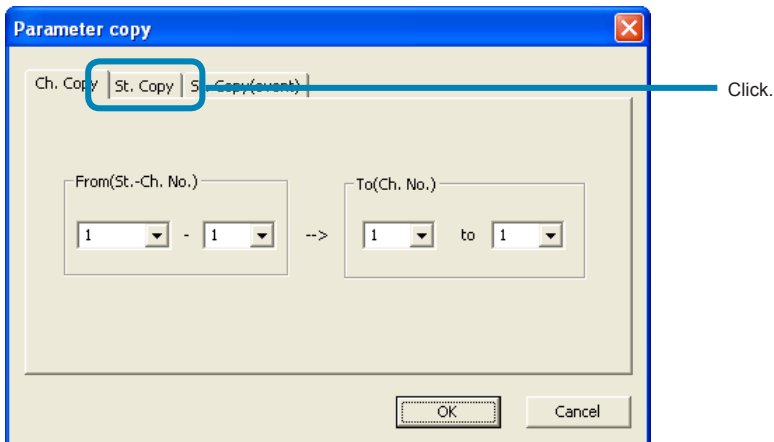
··················································································································································································

## Copying between stations

**1** Select "Parameter copy (C)" from the "Tool (T)" menu of the "PUM loader – PUM Parameters Support" screen (on P.25).
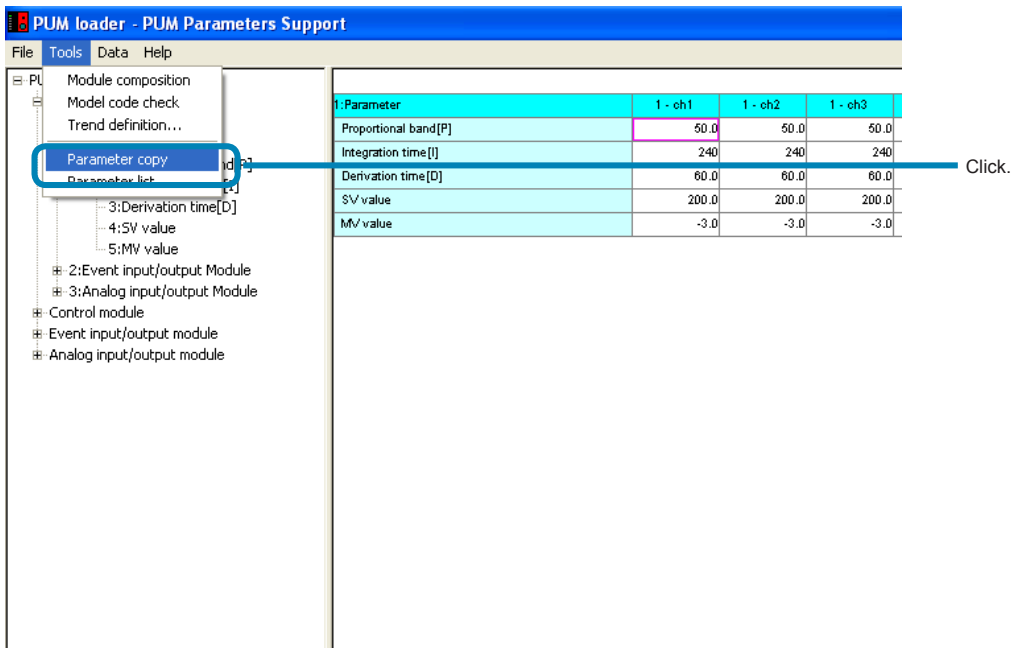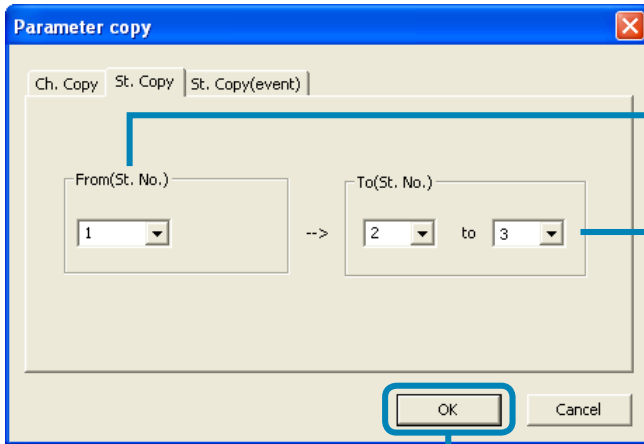


Click.

**2** Click the "St. copy" tab on the "Parameter copy" screen.



Click.

■**To copy event module parameters between stations**
Click the "St. copy (Event)" tab.

**3** Select the St-Ch No. from which the parameter is to be copied and that to which it is written, and then click [OK].
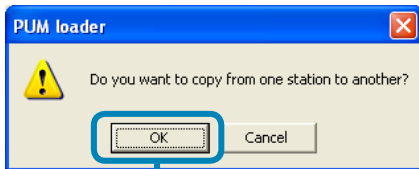


(1) Select the station No. from which the parameter is to be copied in "From (St. No.)".

(2) Select the station No. to which the parameter is to be written in "To (St. No.)".

(3) Click.

**4** Click [OK] on the "PUM loader" screen.



Click.

**■To cancel the parameter copy**
Click [Cancel].

> **Point**
>
> Follow the same procedure for copying parameters between stations (Event).

> **Note**
>
> - Be sure not to specify station No. that has not been defined. Otherwise an erroneous value may be written in the parameter.
> - Make sure that the station No. of the left side becomes smaller than that of the right side when specifying the station to which the parameter is to be written.
> - Copied parameters are not written into the module-type temperature controller online.
> - You cannot inter-station copy on the other type modules.

# Copy and paste

This function is to copy and paste a parameter such as spreadsheet.

**1**  Copy
Select parameter to copy (multiple selections are available), Press [CTRL+C] or right-click to indicate the Menu and select [Copy(C)].

**2**  Paste

Pate the parameter copied by copy function.
Select the parameter to be pasted, Press [CTRL+V] or right-click to indicate the Menu and select [Paste (P)].
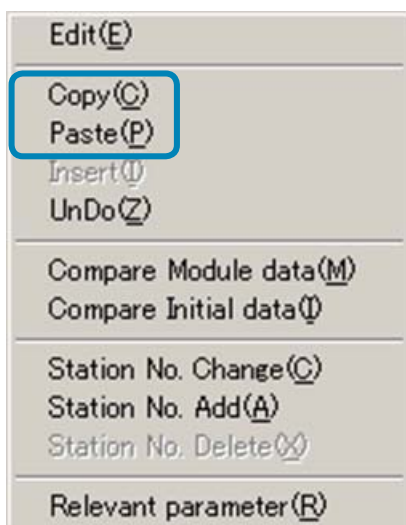




> **Note**
>
> When you paste a parameter of different setting content, following message appears.
> Thus, do not copy and past between the units of unmatched model code PUM.
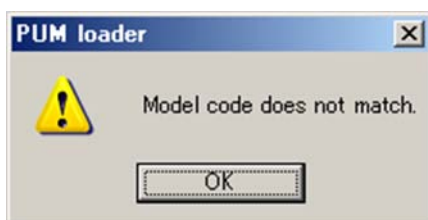
# UnDo

This function is to Undo a parameter which was changed. When you change parameter manually or copy or paste, either way, it is undoable for one time only.

***1*** Press [CTRL+Z] or right-click to open Menu and click [UnDo(Z)].
Undo function can conduct to return the last changed part to previous action regardless selected parameter location.

```
Edit(E)

Copy(C)
Paste(P)
Insert(I)
UnDo(Z)

Compare Module data(M)
Compare Initial data(I)

Station No. Change(C)
Station No. Add(A)
Station No. Delete(X)

Relevant parameter(R)
```

Note

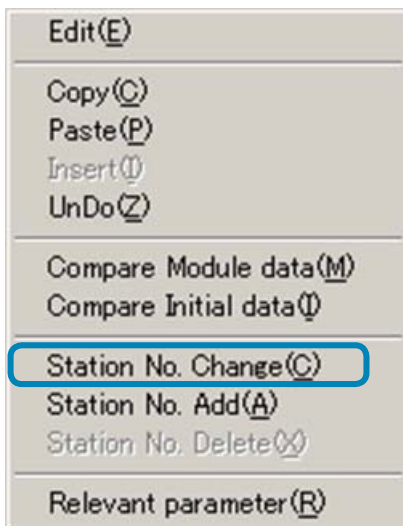If you delete, add and change the station, UnDo function can not be used.
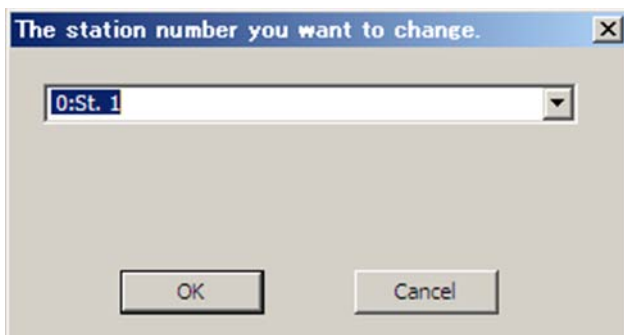
# Function of Station No. Change

This function is to change station No. when you set parameter of control / event /analog module. This function can not be used when you select Enhanced communication module [Mitsubishi program less communication] or ProfiBUS communication module.

