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AM10 with Compact 900

Manual

English



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Connecting of the AM10 with the Compact 900



Initiation

This manual explains mainly how to use the AM10 microphone together with the Compact 900. For further information and more details about the Compact 900 please consult its manual.

Connect the Compact 900 with the AM10 and the power adapter as explained on the previous page. Turn the rotary knob to 12 o'clock. During the booting of the Compact 900 the green "Power" LED is blinking until it is ready.



The AM10 is switched on together with the Compact 900



Starting the measurement

ZO ZU KR KU KL KO 30°..... ZO ZU KL KR KU KO ZO P1 P4 Ju ZU . . I KR ZO KL KR ZO ZU KR KU KU KL KO . . P2 P5 30° KU . . KR ZO ZU KL KU KL KO ZO KU KL **P**3 **P6** 30°.. . . KO 30 manual More... o

Choose the desired program with the grey keys

The following menu appears on the screen

Loudsp. on/off	Install watch P1	
	E	
Menu	Press key on AM10 to start 14.01.2011 16:50	

In case the watch is not yet placed on the AM10, you may do this now. To start the program press the key on the AM10



What is indicated on the AM10

Before program start



During the program



To interrupt the program, press the key.

After the countdown is on zero, the results are shown on the Compact 900

After the program



This LED indicates the acoustic watch signal.

Explanation of the results

		Res	ults		
	Position	Rate	4 Ampli.	Out of beat	
	ZO	8,5 s/d	255 °	0.2 ms	
	ZU	1.1 s/d	236 °	0.1 ms	
	KR	-9.3 s/d	202 °	0.2 ms	1
	KU	-17.9 s/d	198 °	0.4 ms	
	KL	-33.5 s/d	191 °	0.1 ms	
	KO	-15.6 s/d	200 °	0.2 ms	
-	30°	-18.8 s/d	205 °	0.3 ms	
	X D	-12.2 s/d 42 s/d	212 ° 64 °	0.2 ms 0.3 ms	
	DV	24.1 s/d	12 °	0.3 ms	D : (
Menu	DVH	7.4 s/d -23.9 s/d 14.01.20	-48 ° 11 16:50	0.2 ms 0.1 ms	certificate

→ All red results are out of the tolerance

Х	=	Average of all positions
D	=	Delta of highest and lowest value
DV	=	Delta in vertical positions
DH	=	Delta in horizontal positions
DVH	=	Delta between DV and DH

Choose manually one position

Pl	ZO ZU KL KR KU KO		ZO ZU KR KU KL KO 30°	P4	-
P2	ZO KL KR	KU	ZO ZU KR KU KL KO 30°	P5	
P3	ZO KU KR	KL KL	ZO ZU KL KU KL KO 30°	P6	
Manuell		(F) 30°		Mehr	

Press the key "manual"

-	Manuell AM10	\bigcirc	
		• (×)	
⊗ •		Ś	
Zurück	15.01.2011 08:50	Ð	

Press the key for the desired position. The microphone will turn in that position and stays there.



Press the key "Start to commence the measurement. For interrupting the measurement press the "Start" key again.



Stabilis	ation tim	е			
1. Me	easuring	time		Ð	
					\frown
2.					⊢(<u>∧</u>)
3.			_	(×)	
				\bigcirc	\bigcirc
4.					(\checkmark)
	-		-		
10	20	30	40	50	60 s

programm 2 = 360 s

P2	Ampli tol. min.	Ampli tol. max.	Rate Rate tol.min.		Out of beat Tol.
1.	240°	300°	-10 s	10 s	1.0 ms
2.	240°	300°	-10 s	10 s	1.0 ms
3.	240°	300°	-10 s	10 s	1.0 ms
4.	240°	300°	-10 s	10 s	1.0 ms



programm 3 = 135 s

P3	Ampli tol. min.	Ampli tol. max.	Rate tol.min.	Rate Rate ol.min. tol.max.	
1.	240°	300°	-10 s	10 s	1.0 ms
2.	240°	300°	-10 s	10 s	1.0 ms
3.	240°	300°	-10 s	10 s	1.0 ms

Out of

beat

Tol.

1.0 ms

1.0 ms

1.0 ms

1.0 ms

1.0 ms

1.0 ms

Rate

tol.max.

