Description of the Function Keys

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1. Application

With the Function Keys of the interface some parameters of the ultrasonic sensors can be set without a PC. The following functions are available:

Key   *Function*

COPY   With the copy function all parameters of a sensor are copied to another. This can be repeated as often as you want.
The red LED PROG is a status indicator.
The blinking LED indicates an error.

BEGIN   With this key the Beginning of the Operating Range or the Beginning of the Analogue Range is taught.
The red LED PROG is a status indicator.
The blinking LED indicates an error.

END   With this key the End of the Operating Range or the End of the Analogue Range is taught.
The red LED PROG is a status indicator.
The blinking LED indicates an error.

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1.1 Usable ultrasonic sensors

The Function Keys can be used with all ultrasonic sensors that can be set with SONPROG PC-software.

What can be programmed:

Compact Range M18 with switched output

Compact Range M18 with analogue output

Compact Range K2 switched output

Compact **Range K3 analogue and switched output**

What cannot be programmed:

Compact Range M18S, K1

1.2. Effects of the keys BEGIN and END

The keys BEGIN and END have an effect on the following parameters:

Range M18 with Switched Output

BEGIN: Teach-in Beginning of the Operating Range.
END: Teach-in End of the Operating Range.
After Teach-in the pots are disabled. They can only be enabled using SONPROG PC-software.

Range M18 with Analogue Output

BEGIN: Teach-in Beginning of the Analogue Range.
END: Teach-in End of the Analogue Range.

Range M30 with Switched Output

BEGIN: Teach-in Beginning of the Operating Range.
END: Teach-in End of the Operating Range.
After Teach-in the pots are disabled. They can only be enabled using SONPROG PC-software.

Range M30 with Switched and Analogue Output

BEGIN: Teach-in Beginning of the Analogue Range.
END: Teach-in End of the Analogue Range.
The pots will be set to "adjust the Operating Range". The settings of the Operating Range will not be changed. The operating range cannot be programmed with the Function Keys.

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2. The Functions

In the following the procedures are described for copy and Teach-in. If an error occurs during a procedure (blinking LED PROG), then you have to restart with the first step again.

2.1 Copy Function (Key COPY)

With this function the complete parameter set of a sensor can be copied. The parameters are read out from a sensor – the Master sensor – stored in the interface and are written into another sensor (data can be written into an unlimited number of sensor). This will only work if the new sensor is the same type, the same ordering number as the Master sensor.

2.1.1 Procedure

1. **Connect Master sensor to the interface**   *This parameter set should be copied.*

2. **Press key COPY**   *==> The LED PROG (red) is on.*

3. **Disconnect Master sensor**   *==> The LED PROG (red) is on.*

4. **Connect new sensor**   *==> The LED PROG (red) is on.*
    New sensor must have the same order no. as the Master sensor.

5. **Press key COPY**   *==> 5a) The LED PROG (red) is on.*
        ==> Programming successful.
    or   *==> 5b) The LED PROG (red) is blinking.*
        ==> Programming error or wrong sensor connected..
        Start again with step 1..

6. **Connect the next sensor and press the key COPY.**
    Status indicated as described at step 5. After an error message you have to start again with step 1.

7. **To end the copy function press the key COPY while no sensor is connected to the interface.**

2.1.2 Possible Errors (red LED PROG is blinking)

a) Data was transferred wrongly; communication error.
b) Two different types of sensor are used. Please note that inside each range there are different types of sensor: You can only copy sensor with exactly the same ordering number.

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2.2 Teach-in (Key BEGIN and END)

With these keys the beginning or the end of the Operating Range or the Analogue Range can be set. There are the same limits when setting the sensor via pots or via SONPROG PC-software. The end value of a range must be greater than the beginning value of the range plus the Hysteresis.

2.2.1 Procedure

1. **Connect the ultrasonic sensor**

2. **Adjust the reflector / object**

    The beginning or the end of a range can be set.

3. **Dependent on the value press the key BEGIN or END.**

    ==> 3a) The LED PROG (red) is on for approx. 2s.
    ==> Programming successful.
    or   ==> 3b) The LED PROG (red) is blinking.
    ==> Programming error.
    Back to step 2).

4. **Adjust the reflector / object new.**

    If only one value should be programmed, then go directly to step 6).

5. **Dependent on the value press the key BEGIN or END.**

    ==> 5a) The LED PROG (red) is on for approx. 2s.
    ==> Programming successful.
    or   ==> 5b) The LED PROG (red) is blinking.
    ==> Programming error.
    Back to step 2) or to step 4).

6. **Disconnect the ultrasonic sensor.**

Hint: The steps 2) to 5) can be repeated as often as you want. At the sensor, with the Operating Range can be programmed (for the list refer to point 1.2) the pots will be set to "programmable". This setting can only be changed with SONPROG PC-software.

2.2.2 Possible Errors (red LED PROG is blinking)

a) Data was transferred wrongly; communication error.
b) No reflector or badly adjusted reflector. For monitoring please start SONPROG PC-software and check if the object is displayed on the screen.
c) Wrong setting.
    - The beginning of the Analogue Range is greater then the end of the Analogue Range.
    - The beginning of the Operating Range plus Hysteresis is greater then the end of the Operating Range. Check the programmed Hysteresis with SONPROG PC-software. It must be smaller then the difference between beginning and end value.