Additional instructions
Advanced Data Manager
ORSG45

Batch Software Option
Additional Functions for Automatic Batch Analysis
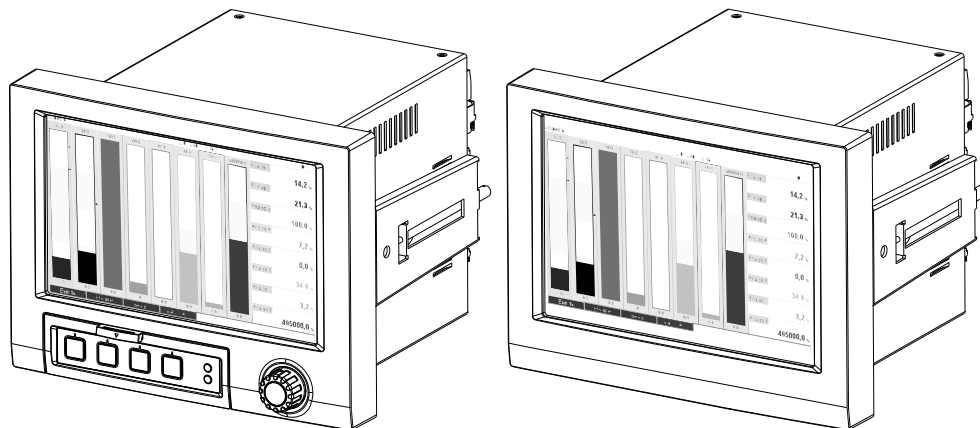
Table of contents

1   General description of the function

NOTICE

This manual constitutes an additional description for a special software option.

These additional instructions are **not** intended as a substitute for the Operating Instructions! For detailed information, refer to the Operating Instructions and other documentation.

Definition of the batch function:
A batch in production refers to the total of all units of a product, produced, manufactured or packed under the same conditions. A total of this type is generally assigned a unique lot number (batch number) and this number is also often marked on the products in this lot.

The batches are assigned to a fixed signal analysis in the device (batch 1 -> analysis 1, batch 2 -> analysis 2 etc.).
Note: if 4 batches are running in parallel, the operator cannot carry out any further analyses (e.g. daily analysis). Only the totalizer is always determined.
A batch can be started or stopped manually at the device, using an external keyboard, barcode reader, control input (digital input) or via remote operation (fieldbus/OPC).
At the end of the batch, a batch report ("Signal analysis") is created with min/max/average values and quantities. This can also be printed automatically.

NOTICE

The batch software also contains the Math package.

NOTICE

The following information concerning FDA 21 CFR Part 11 compliance is the responsibility of the user:

▸ Incorrect data logging will result if incorrect start and stop times are entered
▸ Incorrect data logging will result if incorrect or no batch information is entered
▸ Only authorized persons (controlled by user administration) may sign a batch

1.1   Firmware history

Overview of device software history:

Device software version/date	Software modifications	Operating Instructions/ version
V2.00.00./09.2015	Batch option added	Additional Instructions Batch option: BA016310/09/01.16

2   Device configuration, application setup

2.1   General programming guidelines

1. First install and configure the device as described in the Operating Instructions BA01434O. Observe all the safety instructions!

2. Make the additional settings needed for batch mode (see the next section).

3. Configure the display, for example choose the display mode. See Chapter 11 of the Operating Instructions BA01434O.

2.2   Expert - Application - Batch mode

Required settings for batch mode.