***1*** Click [Station No. change(C)] from Data in main menu or right-click in parameter setting screen and then click [Station No. change(C)].

Edit(E)

Copy(C)
Paste(P)
Insert(I)
UnDo(Z)

Compare Module data(M)
Compare Initial data(I)

Station No. Change(C)
Station No. Add(A)
Station No. Delete(X)

Relevant parameter(R)

***2*** When "The station number you want to change" dialog appears, select the station No. you want to change and click [OK].

The station number you want to change.

0:St. 1

OK          Cancel

**3** When "Station number after the change" dialog appears, select the changed station No. and then click [OK].
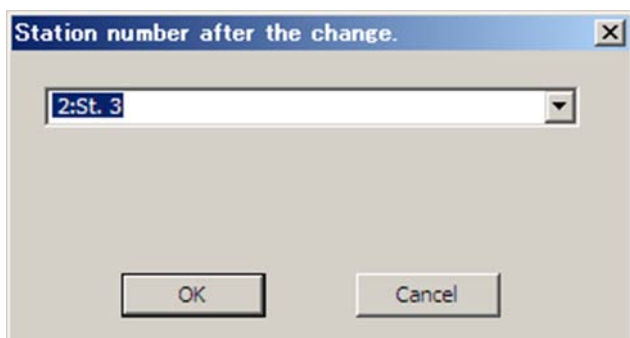


Note
..................................................................................................................................................................

If you set the existing station No. to "the station No. after change", station No. is overwritten. Additionally, station No. before change will be deleted.

UnDo function can not be used for changed station No. to return to last action.

..................................................................................................................................................................

# Function of adding and deleting Station No.

This function is to add and delete station No. when you set parameter of control / event / analog module. When you select Enhanced communication module [Mitsubishi program less communication] or ProfiBUS communication module [ProfiBUS communication], or Ethernet communication module [Ethernet communication] this function can not be used.

## Add station No.

**1** In parameter setting screen, right-click to indicate the menu and click [Station No.Add(A)].
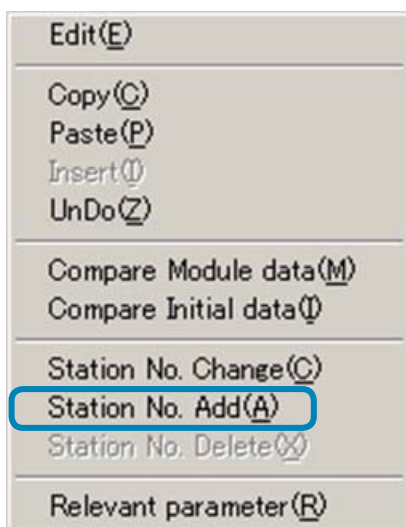


**2** [Station definition] screen appears. Set the station No. to add and click [OK].
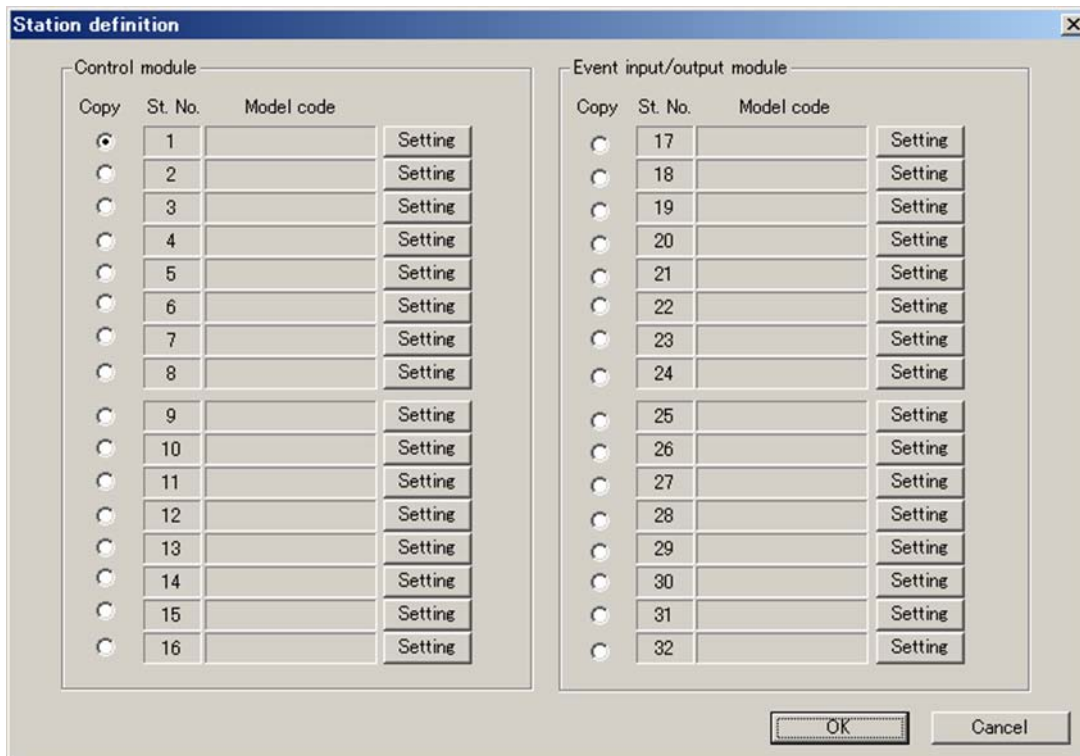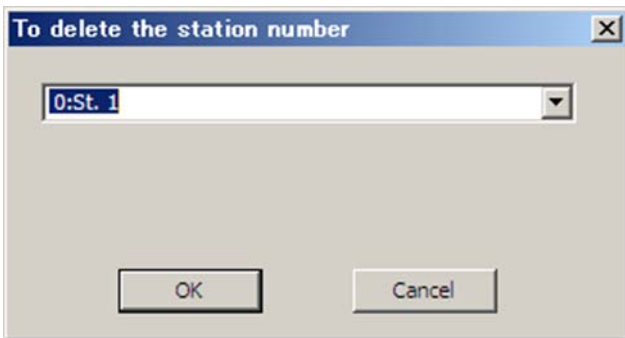
## Delete station No.
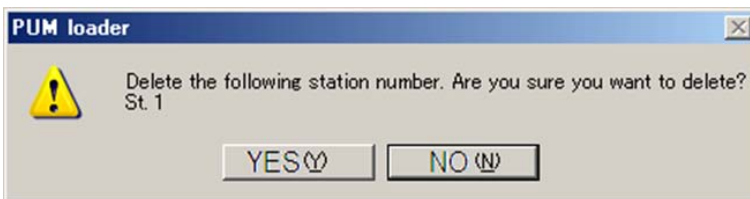
**1** In the parameter setting screen, right-click to indicate the menu and click [Station No. Delete(X)].

Edit(E)

Copy(C)
Paste(P)
Insert(I)
UnDo(Z)

Compare Module data(M)
Compare Initial data(I)

Station No. Change(C)
Station No. Add(A)
Station No. Delete(X)

Relevant parameter(R)

**2** "To delete the station number"dialog is indicated, select the station No. and click[OK].

To delete the station number

0:St. 1

OK        Cancel

**3** When confirmation message to delete the station appears, click [YES(Y)].

PUM loader

⚠ Delete the following station number. Are you sure you want to delete?
St. 1

YES(Y)        NO (N)

---

**Note**

When you conducted to add and delete station NO., UnDo function can not be used.

# Insert

When you select Enhanced communication module [Mitsubishi program less communication] or ProfiBUSc communication module [ProfiBUS communication]  or Ethernet communication module [Ethernet communication], this function can be used.

## Available parameter to insert

Enhanced communication module [Mitsubishi program less communication], "Enhanced comm module [Ethernet comm]"
- Setting area 1 to 712
- Monitor area 1 to 712

ProfiBUS communication module [ProfiBUS communication]
- Output area 1 to 108
- Input area 1 to 108

*1* Select the part to insert (multiple selections are available). Right-click to open menu and select [Insert (I)].



