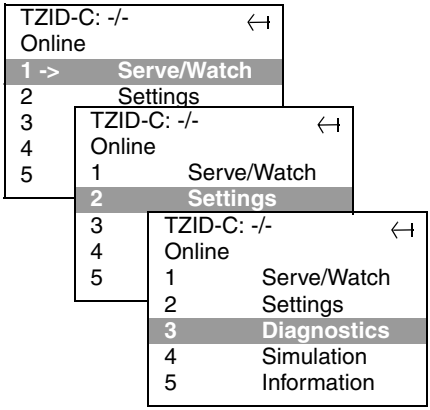
HHT 275

HART® communicator for TZID-C/TZID-C200 positioner

Manual 42/18-75 EN Rev. 02



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Read and observe the general operating instructions for the HART® Communicator.

1 General

HHT 275 is a compact, hand-held terminal for operating the TZID-C/TZID-C200 positioner via an FSK modem (see Data Sheet 18-0.22 EN for ordering details) using the HART®-Protocol. It provides a local operating option which adds up to direct local operation via the TZID-C/TZID-C200 front panel and remote configuration by using the appropriate configuration program on a PC.

2 Connection

Connect the communicator to the positioner using the cable with 4 mm plug delivered with it. The connection is made in parallel to the positioner's connection terminals. When you are using a power supply with FSK bus connection, the communicator can also be connected to the FSK bus.

3 Operation

Key	Function
[I/0]	On/Off key
[⇓]	Move cursor to next menu item
[⇑]	Move cursor to previous menu item
[⇒]	Select function/menu item
[⇐]	Return to previous selection
[>>]	Hot key
[F1] ... [F4]	Function keys, function depending on menu (see list below):
ABORT	Abort current function
BACK	Return to current function
DEL	Delete character right of cursor
ENTER	Accept user-entered data
ESC	Leave function, ignore changes
EXIT	Exit menu / return to prev. level
HELP	Call up context-sensitive help
HOME	Return to main menu
NEXT	Call up next display
NO	Negative answer to yes/no question
OK	Acknowledge displayed message
PGDN	Page down
PGUP	Page up
PREV	Return to previous display
SEND	Transmit data to TZID-C/TZID-C200
YES	Positive answer to yes/no question

Selecting the "SAVE" function will only save data in the communicator's RAM. **No data transmission to the TZID-C/TZID-C200 nor data storage in the TZ-ID-C/TZID-C200 non-volatile memory takes place.**

The active (i.e. selected) item of a displayed menu is highlighted and marked with a right arrow (->).

A down arrow to the left of the last menu item displayed indicates that the menu contains further items which can be called up by pressing the [⇓] key.

Pressing the [>>] key will call up the Hot Key Menu which provides the following option:

Menu item	Function
1 Master reset	Resets the positioner

If the TZID-C/TZID-C200, with which you try to communicate via the HART® communicator has already been set locally to the Conf mode, the following message will pop up:
"Local configuration is active occurred reading ... value. Press OK."

In this case it is not possible to configure the positioner via the communicator. If you should ignore the message and nevertheless try to transmit data, the following message is shown:
"Access restricted".

If you try to read parameters from the TZID-C/TZID-C200 which are currently being modified locally, the input values are shown, even if they have not yet been confirmed and stored in the TZID-C/TZID-C200 EEPROM. It is recommended to cancel communication from the communicator and retry at a later time.

4 Main menu

After power-on, the communicator performs a self-test. Then the communication to the connected TZID-C/TZID-C200 is set up automatically, and the Online Menu seen below is displayed:

TZID-C: -/-	⟻
Online	
1 ->	**Serve/Watch**
2	Settings
3	Diagnostics
4	Simulation
5	Information