NOTICE

Depending on the selected function, the device's user interface adapts itself, so that each time only required parameters have to be checked/set.
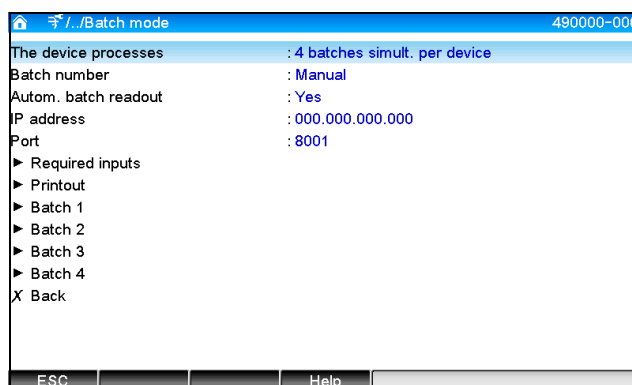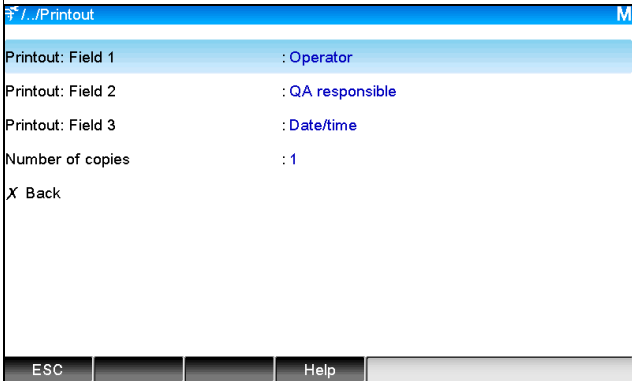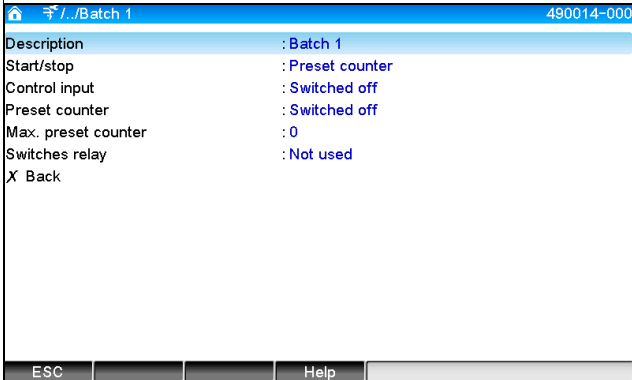
```
⌂  ⇥ ✶/../Batch mode                                    490000-000
   The device processes          : 4 batches simult. per device
   Batch number                  : Manual
   Autom. batch readout          : Yes
   IP address                    : 000.000.000.000
   Port                          : 8001
   ▶ Required inputs
   ▶ Printout
   ▶ Batch 1
   ▶ Batch 2
   ▶ Batch 3
   ▶ Batch 4
   ✗ Back


        ESC                          Help
```

Fig. 1:   Expert - Application - Batch mode

"Application - Batch mode" menu items	Configurable parameters (factory settings are highlighted in bold)	Direct access code
The device processes	The device can record up to 4 batches simultaneously. Configure how many batches the device should process simultaneously. Picklist: **Switched off**, 1 batch per device, x batches simult. per device	490000/000
Batch number	Configure how the batch number is generated: **"Manual":** You can enter any text as the batch number. "Increase automatically": the batch number is automatically increased by 1 after the batch is finished.	490001/000
Autom. batch readout	Activate this function to make the PC software automatically read out the data and print it out as soon as the batch is finished. **Note:** Only available if the device is connected via Ethernet and the readout automation system is started in the PC evaluation software. Picklist: **no**, yes	490002/000
IP address	Enter the IP address of the reader PC here. Where necessary, contact your network administrator to find out the IP address. **Note:** A DNS name can also be used. Factory setting: **000.000.000.000**	490003/000

"Application - Batch mode" menu items	Configurable parameters (factory settings are highlighted in bold)	Direct access code
Port	A connection to the reader PC is established through this communication port. **Note:** If your network is protected by a firewall, this port may have to be enabled. In such instances, contact your network administrator. Factory setting: **8001**	490004/000
"Required inputs" submenu	Specify which data fields must be input before a batch can be started. A batch cannot be started until the selected required fields have been input. Fig. 2: *Expert - Application - Batch mode, "Required inputs" submenu*	
Identifier	Specify if the batch designation must be input so that a batch can be started. Picklist: **no**, yes	490005/000
Batch name	Specify if the batch name must be input so that a batch can be started. Picklist: **no**, yes	490006/000
Batch number	Specify if the batch number must be input so that a batch can be started. Picklist: **no**, yes	490007/000
Preset counter	Specify if the preset counter must be input so that a batch can be started. If "no", the last preset counter is reused. **Note:** Only relevant if batch is ended per preset counter. Picklist: **no**, yes	490008/000