10 s

10 s

10 s

10 s

10 s

10 s



program 4 = 280 s

P4	Ampli tol. min.	Ampli tol. max.	Rate tol.min.	Rate tol.max.	Out of beat Tol.
1.	240°	300°	-10 s	10 s	1.0 ms
2.	240°	300°	-10 s	10 s	1.0 ms
3.	240°	300°	-10 s	10 s	1.0 ms
4.	240°	300°	-10 s	10 s	1.0 ms
5.	240°	300°	-10 s	10 s	1.0 ms
6.	240°	300°	-10 s	10 s	1.0 ms
7.	240°	300°	-10 s	10 s	1.0 ms



programm 5 = 490 s

P5	Ampli tol. min.	Ampli tol. max.	Rate tol.min.	Rate tol.max.	Out of beat Tol.
1.	240°	300°	-10 s	10 s	1.0 ms
2.	240°	300°	-10 s	10 s	1.0 ms
3.	240°	300°	-10 s	10 s	1.0 ms
4.	240°	300°	-10 s	10 s	1.0 ms
5.	240°	300°	-10 s	10 s	1.0 ms
6.	240°	300°	-10 s	10 s	1.0 ms
7.	240°	300°	-10 s	10 s	1.0 ms

Standard program 6

	Stabilis	ation tin	ne								
1.	Measu	ring time	;								
2.	_				Þ						
3.				(¥)∎							
				\bigcirc	\bigcirc						
4.											
				\frown	¥						
5.											
					T						
6.	-										
				\frown	\bigcirc						
7.				(T)							
10	20	30	40	50	60	70	80	90	100	110	120 s

program 6 = 910 s

P6	Ampli tol. min.	Ampli tol. max.	Rate tol.min.	Rate tol.max.	Out of beat Tol.
1.	240°	300°	-10 s	10 s	1.0 ms
2.	240°	300°	-10 s	10 s	1.0 ms
3.	240°	300°	-10 s	10 s	1.0 ms
4.	240°	300°	-10 s	10 s	1.0 ms
5.	240°	300°	-10 s	10 s	1.0 ms
6.	240°	300°	-10 s	10 s	1.0 ms
7.	240°	300°	-10 s	10 s	1.0 ms

Choosing and adjusting a program



1. Press <more...>



Choosing and adjusting the main program settings



Push button<Modify main program settings >

Pro- gram Watch Type Co-Axial: No Pro- gram Match Type Co-Axial: No Target beat rate: Auto A/h Lift angle: 52 ° Measuring period: 1 s Waiting time: 30 s Measure duration: 60 s Amplitude tolerance min.: 240 ° Amplitude tolerance max.: 300 ° Vertical zomm: 1.0 x Rate tolerance min.: -10 s Out of beat tolerance +/-: 1.0 ms		View main program	m settings	Change
Watch Type Co-Axial: No Target beat rate: Auto A/h Lift angle: 52 ° Measuring period: 1 s Waiting time: 30 s Measure duration: 60 s Amplitude tolerance min.: 240 ° Amplitude tolerance max.: 300 ° Vertical zomm: 1.0 x Rate tolerance min.: -10 s Qram Out of beat tolerance +/-: Mate tolerance +/-: 1.0 ms	1. 1.	P1		program
Pro- gram Target beat rate: Auto A/h Lift angle: 52 ° Measuring period: 1 s Waiting time: 30 s Measure duration: 60 s Amplitude tolerance min.: 240 ° Amplitude tolerance max.: 300 ° Vertical zomm: 1.0 x Rate tolerance min.: -10 s Qram Out of beat tolerance +/-: 1.0 ms ms		Watch Type Co-Axial:	No	
Pro- gram Lift angle: 52 ° Measuring period: 1 s Waiting time: 30 s Measure duration: 60 s Amplitude tolerance min.: 240 ° Amplitude tolerance max.: 300 ° Vertical zomm: 1.0 x Rate tolerance min.: -10 s Rate tolerance max.: 10 s Out of beat tolerance +/-: 1.0 ms		Target beat rate:	Auto A/h	
Measuring period: 1 s gram Waiting time: 30 s Waiting time: 30 s Measure duration: 60 s Amplitude tolerance min.: 240 ° Amplitude tolerance max.: 300 ° Vertical zomm: 1.0 x Rate tolerance min.: -10 s Rate tolerance max.: 10 s Out of beat tolerance +/-: 1.0 ms	Pro-	Lift angle:	52 °	
gram Waiting time: 30 s Measure duration: 60 s Amplitude tolerance min.: 240 ° Amplitude tolerance max.: 300 ° Vertical zomm: 1.0 x Rate tolerance min.: -10 s Rate tolerance max.: 10 s Out of beat tolerance +/-: 1.0 ms	110-	Measuring period:	1 s	
Measure duration: 60 s Amplitude tolerance min.: 240 ° Amplitude tolerance max.: 300 ° Vertical zomm: 1.0 x Rate tolerance min.: -10 s Rate tolerance max.: 10 s Out of beat tolerance +/-: 1.0 ms	gram	Waiting time:	30 s	
Amplitude tolerance min.: 240 ° Amplitude tolerance max.: 300 ° Vertical zomm: 1.0 x Rate tolerance min.: -10 s Rate tolerance max.: 10 s Out of beat tolerance +/-: 1.0 ms		Measure duration:	60 s	
Pro- gram Amplitude tolerance max.: 300 ° Vertical zomm: 1.0 x Rate tolerance min.: -10 s Rate tolerance max.: 10 s Out of beat tolerance +/-: 1.0 ms		Amplitude tolerance min.:	240 °	
Pro- gram Vertical zomm: 1.0 x Rate tolerance min.: -10 s Rate tolerance max.: 10 s Out of beat tolerance +/-: 1.0 ms		Amplitude tolerance max.:	300 °	
gram Rate tolerance min.: -10 s Rate tolerance max.: 10 s Out of beat tolerance +/-: 1.0 ms	Pro-	Vertical zomm:	1.0 x	
gram ↓ Rate tolerance max.: 10 s Out of beat tolerance +/-: 1.0 ms		Rate tolerance min.:	-10 s	
Out of beat tolerance +/-: 1.0 ms	gram	Rate tolerance max.:	10 s	
		Out of beat tolerance +/-:	1.0 ms	
DACK				back