---

Note

If insertion is conducted, parameter will be deleted from the bottom of the current screen in sequence.
Also, when you select Enhanced communication module [Mitsubishi program less communication], insertion can not be conducted over next screen.
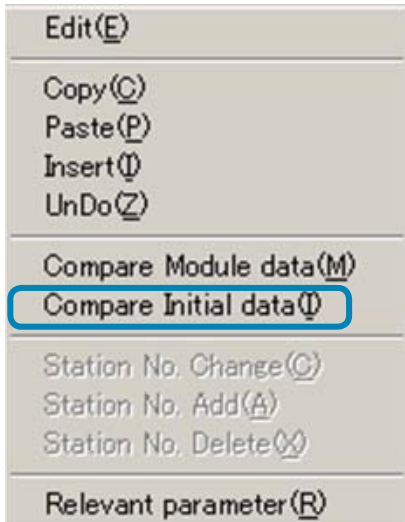
---

# Compare parameter to initial Data

This function is to compare current setting parameter to initial data or connected PUM.

## Compare initial data

*1*  Click [Compare Initial data (I)] from "Data" in the menu or right- click to indicate the menu and then click [Compare Initial data(I)].

| |
|---|
| Edit(E) |
| Copy(C) |
| Paste(P) |
| Insert(I) |
| UnDo(Z) |
| Compare Module data(M) |
| Compare Initial data(I) |
| Station No. Change(C) |
| Station No. Add(A) |
| Station No. Delete(X) |
| Relevant parameter(R) |

*2*  Changed parameter from initial value turns to be green.

| | (1) | (2) | |
|---|---|---|---|
| | 1 | 31001 | |
| | 0 | 0 | |
| | 0 | 0 | |
| | 0 | 0 | |
| | 0 | 0 | |
| | 0 | 0 | |
| | 0 | 0 | |
| | 0 | 0 | |
| | 0 | 0 | |
| | 0 | 0 | |

## Compare Module Data

**1** Click [Compare Module data(M)] from "Data" in the menu or right-click to indicate the menu and then click [Compare Module data(M)].
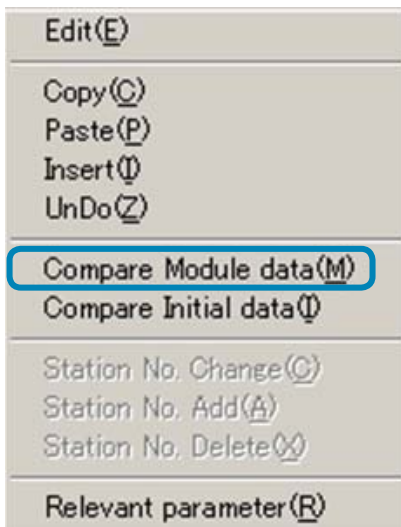


**2** Select station numbers to compare and click[OK].
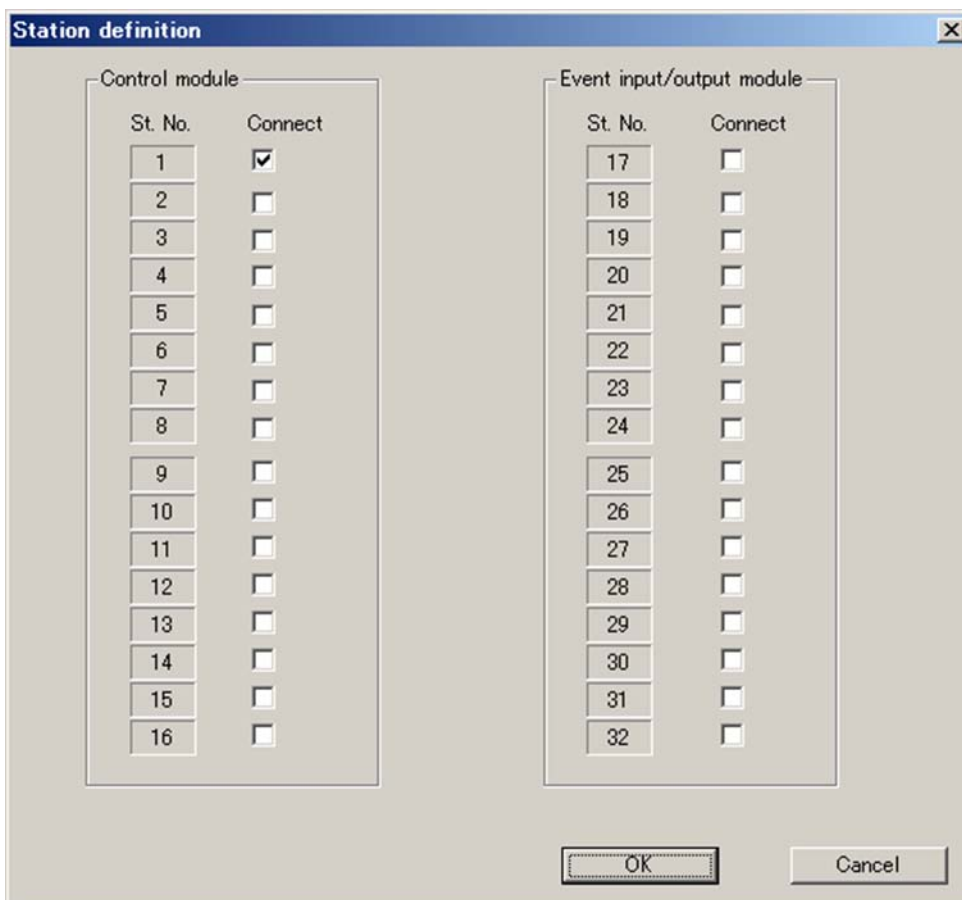
**3** Different parameter from indication of PUM turns to be blue.

| | (1) | (2) | |
|---|---|---|---|
| | 1 | 31001 | |
| | 0 | 0 | |
| | 0 | 0 | |
| | 0 | 0 | |
| | 0 | 0 | |
| | 0 | 0 | |
| | 0 | 0 | |
| | 0 | 0 | |
| | 0 | 0 | |
| | 0 | 0 | |

**Note**

Unconnected station No. can not be compared to PUM.

When you press [ESC] key during operation of comparison, operation will stop in the middle of comparison. In this case, parameter may not be indicated properly, Upload (P.62) the current parameter from PUM.
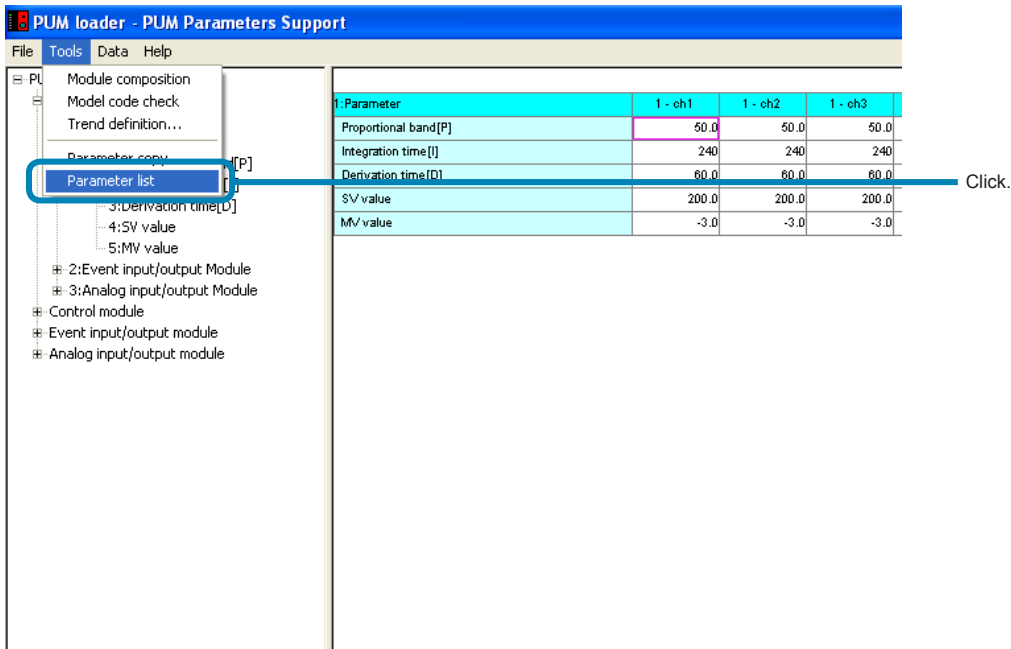
It takes about 10 minutes to compare if the number of connection units of PUM are 32 units at most.
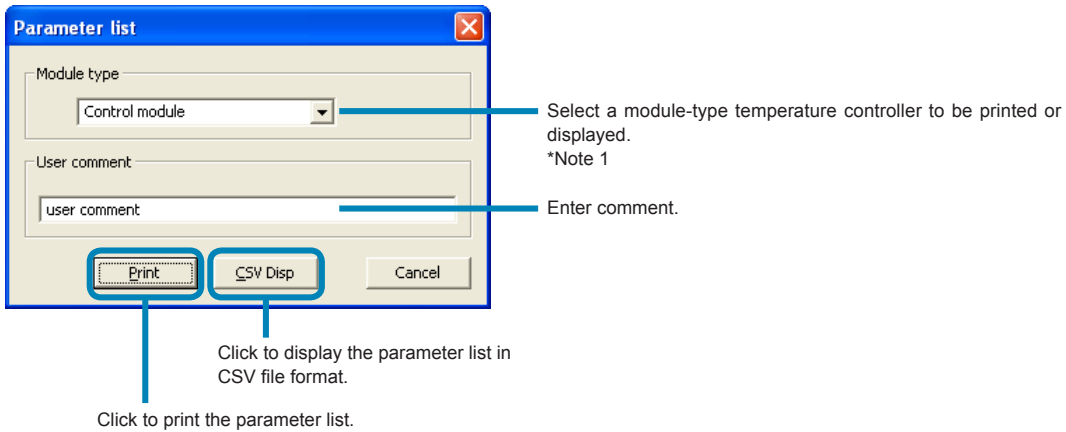
# Parameter list