"Application - Batch mode" menu items	Configurable parameters (factory settings are highlighted in bold)		Direct access code
"Printout" submenu	Settings for batch printout (only relevant if device has printer connected). **Note:** Only channels which are assigned to an active batch are printed out, i.e. if "Batch x" or "Assign all batches" is configured under "Application -> Signal groups -> Group x -> Batch assignment" - in Setup. All other channels are disabled. **Note:** The batch printout can be activated in "Expert -> Application -> Signal evaluation -> Autom. printout". *Fig. 3: Expert - Application - Batch mode, "Printout" submenu*		
	Printout: Field 1	The batch report has 3 fields which the user can fill in individually after printing out the report. Here, configure the name for this field. Text entry: max. 22-digit. Factory setting: **Operator**	490010/000
	Printout: Field 2	The batch report has 3 fields which the user can fill in individually after printing out the report. Here, configure the name for this field. Text entry: max. 22-digit. Factory setting: **QA responsible**	490011/000
	Printout: Field 3	The batch report has 3 fields which the user can fill in individually after printing out the report. Here, configure the name for this field. Text entry: max. 22-digit. Factory setting: **Date/Time**	490012/000
	Number of copies	Configure how many copies should be printed out. Picklist: **1**, 2, 3	490013/000
"Batch 1-4" submenu	Batch-specific settings. *Fig. 4: Expert - Application - Batch mode, "Batch x" submenu*		

"Application - Batch mode" menu items	Configurable parameters (factory settings are highlighted in bold)	Direct access code
	Description Enter a unique description for the batch here (recommended when several batches are running in parallel on the device.) If no data are entered, the device generates a description automatically. Text entry: max. 16-digit.	490014/000 490014/001 490014/002 490014/003
	Start/stop Specify how batches are started/ended. "Per control input": the batch is started/ended externally via a digital control input (effect: start/stop batch x). **"At device/barcode/fieldbus":** the batch can be started/ended by operating the device, using a barcode or remotely (PC software, fieldbus). "Preset counter": the batch can be started by operating the device, using a barcode reader or control input. The batch is ended when the counter value >= the default value.	490015/000 490015/001 490015/002 490015/003
	Control input only if "Start/stop" - "Preset counter" Select the control input that starts the batch. Alternatively, the batch can be started via on-site operation. **Note:** The batch cannot be ended using this input. The assigned input is automatically pre-configured! Picklist: **Switched off**, Digital input x	490017/000 490017/001 490017/002 490017/003
	Control input only if "Start/stop" - "Per control input" Select the control input that starts/ends the batch. **Note:** The assigned input is automatically pre-configured! The input must be active during the batch. The minimum duration of the batch is one second. Picklist: **Switched off**, Digital input x	490017/000 490017/001 490017/002 490017/003
	Preset counter only if "Start/stop" - "Preset counter" Select the channel that ends the batch when the quantity preset in the preset counter is reached. **Note:** The assigned input is automatically pre-configured! Picklist: **Switched off**, Analog input x, Digital input x, Maths x	490016/000 490016/001 490016/002 490016/003
	Max. Preset counter only if "Start/stop" - "Preset counter" The maximum preset counter defines the maximum value that may be entered as the preset counter value to prevent incorrec t entries. User input: max. 8-digit.	490021/000 490021/001 490021/002 490021/003
	Default batch number only if "Batch number" - "Automatic" Configure the default value of the batch number, to which the batch number is set if it is reset via control input. User input: max. 8-digit.	490019/000 490019/001 490019/002 490019/003
	Reset batch number only if "Batch number" - "Automatic" Select the digital input that resets the batch number to its default value. **Note:** The assigned input is automatically pre-configured! Picklist: **Switched off**, Digital input x	490020/000 490020/001 490020/002 490020/003
	Switches relay The assigned relay is switched as long as the batch is running. Picklist: **Not used**, Relay x	490018/000 490018/001 490018/002 490018/003

2.3   Expert - Inputs - Digital inputs

Settings for digital inputs for batch mode.