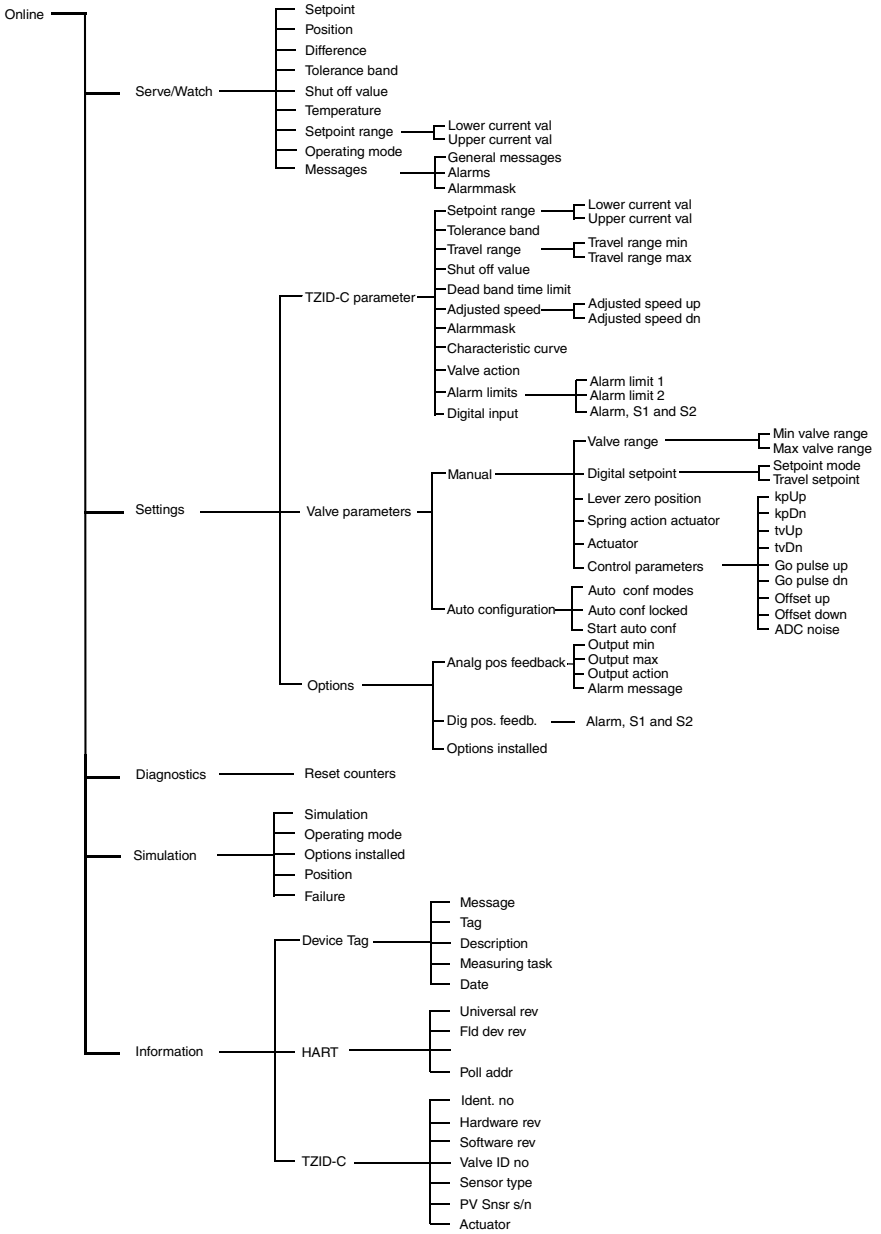
The Online Menu provides five menu options:

- **Serve/ Watch**
  for display of several operating parameters
- **Settings**
  for setting the TZID-C/TZID-C200 parameters
- **Diagnostics**
  at present only providing an option for resetting the stroke and travel counters
- **Simulation**
  for simulating situations
- **Information**
  for entering/displaying device information

There are two ways to select a menu. You can either enter the number of the menu item via the alphanumeric keypad or mark the option with the ⇓ key and then select it with the ⇒ key.

Pressing the ⇐ or F3 (HOME) key will return you to the main menu.