Parameter setting can be printed or displayed in CSV file format for each module-type temperature controller.

*1* Select "Parameter list" from the "Tool" menu of the "PUM loader – PUM Parameters Support" screen (on P.25).



Click.

*2* Set necessary items on the "Parameter list" screen, and then click "Print" or "CSV Disp."



Select a module-type temperature controller to be printed or displayed.
*Note 1

Enter comment.

Click to display the parameter list in CSV file format.

Click to print the parameter list.

**\*** Note1: The module type is not selectable when starting up with the enhanced communication module**.**

# Uploading (Transmission from PUM to PC)

The parameter setting of the module-type temperature controller can be received in batch.

***1*** Select "Upload (PC ← PUM data transmit) (U)" from the "Data (D)" menu of the "PUM loader – PUM Parameters Support" screen (on P.25).
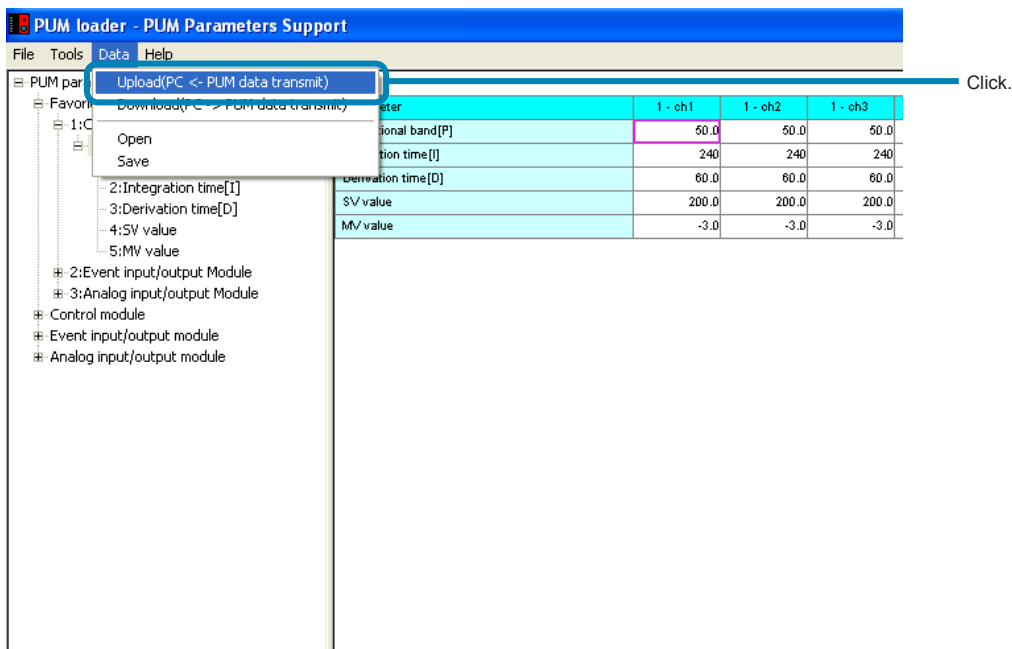


\* Proceed to ***2*** when selected the "control/event/analog" on the "module type selection".

\* Proceed to ***3*** when selected the "Enhanced comm module [Mitsubishi's programless comm]", "Enhanced comm module [Profibus comm]", "Enhanced comm module [Ethernet comm]" on the "module type selection".

**2** Check the ST Nos. of the module-type temperature controllers to be uploaded on the "Station definition" screen, and then click [OK].
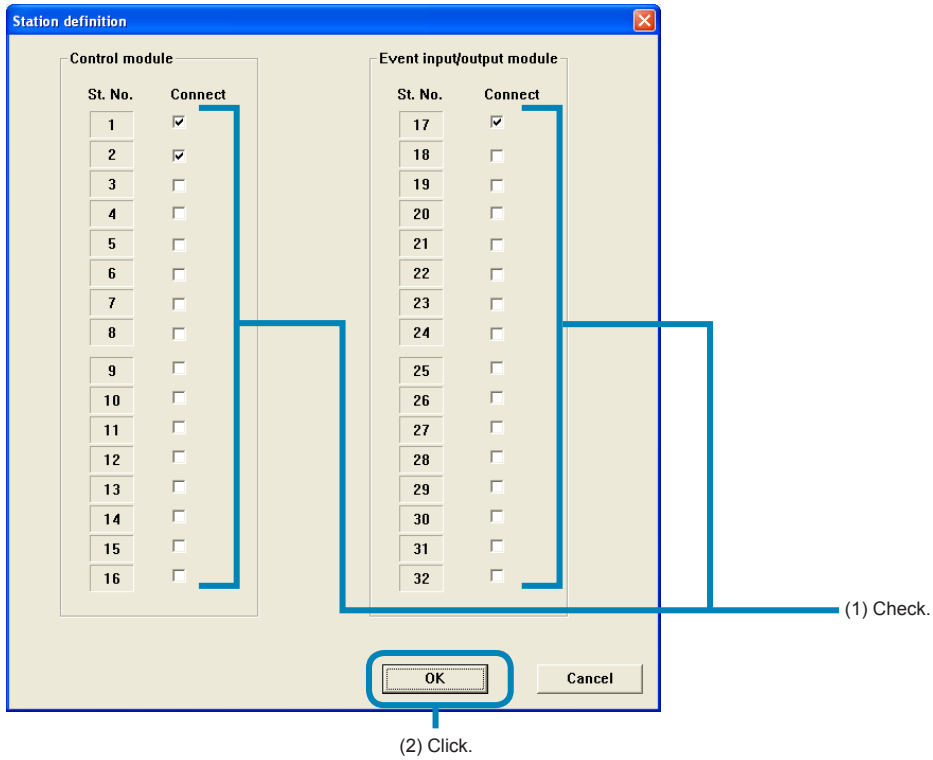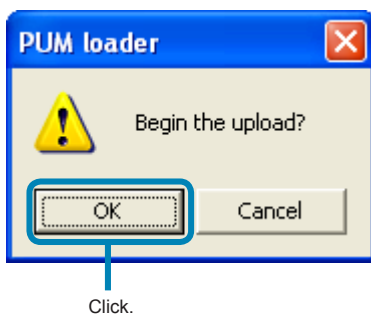


(1) Check.

(2) Click.

Proceed to **4**.

Note

Do not check the box of the module not connected.

**3** Click [OK] on the "PUM loader" screen.
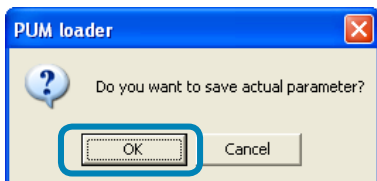


Click.

■**To cancel uploading**
Click [Cancel] .