NOTICE

Only settings relevant for batch mode are described here. For all the other signal analysis functions, see the Operating Instructions.
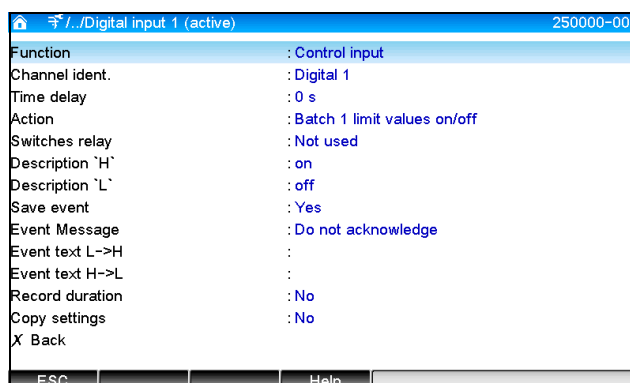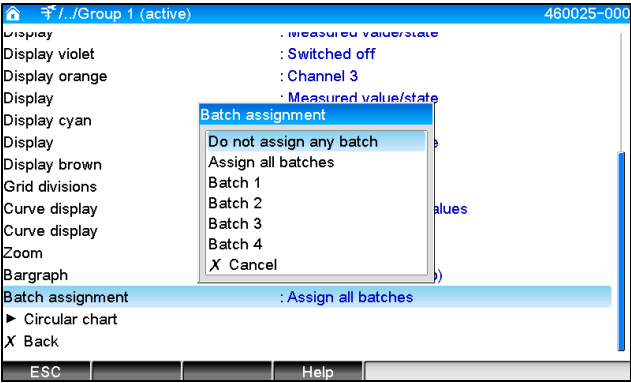

Fig. 5:   Expert - Inputs - Digital inputs - Digital input x

"Inputs - Digital inputs" menu items	Configurable parameters (factory settings are highlighted in bold)	Direct access code
Function	Select the required function. Digital inputs are High active, this means the described effect is achieved by a high input. Low = -3...+5 V, High = +12...+30 V The following functions are available: **"Switched off":** digital input is not active. "Control input": various control functions can be activated for batch mode using the digital input.	250000/000 to 250000/013
Channel ident.	Description of the function of this input (e.g. "Batch 1 start"). User input: 16-digit. Factory setting: **Digital x**	250001/000 to 250001/013
Action	Set up the function of the control input for batch mode: **"Start/end batch x":** starts/stops external analysis (analysis only runs while the signal is High). Measured value acquisition for the graphic display continues. Batches are also started/stopped using this function. "Reset batch number x": resets the automatically generated batch number to 0 (for Low -> High change) "Batch x limit values on/off": switch the batch's limit values on/off.	250003/000 to 250003/013
Copy settings	Copies settings from actual channel to selected channel. The last two positions of the channel ident. of the target channel are replaced by this channel number.	250200/000 to 250200/013

2.4   Expert - Application - Signal groups

Settings for signal groups for batch mode.

NOTICE

Only settings relevant for batch mode are described here. For all the other signal analysis functions, see the Operating Instructions.

Fig. 6:   *Expert - Application - Signal Groups - Group x*

"Application - Signal groups" menu items	Configurable parameters (factory settings are highlighted in bold)	Direct access code
Batch assignment	Configure what batch this group belongs to. **Note:** - Channels can be assigned to multiple batches/groups. - Only relevant for batch printout. Picklist: **Do not assign any batch**, Assign all batches, Batch x	460025/000 to 460025/009
Save group (only if "Batch assignment" - "Batch x")	The group will always be saved or only when the allocated batch is active. Picklist: Only when batch is active, **always**	460026/000 to 460026/009

NOTICE

The modified settings do not take effect until you return to display mode (group display) after parameterization. The operating menu is exited by repeatedly selecting the menu item "Back".

2.5   Use during operation

2.5.1   "Batch" menu

During operation, an individual symbol is displayed for each batch at the top, right in the measured value display. A green symbol indicates the batch has started. A red symbol indicates the batch has stopped.

NOTICE

Only channels which are assigned to an active batch are displayed, i.e. if "Batch x" or "Assign all batches" is configured under "Application -> Signal groups -> Group x -> Batch assignment" - in Setup. All other channels are disabled.
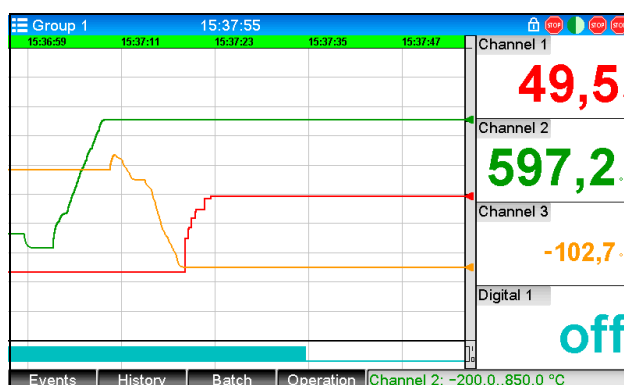
Fig. 7:   "Batch" menu

Call up the "Batch" menu by pressing softkey 3 or using "Main menu -> Operation":

Fig. 8:   "Batch" menu

This menu is used to enter batch information and control the batch.