Adjusting the main program settings

Standard	Modify main prog	ram settings	
values	P1		save
	Watch Type Co-Axial:	No	
	Target beat rate:	Auto A/h	
1	Lift angle:	52 °	▲
select	Measuring period:	1 s	Value
-	Waiting time:	30 s	•
	Measure duration:	60 s	
	Amplitude tolerance min.:	240 °	
	Amplitude tolerance max.:	300 °	
I	Vertical zomm:	1.0 x	
select	Rate tolerance min.:	-10 s	Value
\bullet	Rate tolerance max.:	10 s	
	Out of beat tolerance +/-:	1.0 ms	
Modify			
program			back
program			Dack
name			
— Calaat	the	Change th	میادی _

Press <Save> for saving the values

Choosing and adjusting the detail program settings



Press <Modify detail program settings >

Press here for changing the program

		View detail progr	am settings	Modify	
		P1		Program	
		Program step:	1. Step		_
Pi gra	ro-	Position Waiting time: Measure duration:	ZO 30 s 60 s	Program step	
Pr gra	o- am ↓	Amplitude tolerance min.: Amplitude tolerance max.: Rate tolerance min.: Rate tolerance max.: Out of beat tolerance +/-:	240 ° 300 ° -10 s 10 s 1.0 ms	Program step	f
				back	
	Use th	nese buttons to	Use these	buttons to	_

program number.

Use these buttons tochoose the wished step (position).

Adjusting the detail program settings

Standard values	Modify detail prog	ram settings	Save
Select	Program step: Position Waiting time: Measure duration:	1. Step ZO 30 s 60 s	value
Select	Amplitude tolerance min.: Amplitude tolerance max.: Rate tolerance min.: Rate tolerance max.: Out of beat tolerance +/-:	240 ° 300 ° -10 s 10 s 1.0 ms	value
			back
Select	the eter	Change the	e value

Press <Save> for saving the values

Error list

Following errors may appear on LED-screen

Error indication	Description of the error
00 Err	Initialisation error
01 Err	Communication error with display
02 Err	Communication error with Compact 900
04 Err	Error in program cycle
05 Err	Error while initialisation of USB-chip or
06 Err	Error while steering servo-motor
07 Err	Error while steering DC-motor
08 Err	Over current in DC-motor
09 Err	over current in servo-motor
10 Err	Calibration error
11 Err	Over current on USB interface
12 Err	Unknown error

Other indications

Indication	Description
1.01	While booting / Firmware-version
1.51	While booting / Firmware-version on Tourbillon
01 CAL	Calibration step 1
02 CAL	Calibration step 2
USB	USB-transfer

Calibration

After a while it is possible that the microphone will need a new calibration of the positions. If this is the case, then please proceed as explained below:

- Switch on Compact 900
- While the software version appears on the LED screen of the AM10 press the "Start" button longer than 2 seconds and directly after that press it again, but just shortly.

Now the AM10 is in the calibration mode and shows:

01 CAL	In this mode you can calibrate the position of the DC-motor. This must be done manually with the "Start" button. Press the button longer than 2 seconds and after releasing it, it will turn one step counter clockwise Press the button only shortly and after releasing it, it will turn one step clockwise. Wait 15 seconds and it will change to the next mode.
02	In this automatic mode the microphone calibrates all other positions by its own.
CAL	The LED screen will show the time of the program when it is ready again.