

#### **USER MANUAL**

IST-101 3 channel speed calibrator



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# **1** Specification:

#### **Functions:**

- 3 channel frequency generator
- All 3 channels are independent adjustable for frequency, amplitude, offset and phase
- Sweep function
- Loop current monitor

## Test functions:

- Over speed, 1001, 2002, 3003, 1002, 2003, 3003
- Under speed, 1001, 2002, 3003, 1002, 2003, 3003
- Zero speed, 1001, 2002, 3003, 1002, 2003, 3003
- Loop okay function, 1001, 2002, 3003, 1002, 2003, 3003
- Sensor okay (current monitoring per channel).
- Reverse rotation / Forward rotation
- Acceleration (speed)

## **Technical details:**

٠	Maximum DC adjust:	0-16 Volt DC
٠	Maximum AC adjust:	0-10 Volt (DC +AC Limited to 16 Volt)
٠	Accuracy:	Full range + / - 1%
٠	Temperature drift:	30 μV/°C Typical
٠	Maximum Frequency adjust:	0-30000 Hz.
٠	Tolerance:	@ 30.000 Hz < 0.001 % (+ / - 1 Hz)
٠	Maximum probe adapter output:	appr. 15000 Hz.
•	Acceleration:	0- Max 1500 Hz/s
٠	Phase:	360 degrees, per channel adjustable (only when the
		3 outputs are coupled)
٠	Maximum load all outputs:	30mA (Fused 50 mAmp Fast)
٠	Pulses per Rev / Machine Factor:	1- 195 pulses per Rev / 0.0166 – 3.25

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- Battery operation:
- Battery Charger model
- Operating temperature range:
- Storage @95% Humidity:

#### Models:

IST-101-AXX

- Product includes:
- Battery charger
- Carrying case
- Probe adapter (Optional)
- 3 sets of leads with standard grips

Up to 12 hours continuously (low battery indication on the display) Mascot type 2115 5 °C - 55 °C -10 - +80 °C with batteries removed.



# 2 Introduction

# 2.1 Purpose

In a number of situations determining functionality of speed monitoring applications in the field is required. To verify e.g. over- or underspeed functionality on a 2003 speed measuring system. The standard available function generators, specific portable versions, do not allow a 3 channel control of all function regarding e.g. overspeed, underspeed, speed acceleration. The compact three channel battery powered speed calibrator has been build based on the input from field service engineers and for its purpose is truly one of the most easy to use and complete field service instruments in the field.

Following models are available:

• 3-channel portable: IST-101-A03-XXX



Figure 1 IST-101-A03-XXX Three channel speed calibrator with connection cables.



# 2.2 Quick Operation:

A quick overview of the different menus is shown below.

- 1.2.1 Handles the selection functions
- 1.2.2 Handles the basic functionality
- 1.2.3 Handles the different combinations between the speed outputs for the XooX tests.

## 2.2.1 Selection Functions



Figure 2 IST-101-A03-XXX Selection dials and switches

The IST-101 has followings means of operating the unit

- Selector start button
- Adjustment dial
- Test Start
- Test Program
- 1. With the Selector start button following basic functions are performed:
  - Centre button; switch to next line in the display
  - Left Right; move to the digit in the selected line which needs to be modified.
    - Up Down; change de value of the digit.
- 2. With the Adjustment dial the value of the selected line also may be changed. The dial has an incremental function. Slow turning results in slow change of the value. Fast turning results in fast change of the value.
- 3. Test Function; with this push button generally the basic functions are chosen. Which only require change of numerical value per line or per channel.
- 4. Test Program; with this push button any option, which requires a pre configuration like XooX control of the speed out puts or Sweep function is selected.