**4** Click [OK] on the "PUM loader" screen.

Click [OK] to save the parameter setting currently selected.
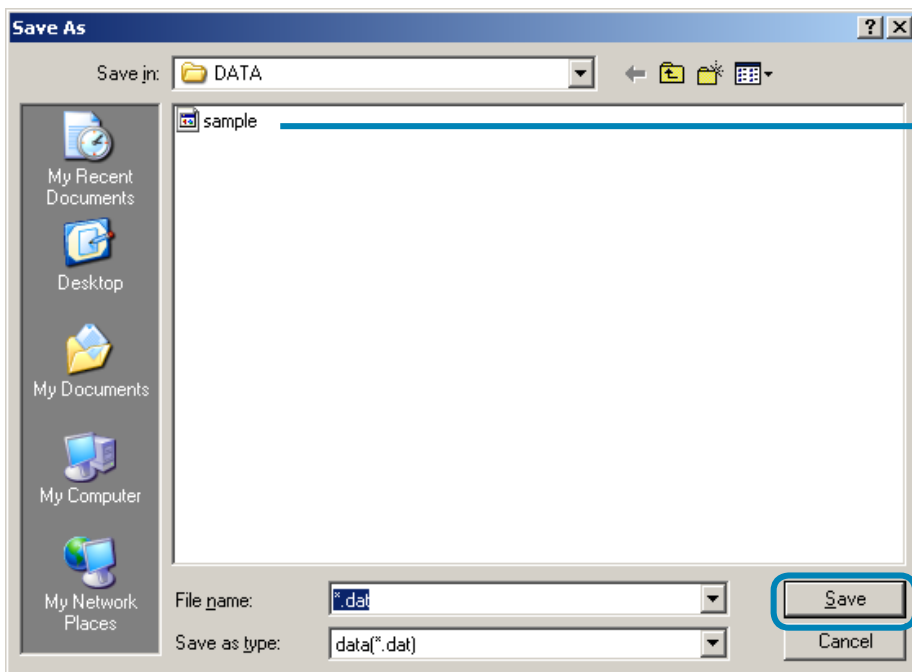


Click.

■**Not to save the parameter setting currently selected**
Click [Cancel] .

**5** Select the file to which the parameter setting is to be saved on the "Save as" screen, and then click "Save."



(1) Select the file in which the parameter setting is to be saved.

(2) Click.

---

Note

- Approximately 20 seconds are required for uploading per module-type temperature controller. Do not perform other communication operations while the settings are read.
- Do not turn off the power of the module-type temperature controller while the settings are read.
- Do not pull out the loader connection cable while the settings are read.

---

# Downloading (Transmission from PC to PUM)

Parameter settings can be transmitted to the connected module-type temperature controllers.

**1** Select "Download (PC → PUM data transmit (D)" from the "Data (D)" menu of the "PUM loader – PUM Parameters Support" screen (on P.25).
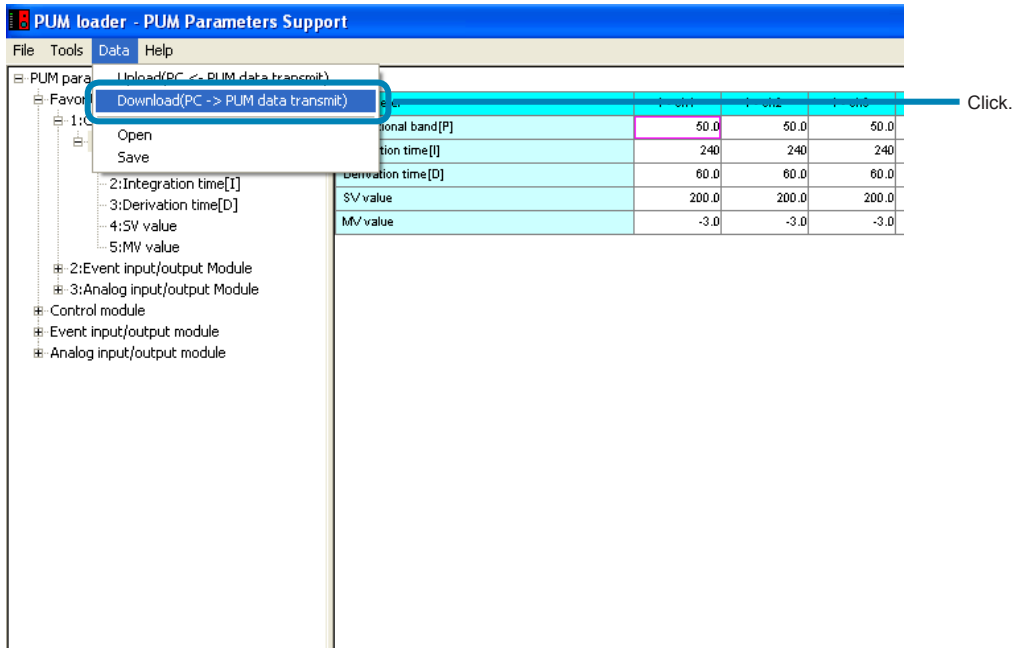


\* Proceed to **2** when selected the "control/event/analog" on the "module type selection".

\* Proceed to **3** when selected the "Enhanced comm module [Mitsubishi's programless comm]", "Enhanced comm module [Profibus comm]", "Enhanced comm module [Ethernet comm]" on the "module type selection".

***2*** Check the St Nos. of the module-type temperature controllers to be downloaded on the "Station definition" screen, and then click [OK].



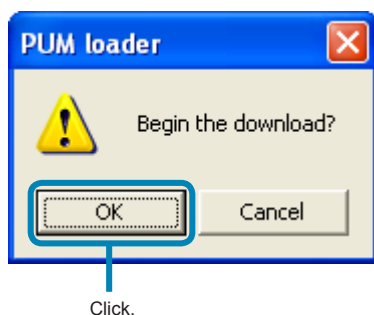(1) Check.

(2) Click.

---
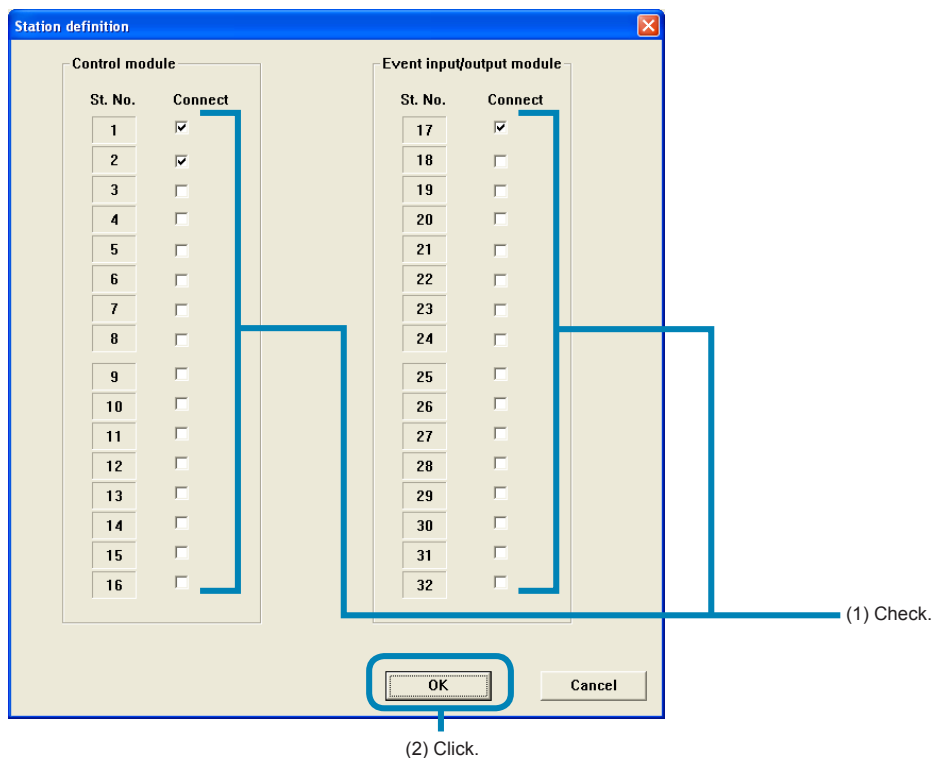
**Note**

Do not check the box of the module not connected.

---

■**To cancel downloading.**
Click [Cancel] .

***3*** Click [OK] on the "PUM loader" screen.



Click.

■**To cancel downloading.**
Click [Cancel] .

**Note**

- Approximately 20 seconds are required for downloading per module-type temperature controller. Do not perform other communication operations while downloading.
- Do not turn off the power of the module-type temperature controller while downloading.
- Do not pull out the loader connection cable while downloading.
- Do not carry out downloading with the auto tuning start command set at "1."
- Check that the main unit reset is set to "0," communication permit setting to "1," and that the master/slave data is correct, and then carry out downloading.

# Opening files

Data saved in a file can be read.