Menu tree


Online
Serve/Watch
Setpoint
Position
Difference
Tolerance band
Shut off value
Temperature
Setpoint range
Lower current val
Upper current val
Operating mode
Messages
General messages
Alarms
Alarmmask
Settings
TZID-C parameter
Setpoint range
Lower current val
Upper current val
Tolerance band
Travel range
Travel range min
Travel range max
Shut off value
Dead band time limit
Adjusted speed
Adjusted speed up
Adjusted speed dn
Alarmmask
Characteristic curve
Valve action
Alarm limits
Alarm limit 1
Alarm limit 2
Alarm, S1 and S2
Digital input
Valve parameters
Manual
Valve range
Min valve range
Max valve range
Digital setpoint
Setpoint mode
Travel setpoint
Lever zero position
Spring action actuator
Actuator
Control parameters
kpUp
kpDn
tvUp
tvDn
Go pulse up
Go pulse dn
Offset up
Offset down
ADC noise
Auto configuration
Auto conf modes
Auto conf locked
Start auto conf
Options
Analg pos feedback
Output min
Output max
Output action
Alarm message
Dig pos. feedb.
Alarm, S1 and S2
Options installed
Diagnostics
Reset counters
Simulation
Simulation
Operating mode
Options installed
Position
Failure
Information
Device Tag
Message
Tag
Description
Measuring task
Date
HART
Universal rev
Fld dev rev
Poll addr
TZID-C
Ident. no
Hardware rev
Software rev
Valve ID no
Sensor type
PV Snsr s/n
Actuator

5 "Serve/Watch" menu

IIn this menu you can call up several parameters for display in order to monitor the process. Some of them are shown directly in the menu line, others have to be called up by entering the item No. Pressing F4 (EXIT) will return you to the "Serve/Watch" menu.

The following parameters cannot be called up on the communicator:

- Travel counter
- Travel counter limit
- Stroke counter
- Stroke counter limit
- Hysteresis

Use the configuration program on the PC to display or edit these parameters.

The following parameters are not automatically polled/updated:

- Tolerance band
- Shut off value
- Setpoint range
- Alarmmask

Switch the communicator off and on again to display the latest parameter values.

1 Setpoint
Display the setpoint.

2 Position
Display the current position as a percentage of the stroke range.

3 Difference
Display the control deviation as a percentage of the stroke range.

4 Tolerance band
Display the tolerance band as a percentage of the stroke range.

5 Shut off value
Display the shut off value as a percentage of the stroke range.

6 Temperature
Display the temperature in °C.

7 Setpoint range

1 Lower current value
Display the low setpoint range limit.

2 Upper current value
Display the high setpoint range limit.

8 Operating mode
Display the currently active operating mode as a plain text message.

9 Messages

Enter the item No. to display the desired message(s). Pressing F3 (HOME) will return you to the main menu.

1 General messages

Display general device messages.

Press F4 (OK) to acknowledge.

2 Alarms

Display the current alarm messages. If no alarms are present, the message "No alarms" is seen.

Press F4 (OK) to acknowledge.

3 Alarmmask

Display the current alarm mask.

6 "Settings" menu

In this menu you can edit various parameters which are then saved automatically in the non-voltatile memory of the TZID-C/TZID-C200 positioner.

The following parameters cannot be called up on the communicator:

- Travel counter
- Travel counter limit
- Stroke counter
- Stroke counter limit
- Hysteresis

Moreover, it is not possible to initiate a setpoint jump or configure a user-defined characteristic curve via the communicator. Use the PC configuration program.

The following parameters are only updated when the communicator is switched off and on again:

- Tolerance band
- Shut off value
- Setpoint range
- Alarmmask
- Control parameters
- Auto conf mode

The parameters listed on the next pages can be edited via the communicator. Select the digit to be changed with ⇒ or ⇐ (selected digit flashes). Press ⇑ or ⇓ to increase or decrease the flashing number. You can also enter the new number via the numerical keys.

F2 (DEL) Deletes the entry.

F3 (ESC) or (ABORT) Exits from the value window without taking over the changes. The previous setting is restored instead.

F4 Confirms the entry and starts the data transmission procedure.