#### 2.2.2 Basic Functionality

				F	UNCTION N	/ENU's	
Menu 1	S	witch on				1e menu item	
Line 1			ISTEC			Remark	
Line 2	INTERNATIONAL			AL B.V.		After 3 seconds the screen changes automatically	
Line 3	FREQUEN			CY			
Line 4	GENERAT			OR			
Menu 1	S	witch on				1e menu item	
Line 1			Verion X.	Z		Remark	
Line 2	month-yes PROJECT NUM			ar MBER		Content may vary per revision and project After 3 seconds the screen changes automatically	
Line 3							
Line 4			XXXXXXXXX	OK		account the second country of the	
Menu	Selector	r Center Bu	itton			Next menu	
Line 1	Frequency	Cursor	Marker	Unit	Phase	Remark	
Line 2	00000	<		Hz	000	Use selector center button to change field. Use dial to change value, or	
Line 3	12,000			V DC	120	use slector left right to move to numeric value. Then use selector up	
Line 4	00.000			V AC	240	down to change digit	
	C. J. J.						
Menu 2	Selector	r Center Bu	itton	40-30		Next menu	
Line 1	Frequency	Cursor	Marker	Unit	Phase	Remark	
Line 2	00000			Hz	000	Use selector center button to change field. Use dial to change value, or	
Line 3	12,000	<		V DC	120	use slector left right to move to numeric value. Then use selector up	
Line 4	00.000			VAC	240	down to change digit	
Monu 2	Coloctor	Control Do	atten.			Markinson	
Menu 3	Selector	Cursor	Marker	Lloit	Phase	Next menu Remark	
Menu 3 Line 1 Line 2	Selector Frequency	Center Bu Cursor	tton Marker	Unit Hz	Phase	Next menu Remark	
Menu 3 Line 1 Line 2	Selector Frequency 00000	Center Bu Cursor	Marker	Unit Hz V DC	Phase 000 120	Next menu Remark Use selector center button to change field. Use dial to change value, or use slector left right to move to numeric value. Then use selector up	
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Menu 3 Line 1 Line 2 Line 3 Line 4 Menu 4 Line 1 Line 2	Selector           Frequency           00000           12,000           00.000           Press fit           Phase           000,0	Center Bu Cursor < < unction but Cursor <	tton Marker tton Marker	Unit Hz V DC V AC 0-360 Phase	Phase 000 120 240	Next menu  Remark  Use selector center button to change field. Use dial to change value, or use slector left right to move to numeric value. Then use selector up down to change digit  Next menu  Remark  Use selector center button to change field. Use dial to change value, or	
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Menu 3 Line 1 Line 2 Line 3 Line 4 Menu 4 Line 1 Line 1 Line 2 Line 3 Line 4	Selector           Frequency           00000           12,000           00.000           Press fu           Phase           000,0           120,0           240,0	Center Bu Cursor < anction but Cursor <	tton Marker tton Marker	Unit Hz V DC V AC O-360 Phase Phase Phase	Phase 000 120 240 .0 ch 1 ch 2 ch 3	Next menu	
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Menu 3 Line 1 Line 2 Line 3 Line 4 Menu 4 Line 1 Line 2 Line 3 Line 4 Menu 5 Line 1 Line 2 Line 3 Line 4 Menu 6	Selector           Frequency           00000           12,000           00.000           Press ft           Phase           000,0           120,0           240,0           Selector           Phase           000,0           240,0           Selector           Phase           000,0           120,0           240,0	Center Bu Cursor < anction but Cursor < Center Bu Cursor < Center Bu	tton Marker Marker Marker Marker	Unit Hz V DC V AC O-360 Phase Phase Phase Phase Phase Phase Phase	Phase 000 120 240 .0 ch 1 ch 2 ch 3 .0 ch 1 ch 2 ch 3	Next menu	
Menu 3 Line 1 Line 2 Line 3 Line 4 Menu 4 Line 1 Line 2 Line 3 Line 4 Menu 5 Line 1 Line 2 Line 3 Line 4 Menu 6 Line 1	Selector           Frequency           00000           12,000           00.000           Press ft           Phase           000,0           120,0           240,0           Selector           Phase           000,0           240,0           Selector           Phase           000,0           120,0           240,0           Phase           000,0           120,0           240,0	Center Bu Cursor < anction but Cursor < Center Bu Cursor < Center Bu Cursor	tton Marker Marker Marker Marker	Unit Hz V DC V AC O-360 Phase Phase Phase Phase Phase Phase Phase	Phase 000 120 240 .0 ch 1 ch 2 ch 3 .0 ch 1 ch 2 ch 3	Next menu           