**1** Select "Open" from the "Data" menu of the "PUM loader – PUM Parameters Support" screen (on P.25).
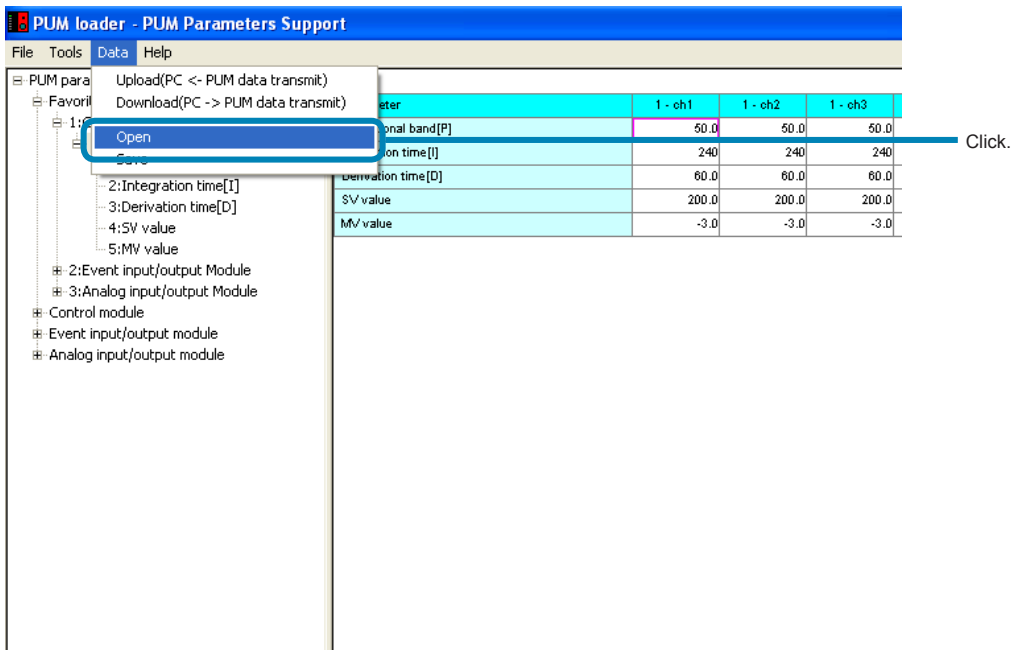


Click.

**2** Click [OK] on the "PUM loader" screen.

Click [OK] to save the parameter setting currently selected and go to 3.



Click.

■**Not to save the parameter setting currently selected and go to 4.**
Click [Cancel].

**3** Select a file to which the parameter setting is to be saved on the "Save as" screen, and then click [Save (S)].



(1) Select the file in which the data is saved.

(2) Click.

**4** Select the desired file on the "Open" screen, and then click [Open].



(1) Select the parameter setting file.

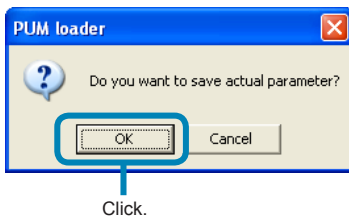(2) Click.
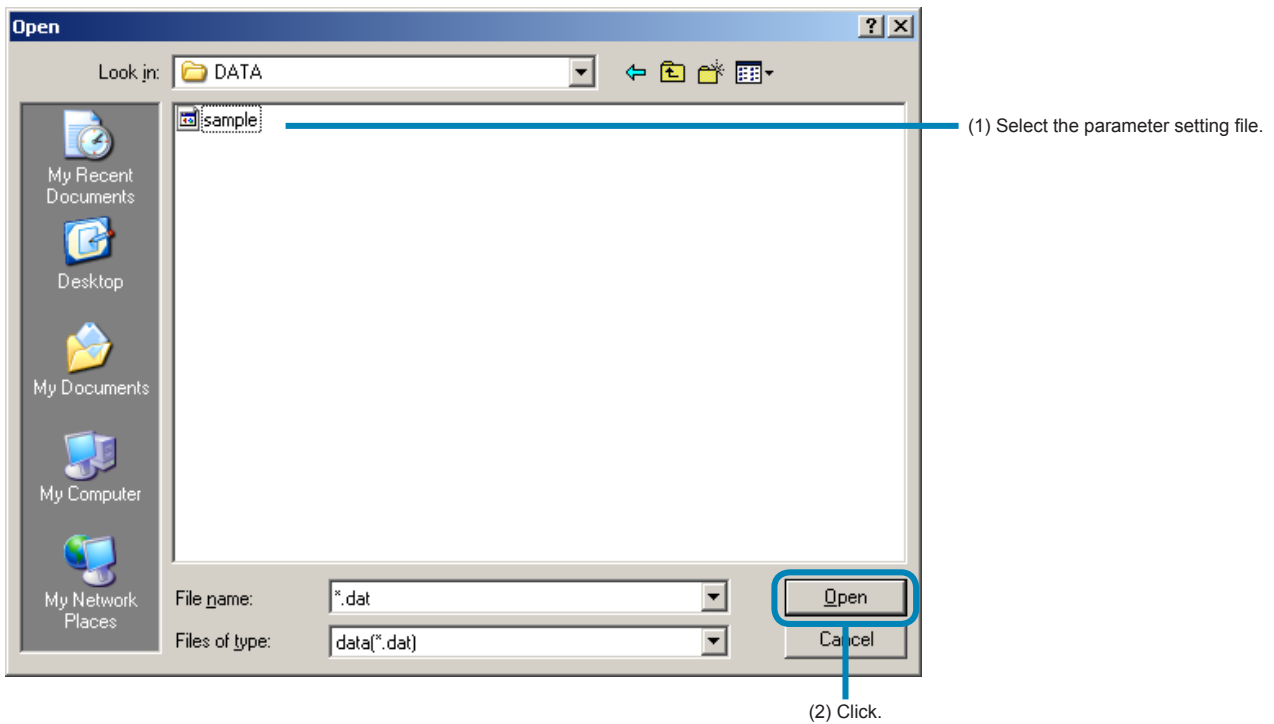
# Saving the setting in a file

The current parameter settings can be saved in a file.

**1** Select "Save" from the "Data" menu of the "PUM loader – PUM Parameters Support" screen (on P.25).
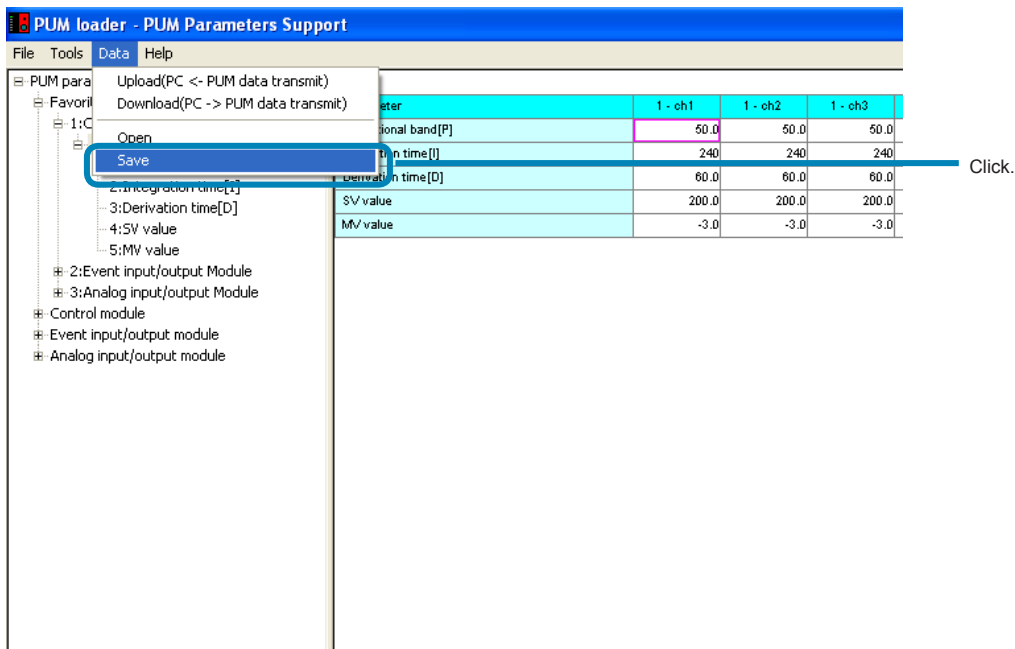


Click.

