

sonic ultrasonic-sensors of the mic+ family.  
With two push-buttons and a three-digit LED-display (TouchControl) the SyncBox1 is adjustable to five available ranges.

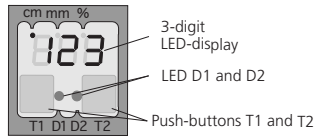


Fig. 1: TouchControl

Different repetition rates can be assigned to the sensors by using several SyncBox1. Therefore one of two available **Offsets** has to be activated. This prevents interaction of single sensors or sensor-groups that should not allow synchronization. It

can be useful e.g. when mounted on a mobile unit.

Level at Control-Input	Offset
Input Off	0
+U <sub>B</sub>	A1
-U <sub>B</sub>	A2

Fig. 2: voltage level

### Installation

Connect the sync/com connection on the ultrasonic sensors with the sync output of the SyncBox1 (80 sensors max per output).

		colour
1	+U <sub>B</sub>	brown
3	-U <sub>B</sub>	blue
2	Sync-Output 1	black
4	Sync-Output 2	white
5	Control	grey

Fig. 3: Pin assignment with view onto sensor plug and colour coding of the microsonic connection cable

### Synchronization

Adjust the settings as shown in Fig. 3

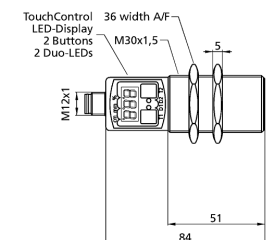
The SyncBox1 must be adjusted to the sensor range of the ultrasonic sensors connected. If sensors with different ranges are to be synchronised, the settings of the sensor with the widest range must be selected.

Sensor Range	SyncBox Setting
mic+25/...	25
mic+35/...	35
mic+130/...	130
mic+340/...	340
mic+600/...	600

Fig. 4: SyncBox Setting in Dependency of Sensor Range

### Technical Data

<b>Operating Voltage U<sub>B</sub></b>	10 - 30 V DC, reverse polarity
<b>Voltage ripple</b>	±10 %
<b>No-load current consumption</b>	< 50 mA
<b>Housing</b>	brass sleeve, nickel-plated, plastic parts: PBT IP 65
<b>Class of protection to EN 60 529</b>	5-pin M-12 initiator plug
<b>Type of connection</b>	2 Push-Button (TouchControl)
<b>Controls</b>	3-digit LED-display, 2 threecolor-LEDs
<b>Indicators</b>	Ja, with TouchControl
<b>Programmable</b>	
<b>Operating temperature</b>	-25°C to +70°C
<b>Storage temperature</b>	-40°C to +85°C
<b>Weight</b>	150 g
<b>Synceonisation output</b>	2 x pnp, U <sub>B</sub> -2 V, I <sub>max</sub> = 2 x 200 mA
<b>Time delay before availability</b>	< 300 ms
<b>Norm conformity</b>	EN 60947-5-2
<b>Order no.</b>	<b>SyncBox1</b>