1 TZID-C parameter

1 Setpoint range

1 Lower current value
Enter the low setpoint range limit.

2 Upper current value
Enter the high setpoint range limit.

2 Tolerance band
Enter the tolerance band in %.

3 Travel range

1 Travel range min
Enter the minimum stroke range (travel) as a percentage of the valve range.

2 Travel range max
Enter the maximum stroke range (travel) as a percentage of the valve range.

4 Shut off value
Enter the shut off value as a percentage of the stroke range (travel).

5 Dead band time limit
Enter a time limit for the dead band in seconds.

6 Adjusted speed

1 Adjusted speed up
Adjust the up travel speed in seconds

2 Adjusted speed dn
Adjust the down travel speed in seconds

7 Alarmmask
Enable/disable the individual alarm messages (e.g. "Leakage towards actuator").
Press the F2 key to toggle, i.e. to enable or disable the respective alarm.

8 Characteristic curve
Select the characteristic curve to be used.

It is not possible to configure a user-defined characteristic curve via the communicator.

9 Valve action
Select direct or reverse action

10 Alarm limits

1 Alarm limit 1
Enter alarm limit 1 as a percentage of the stroke range.

2 Alarm limit 2
Enter AL2 as a percentage of the stroke range.

3 Alarm, S1 and S2
Select the alarm and switching outputs according to the following table:

AlarmOn=active low	OFF = alarm output HIGH active ON = alarm output LOW active
S_1ON=active low	OFF = switching point 1 HIGH active ON = switching point 1 LOW active
S_2ON=active low	OFF = switching point 2 HIGH active ON = switching point 2 LOW active
S1ON=act below	Off =switching output 1 active when exceeded ON =switching output 1 active when below
S2ON=act below	Off =switching output 2 active when exceeded ON =switching output 2 active when below

10 Digital input

The digital input defines six functions in the TZID-C/TZID-C200 positioner that can be selected locally. If, for example, locks are activated, the positioner only works in the selected operating mode when a voltage < 12 V is applied to the digital input. Please refer to the manual for the TZID-C positioner (42/18-64 EN) or for the TZID-C200 positioner, respectively (42/18-73 EN) for a detailed description of the digital input functions.

2 Valve parameters

1 Manual

1 Valve range

1 Min valve range
Enter the low valve range limit as a percentage of the lever range.

2 Max valve range
Enter the high valve range limit as a percentage of the lever range.

2 Digital setpoint

1 Setpoint mode
This item is used to define the setpoint (analog or digital) to be used by the positioner. When the "Analog setp mode" option is selected, the positioner will use the analog setpoint derived from the input current. When selecting "Digital setp mode", the setpoint will be given exernally using the HART-Protocol. Note that the "Travel setpoint" has to be defined for the "Digital setp. mode" (see next item.

2 Travel setpoint
This item is used to define the digital setpoint as a percentage. Note that this setting can only be activated when the TZID-C/TZID-C200 is currently working in mode 1.0 or 1.1. Otherwise, an error message pops up.

3 Lever zero position
The lever zero position can be displayed/edited with this menu item. Options:
- Stop turning clockwise
- Stop turning counterclockwise

(seen from the front with the case open)

4 Spring action actuator
The spring action of the actuator can be displayed/edited with this menu item. Options:
- Actuator turning counterclockwise
- Actuator turning clockwise

(seen from the front with the case open)

5 Actuator

This menu item is used to display/edit the actuator type (linear or rotary).

6 Control parameters

1 kpUp
Edit the kp value up.

2 kpDn
Edit the kp value down.

3 tvUp
Edit the tv value up.

4 tvDn
Edit the tv value down.

5 Go pulse up
Edit the go pulse up.

6 Go pulse dn
Edit the go pulse down.

7 Offset up
Edit the up offset.

8 Offset down
Edit the down offset.

9 ADC noise
Edit the noise band.

2 Auto configuration

1 Auto conf modes
With this menu item you can select the desired auto-configuration mode. Options:
- Complete auto-configuration
- Control parameters only
- Valve range only
- Zero only

2 Auto conf locked

With this option you can disable auto-configuration. Press F2 to activate (ON) or deactivate (OFF) the lock.