**2** Select the file in which the parameter settings are to be saved on the "Save as" screen, and then click [Save].



(1) Select the file.
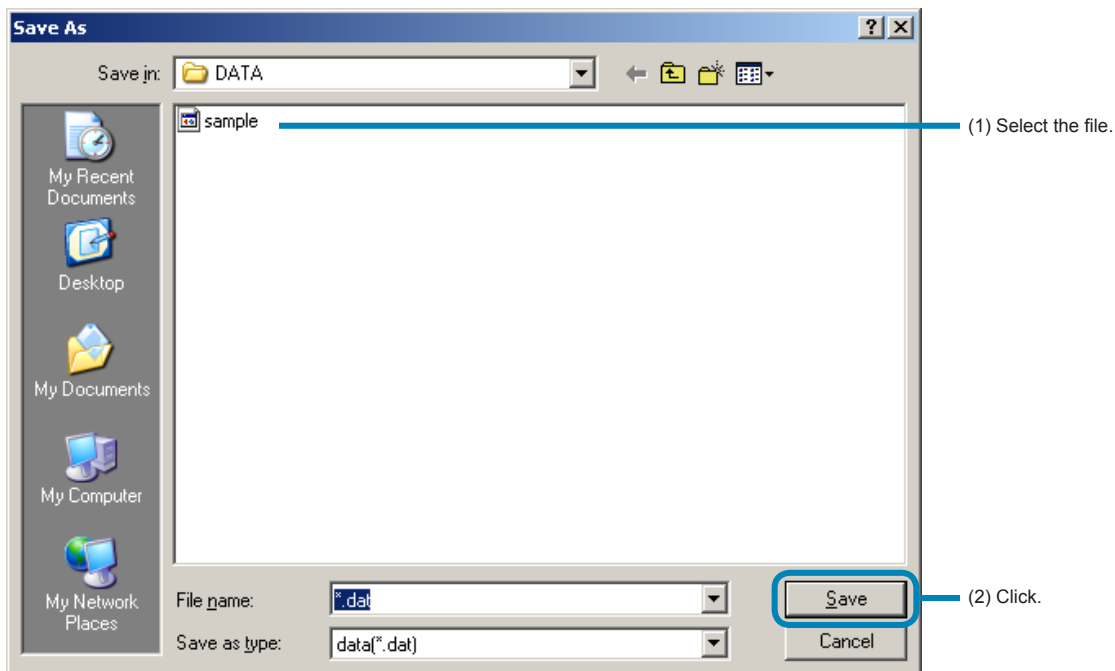
(2) Click.

# Exiting the PUM parameter loader

Exit the PUM parameter loader as follows.

***1***    Select "Exit" from the "File" menu of the "PUM loader – PUM Parameters Support" screen (on P.25).



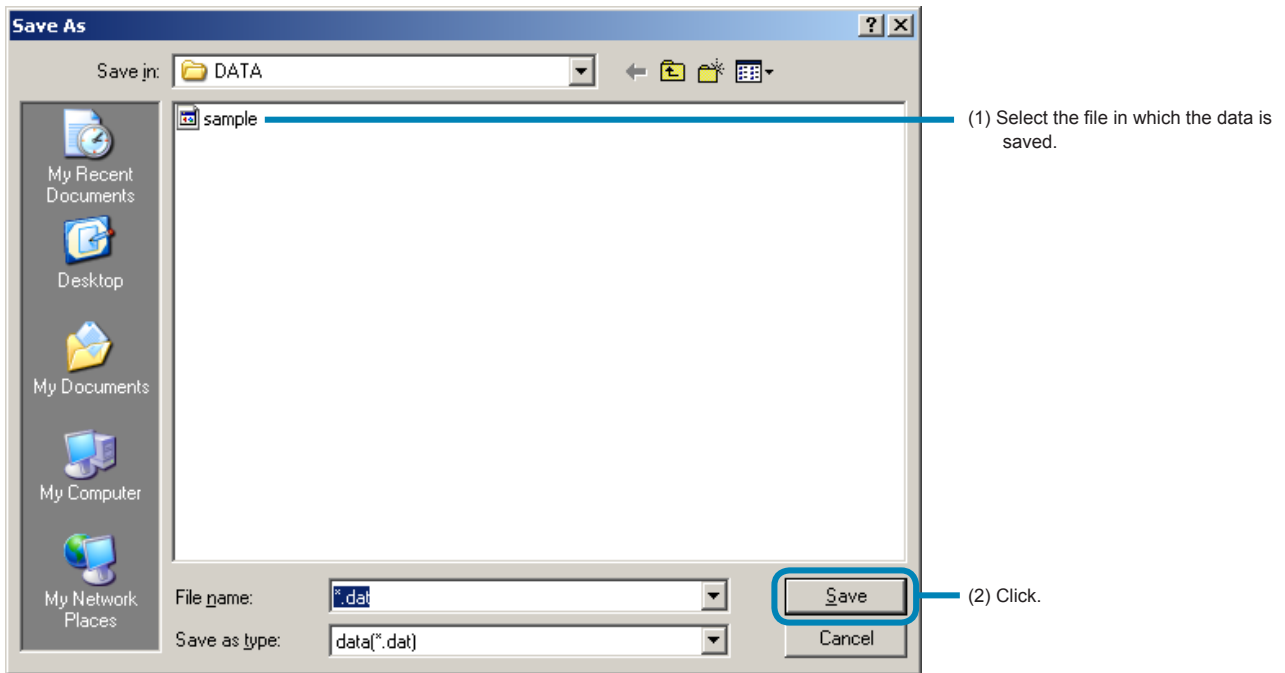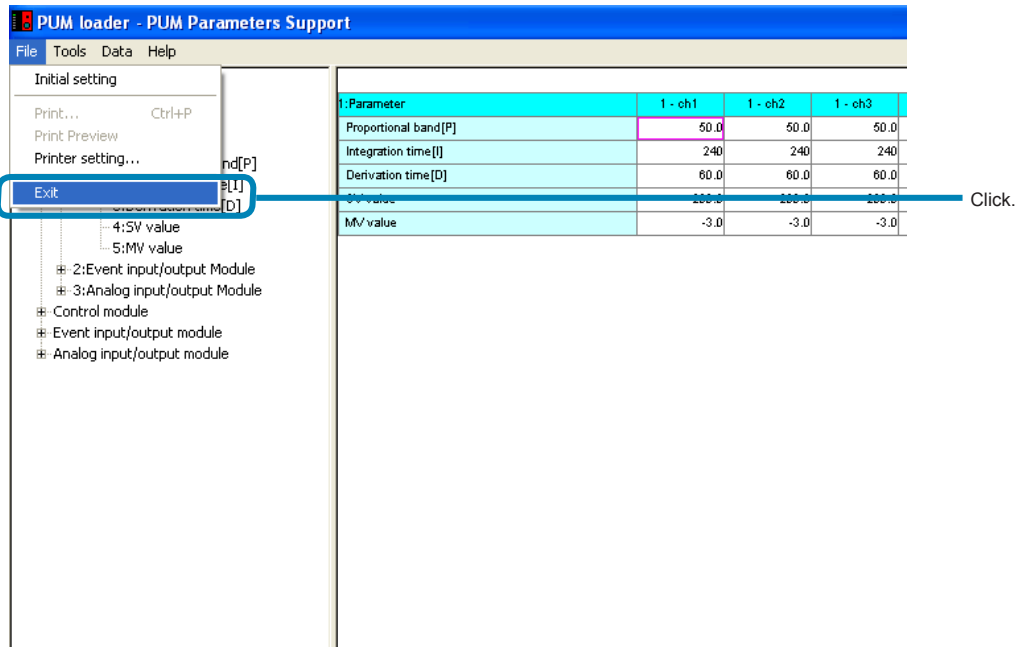Click.

***2***    Click [Yes] on the "Exit" window.

    Click [Yes] to save the parameter setting currently selected and go to 3.
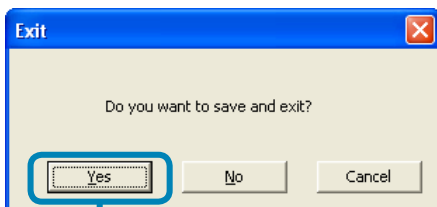


Click.