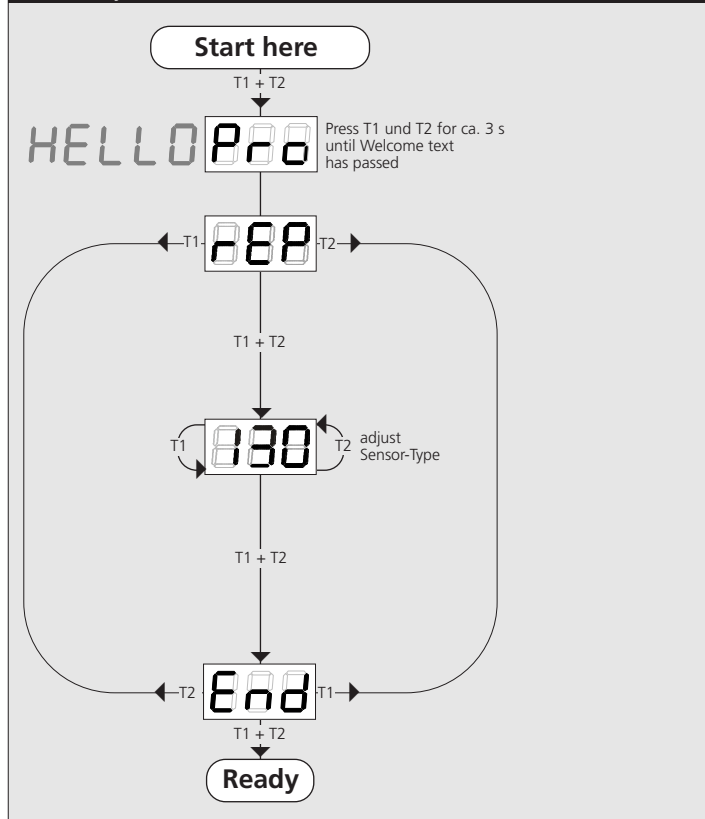
## Operating Instructions SyncBox1

Unit for synchronisation of ultrasonic sensors

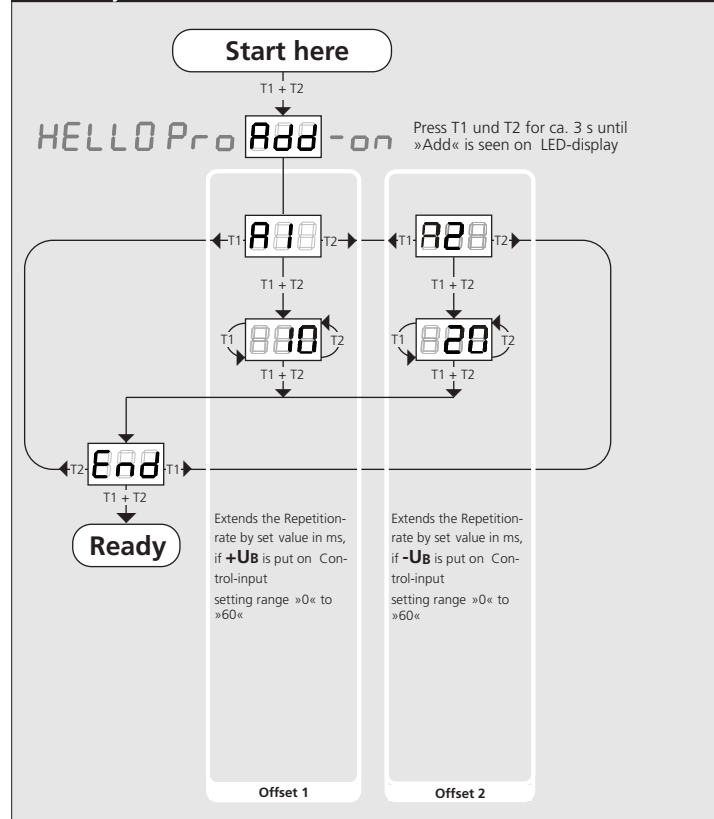
### Product Description

The SyncBox1 allows external synchronisation of up to 160 micro-

### Sensor adjustment

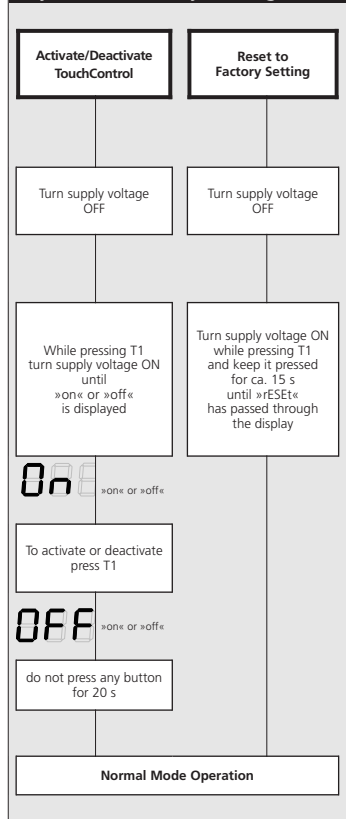


### Offset adjustment



2004/108/EC

### Key Lock & Factory Setting



### Repetition Rate Setting

Determine the repetition rate according to the table.

One of the chosen Offsets can be reached through the voltage level at control input (see »Offset adjustment«).

### Factory Setting

- Sensortype to mic+130/...
- Offset 1 set at 10 ms
- Offset 2 set at 20 ms

### Maintenance

The SyncBox1 is maintenance-free.

### Notes

- In the normal operating mode, LEDs show the state of Control-Input.  
LEDs light up green: Offset inactive  
LEDs light up yellow: Offset 1 active  
LEDs light up red: Offset 2 active
- TouchControl can be deactivated (see »Key Lock & Factory Setting«).
- SyncBox1 can be put back to Factory Setting (see »Key Lock and Factory Setting«).