3 Start auto conf

Press ⇒ to select this option. The message "Initialized" appears in the display, unless auto-configuration has been locked. Press F4 (OK) to confirm and start the auto-configuration function. The message "Auto configuration is running" is seen in the display. After successful completion the message "Auto configuration done" appears. You can either press F4 (OK) to save the data in the TZID-C/ TZID-C200's non-volatile memory, or press F3 (ABORT) to reject the data. Note that a running auto-configuration can be stopped at any time by pressing F3 (ABORT).

3 Options

1 Analg pos feedback

1 Output min
Enter the current for 0 % stroke (travel). The current is entered as a percentage of the 4...20 mA range (= 16 mA) , plus 4 mA offset.

Example:

100% = 20 mA (16 mA range + 4 mA offset)
0% = 4 mA (0 mA range + 4 mA offset)
10% = 5.6 mA (1.6 mA range + 4 mA offset)

2 Output max
Enter the current for 100% stroke (travel). The current is entered as a percentage (see item 1).

3 Output action
Select the output action for the module for "analog position feedback".

4 Alarm messages
Select the alarm current for alarm reporting of the module for "analog position feedback". Options: "> 20 mA" or "< 4 mA"

2 Dig pos feedback

1 Alarm S1 and S2

Select the alarm and switching outputs for the module for "digital position feedback":

AlarmOn=active low	OFF = alarm output HIGH active ON = alarm output LOW active
S_1ON=active low	OFF = switching point 1 HIGH active ON = switching point 1 LOW active
S_2ON=active low	OFF = switching point 2 HIGH active ON = switching point 2 LOW active
S1ON=act below	Off =switching output 1 active when exceeded ON =switching output 1 active when below
S2ON=act below	Off =switching output 2 active when exceeded ON =switching output 2 active when below

3 Options installed

Shows the connected option modules:
- Display
- Analog Pos. Feedback
- Dig. Pos. Feedback
- FSK Modem
- Pressure sensor
- Valve analysis

7 "Diagnostics" menu

1 Reset counter

Press F2 to toggle the reset option for the stroke counter and/or travel counter between ON (reset) and OFF (do not reset).

8 "Simulation" menu

1 Simulation
Switches the simulation in the TZID-C/TZID-C200 on ("active") or off ("inactive").

Two minutes after the last user actions the TZID-C/TZID-C200 positioner returns to the local mode. Note that the values are not polled automatically. Switch the communicator off and on again to update the display.

2 Operating mode
Display the current operating mode.

3 Options installed
Display the currently connected optional modules.

4 Position
Simulate analog position feedback.
When simulation is disabled, a corresponding error message is displayed.

5 Failure
Simulate alarm outputs and switching points. Press F2 to activate/deactivate the respective function.

9 "Information" menu

1 Device Tag

1 Message
Enter the device tag.

2 Tag
Enter the address on the bus.

3 Description
Enter the plant description.

4 Measuring task
Enter the measuring task.

5 Date
Enter the date (format MMDDYY).

2 HART

1 Universal rev
Display the HART universal revision.

2 Fld dev rev
Display the field device revision.

3 Num req preams
Display the preambles used.

4 Poll addr
Display the polling address.

3 TZID-C

1 Ident no.
Display the TZID-C/TZID-C200 serial number.

2 Hardware rev
Display the TZID-C/TZID-C200 hardware revision

3 Software rev
Display the TZID-C/TZID-C200 software revision.

4 Valve ID no
Display the TZID-C/TZID-C200 manufacturing number.

5 Sensor type
Display the sensor type.

6 PV Snsr s/n
Display the sensor number.

7 Actuator
Display the actuator type (linear or rotary actuator)

10 Troubles and Errors

If the communicator cannot set up the communication with the positioner, the message "No device found" is displayed. Check the connection (cables) to the device, and acknowledge the message with F4 (OK). Restart communication setup by selecting the "Online" option from the displayed menu.

If the communicator displays the message "Device busy" while attempting to transmit a changed parameter value to the TZID-C/TZID-C200, this indicates that another connection (e.g. via the configuration program on the PC) to the connected device is currently active. Press F1 (Retry) to restart transmission.

Subject to technical changes.

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Subject to technical changes
Printed in the Fed. Rep. of Germany
42/18-75 EN Rev. 02
Release 01.02