"Batch - Batch x" menu items	Description
Status	Current status of the batch.
Identifier	Text field for identifying the batch. Text entry: max. 30-digit
Batch name	Text field for identifying the batch. Text entry: max. 30-digit

"Batch - Batch x" menu items	Description
Batch number	Enter a batch number. Text entry: max. 30-digit Can also be generated by the device as an option. An automaticlly generated batch number has 9 digits max., is numerical and does not have a leading sign. **Note:** the function depends on the settings under "Expert -> Application -> Batch mode -> Batch number".
Preset counter	Configure the default value for the preset counter here. User input: max. 8-digit. The batch is automatically ended when the counter value >= the default value.
Start time	Once a batch is started, the start date and time are displayed here.
Started by	If user administration is activated, the name of the user who started the batch is displayed here.
Start or end batch	You can start or end the batch here. **Note:** If user administration is activated, a user must be logged on so that a batch can be started/ended.

2.5.2 Starting/ending batches

Batches are started or ended using the following
- Control input (an individual control input for each batch)
- Operating the device (softkey 3 or under "Main menu -> Operation -> Batch")
- Preset counter
- Remote access (OPC server)
- Profibus DP, Modbus, EtherNet/IP or PROFINET
- Barcode reader

An analysis is saved at the end of a batch. The analysis is displayed under "Main menu -> Operation -> Signal analysis -> Batch x".

Note:
- The batch status (started or ended) is retained even after a power failure.
- There must be at least 200 ms between 2 of the same batches (stop/start).
- The minimum duration of a batch is 1 s. Batches that are shorter than this are not recorded.
- A new batch cannot be started until the old one is ended.
- The start and end of batches are recorded in the event log.

2.5.3   Displaying and printing out the batches in the PC evaluation software

> **NOTICE**
> The PC software supplied must first be installed before these functions can be executed. See the instructions and information on the CD-ROM of the PC software supplied.

Procedure for batch read out with the PC software:
1. Start the "Readout Data -> Mass Storage" or "Readout Data -> Online Connection" function. Step-by-step navigation makes operation easy.

2. Over the next few steps, the device is created in the database and the data are read out.

Procedure for visualizing and printing out the batches with the PC software:
1. Start the "Visualization -> New" function. Step-by-step navigation opens. Over the next few steps, the device must be selected as must the channels and batches to be visualized.

2. The curves, reports, values and events now displayed can be printed out by clicking the print icon.

3. With "Close", you can close the visualization or save it as a template.

> **NOTICE**
> Details about the functions are provided in the integrated online help and in the manuals on the CD-ROM of the PC software supplied.

2.5.4   Automatic device readout at the end of a batch

> **NOTICE**
> This function is only possible if the device is connected via Ethernet.
> Port "8001" of the firewall must be enabled.

The following settings must be made so that the device is automatically read out at the end of a batch:

At the device:

1. In the main menu, under "Expert -> Application -> Batch Mode", set "Autom. Batch Readout" to "Yes". Under "IP address" configure the IP address of the PC with the PC software installed.

In the PC software provided:

2. Start the "Data Management -> Automatic" function. Step-by-step navigation opens.

3. In Step 1, select "Automatic Information -> Automatic New/Edit" and "Select Task: -> Read Out Device".

4. In Step 2, select the right device.

5. In Step 3, select "Read Out Job -> Active" and "Interval: Device".
The effect of the "Additional Batch Triggered" function is that the device is additionally read out automatically at the selected interval (e.g. daily) after the end of the batch.

6. "Save" saves and activates the automatic function.

7. The automatic function can be stopped or restarted under "Extras -> Settings -> Automatic".

> **NOTICE**
> Details about the functions are provided in the integrated online help and in the manuals on the CD-ROM of the PC software supplied.