**■Not to save the parameter setting currently selected**
   Click [No].

**■To cancel the exit from PUM parameter loader**
   Click [Cancel].

**3**  Select a file in which the data is to be saved on the "Save as" screen, and then click [Save]."



(1) Select the file in which the data is to be saved.
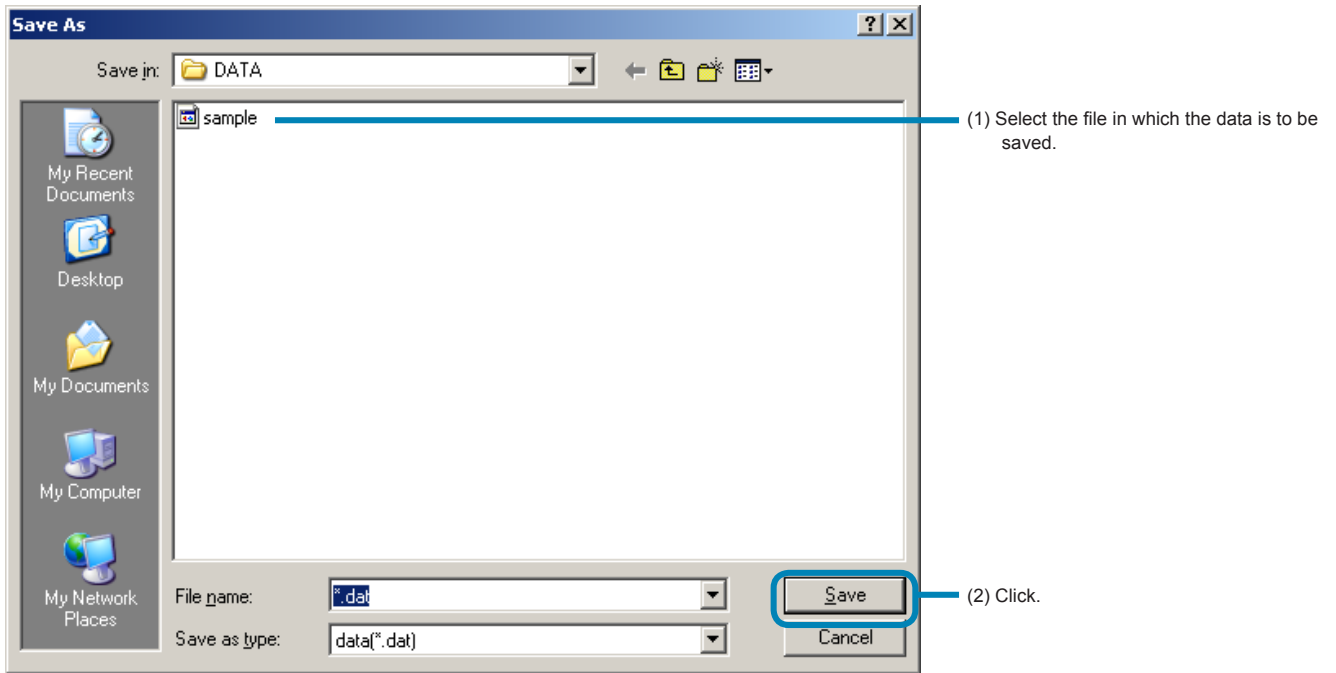
(2) Click.

# Multi launcher function

This function is to run up to 4 PUM loaders at the same time.
When you run the 2nd PUM loader, message appears and click [YES(Y)]. PUM loaders will be multi-launched.



---
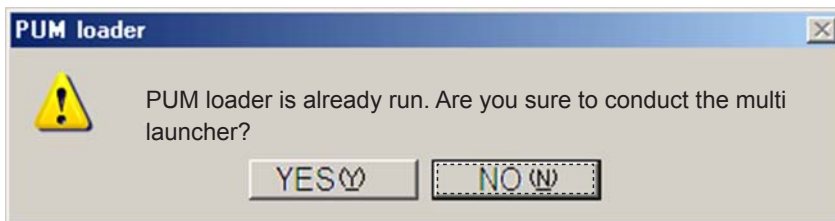
Note ...........................................................................................................................................................................

When you conduct the multi launcher function of PUM loader and communicate PUM, please note that overlap of the communication.
Copy of parameter can not be performed between multi-launched PUM loaders.

.............................................................................................................................................................................................

# 9 Troubleshooting

The following table lists the trouble symptoms that may appear when the setting of the module-type temperature controller is made using the PUM parameter loader, their causes, and remedies.

| Trouble | Causes | Solution |
|---|---|---|
| None of the connected module is capable of communicating with the loader software. | Improper PUM parameter loader software connection | Check that the PUM parameter loader software and the modules are connected properly. |
| | Improper connection of the PUM parameter loader connecting cables | Check the connection of the PUM parameter loader connecting cable. Check if the cable is break or not. |
| | | Check if the assembly of the PUM parameter loader connecting cable is proper or not. |
| | Improper station No. setting | Check if communicating to the correct station number. |
| | | Check if the set station number is duplicated. |
| | Incompatible communication conditions | Check that the communication specifications of the loader software and those of the module are compatible. |
| | Several master are defined. | Define only one master. |
| Only some of the connected modules cannot communicate with the PUM parameter loader. | Improper PUM parameter loader software connection | Check that the loader software is connected to the master of internal communication between modules. |
| Parameters can not be changed. | RS-485 communication permission is set to "Read only". | Change the setting to "Readable/Writable". |
| | The parameter input value tried to write the value out of the setting range | Change the parameter input value to the one in the setting range and then write again. |
| Parameter setting that has not been changed is changed. | SV value may be changed as a result of changing the SV value. | Set the SV limit value larger than the SV value. Set the SV value within the SV limit value range. |
| | The parameter set value for industrial value display is automatically changed by change of PV input type, PV scale (Analog input type, Analog input scale for Analog module), decimal point position, unit display. | — |
| | Alarm settings are automatically changed depending on the setting of DO output event type. | — |
| After download, parameter value was displayed as "-". | When selected an enhanced communication module, the value to the register address was set, which can not be accepted by a module. | Upload (or restart the loader), and restore from the "-" state, and then set the appropriate register address. |
| Parameters are displayed as "–" after uploading/downloading. | Communication error may be occurring. | Check the communication environment. Check the master/slave setting in connected modules. |
| Online mode cannot be used. | Online mode cannot be used if startup is carried out by clicking "File selection startup mode". | Start from "Startup mode/Module data reception launch mode". |

| Trouble | Causes | Solution |
|---|---|---|
| Data display is not updated when parameters are copied. | The tree display is not updated. | Click the parameters on the parameter tree display (on the left side of the screen) to update the tree. |
| "Communication port does not open" is displayed. | Multiple communication programs have been started. | Terminate the all communication program, and then restart the PUM parameter loader. |

# *10* Table of corresponding revision No. to PUM parameter loader

This parameter loader corresponds to the revision numbers of PUM series listed in the table below..

| Parameter loader version | Revision No. | | | | | | Languages | | |
|---|---|---|---|---|---|---|---|---|---|
| | Control module | Event module | Analog module | Enhanced comm module [Mitsubishi's PLC programless comm] | Enhanced comm module [PROFIBUS] | Enhanced comm module [Ethernet] | Japanese | English | Chinese *3 |
| 1.1.1 | ○ | ○ | × | × | × | × | ○ | ○ | × |
| 1.3.2 | ○ | ○ | ○ | 01A *1 | × | × | ○ | ○ | × |
| 1.3.5 | ○ | ○ | ○ | 02A *2 | ○ | × | ○ | ○ | ○ |
| 2.0.0 | 06A | ○ | ○ | 02A *2 | ○ | × | ○ | ○ | ○ |
| 2.2.0 or later | ○ | ○ | ○ | 02A *2 | ○ | ○ | ○ | ○ | × |

[Legend symbols]

○ · · · · · · · · · · · · · · · · · · · · · · · · Operate on the corresponding parameter version.

× · · · · · · · · · · · · · · · · · · · · · · · · Unsupported. Use the parameter version marked ○ .

Character string,such as "01A" · · Operable parameter loader version differs depending on the revision No. of PUM series. Check the revision No. with the following procedures, and use the corresponding parameter loader version.

Find the revision No. of PUM series described on the seal by removing the front terminal block.
Ex : In the case of a control module, the seal shown as below is applied.

PUM - A

No.
*******T

NOTE :

****/02A ◄—— After " / " indicates the revision No.
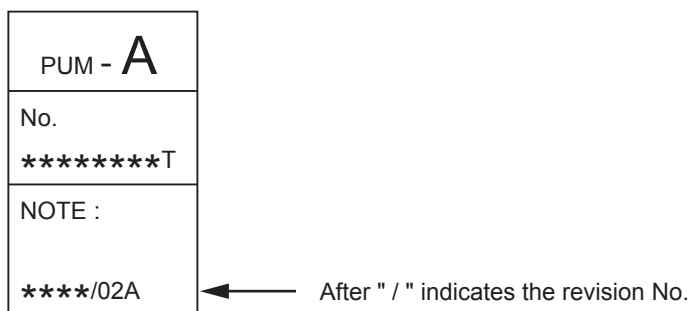
*1: Use the version before 1.3.2.
*2: Use the version after 1.3.5.
*3: Operation on other than the Chinese-language version of Windows results in garble.
   Chinese is not supported in Ethernet communication.