2.5.5   Input using a barcode reader

Batch information can be entered in two ways using a barcode reader:

Using the "Batch" menu:
The barcode reader can be used for the following batch information: identifier, batch name and batch number. However, the relevant input dialogs must be called up manually using the "Batch" menu.

Via command sequence as barcode:

Steps:

1. Read in the relevant barcode (= command sequence).
    (Refer to the Appendix for the barcodes of the command sequences for batches 1 to 4).

2. Read in the actual data for the relevant batch.

3. The device issues a message for 30 seconds on which data were read in.

Description of the barcodes in the Appendix:

Barcode no.	Code	Function, description
①	START BATCH x	Start batch: scanning of the barcode starts the batch. **Note:** If user administration is activated, a user must be logged on so that a batch can be started.
②	STOPP BATCH x	Stop batch: scanning of the barcode ends the batch. **Note:** If user administration is activated, a user must be logged on so that a batch can be ended.
③	BATCH x ID	Identifier: after the barcode is scanned, the designation which identifies the batch can be scanned. Max. 30-digit.
④	BATCH x NAME	Batch name: after the barcode is scanned, the batch name which identifies the batch can be scanned. Max. 30-digit.
⑤	BATCH x NO	Batch number: after the barcode is scanned, the batch number can be scanned. Max. 30-digit. Can also be generated by the device as an option. An automatically generated batch number has 9 digits max., is numerical and does not have a leading sign. **Note:** The function depends on the settings in "Expert -> Application -> Batch mode -> Batch number".
⑥	BATCH x ENTER ALL	After the barcode is scanned, the identifier, batch name and batch number can be scanned one after another. In this way, individual scanning of barcode 3, 4 and 5 is not necessary.
⑦	BATCH x DEFAULT	Preset counter: after the barcode is scanned, the default value can be scanned. Max. 8-digit. The batch is automatically ended when the counter value >= the default value.
⑧	CANCEL	Scanning of the barcode cancels barcode entry. **Note:** The batch is not canceled!

⚠ CAUTION

Failsafe mode:

▶ If the relevant data are not read in within x seconds (x can be configured in the main menu under "Expert -> System -> Barcode reader -> Timeout sequences", 10 to 180 s, default = 30 s) after the command sequence is read in, the process is canceled without any messages.

▶ It is possible to read in a command sequence multiple, consecutive times. The last command sequence read in is always the valid one.

3   Error messages and troubleshooting

Your unit informs you of faults or incorrect entries using plain text on the screen. During display operation (measured values display), the error codes are displayed in the upper righthand corner of the screen.

Version with navigator and front interfaces:
In addition a red LED signals failures or flashes in the event of warnings or required maintenance.

NOTICE
Detailed error messages and troubleshooting can be found in the Operating Instructions.

4   Technical data

NOTICE
The technical data of the Operating Instructions apply for this device option.

5 Appendix

Batch 1 + 2 command sequences (code 128):

① $$$_BATCH_1_START

① $$$_BATCH_2_START

② $$$_BATCH_1_STOP

② $$$_BATCH_2_STOP

③ $$$_BATCH_1_ID

③ $$$_BATCH_2_ID

④ $$$_BATCH_1_NAME

④ $$$_BATCH_2_NAME

⑤ $$$_BATCH_1_NO

⑤ $$$_BATCH_2_NO

⑥ $$$_BATCH_1_ENTER_ALL

⑥ $$$_BATCH_2_ENTER_ALL

⑦ $$$_BATCH_1_DEFAULT

⑦ $$$_BATCH_2_DEFAULT

⑧ $$$_CANCEL

⑧ $$$_CANCEL

Batch 3 + 4 command sequences (code 128):

① $$$_BATCH_3_START

① $$$_BATCH_4_START

② $$$_BATCH_3_STOP

② $$$_BATCH_4_STOP

③ $$$_BATCH_3_ID

③ $$$_BATCH_4_ID

④ $$$_BATCH_3_NAME

④ $$$_BATCH_4_NAME

⑤ $$$_BATCH_3_NO

⑤ $$$_BATCH_4_NO

⑥ $$$_BATCH_3_ENTER_ALL

⑥ $$$_BATCH_4_ENTER_ALL

⑦ $$$_BATCH_3_DEFAULT

⑦ $$$_BATCH_4_DEFAULT

⑧ $$$_CANCEL

⑧ $$$_CANCEL