Use selector center button to change field. Use dial to change value, or use slector left right to move to numeric value. Then use selector up down to change digit           Next menu           Use selector center button to change field. Use dial to change value, or use slector left right to move to numeric value. Then use selector up down to change digit           Next menu           Next menu           Next menu           Next menu           Use selector center button to change field. Use dial to change value, or use slector left right to move to numeric value. Then use selector up down to change digit           Next menu           Use selector left right to move to numeric value. Then use selector up down to change field. Use dial to change value, or use slector left right to move to numeric value. Then use selector up down to change digit           Next menu           Next menu           Next menu	
Menu 3 Line 1 Line 2 Line 3 Line 4 Menu 4 Line 1 Line 2 Line 3 Line 4 Menu 5 Line 1 Line 2 Line 3 Line 4 Menu 6 Line 1 Line 2	Selector           Frequency           00000           12,000           00.000           Press ft           Phase           000,0           120,0           240,0           Selector           Phase           000,0           240,0           Selector           Phase           000,0           120,0           240,0           Phase           000,0           120,0           240,0	Center Bu Cursor < anction but Cursor < Center Bu Cursor < Center Bu Cursor	tton Marker Marker Marker Marker	Unit Hz V DC V AC O-360 Phase Phase Phase Phase Phase Phase Phase Phase Phase Phase	Phase 000 120 240 .0 ch 1 ch 2 ch 3 .0 ch 1 ch 2 ch 3 .0 ch 1 ch 2 .0 ch 1 ch 2	Next menu           Use selector center button to change field. Use dial to change value, or use slector left right to move to numeric value. Then use selector up down to change digit           Next menu           Remark           Use selector center button to change field. Use dial to change value, or use slector left right to move to numeric value. Then use selector up down to change digit           Next menu           Remark           Use selector center button to change field. Use dial to change value, or use slector left right to move to numeric value. Then use selector up down to change digit           Next menu           Remark           Use selector center button to change field. Use dial to change value, or use slector left right to move to numeric value. Then use selector up down to change digit           Next menu           Next menu           Use selector center button to change field. Use dial to change value, or use slector left right to move to numeric value. Then use selector up down to change digit           Next menu           Use selector center button to change field. Use dial to change value, or	
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	Selector	Center Bu	itton	Next menu			
Line 1	Sensor	Cursor	Marker	mA/V	olt	Remark	
Line 2	10.00	<		,	1	Use selector center button to change field. Use dial to change value, or	
Line 3	10.00			,	2	use slector left right to move to numeric value. Then use selector up	
Line 4	10.00			,	3	down to change digit	
		•					
Menu 8	Selector Center Button			Next menu			
Line 1	Sensor	Cursor	Marker	mA/V	olt	Remark	
Line 2	10.00			,	1	Use selector center button to change field. Use dial to change value, or	
Line 3	10.00	<		,	2	use slector left right to move to numeric value. Then use selector up	
Line 4	10.00				3	down to change digit	
				,			
Menu 9	Selector	· Center Bu	itton			Next menu	
Line 1	Sensor	Cursor	Marker	mA/V	olt	Remark	
Line 2	10.00				1	Use selector center button to change field. Use dial to change value, or	
Line 3	10.00				2	use slector left right to move to numeric value. Then use selector un	
Line 4	10.00	<		,	3	down to change digit	
Line 4	10.00			,		down to change digit	
Menu 10	Press fi	unction but	ton			Next menu	
Line 1	EREO SEP	ERATE	Marker			Remark	
	00000		Indiker	Li a	ch 1	Lice colortor conter button to change 2002 2002 1002 shared	
Line 2	00000	<	11		ch 2	selection _ PRESS_PROGRAMM to activate selection_Chosen selection is	
Line 5	00000			nz U -	ch 2	indicated by markers (II)	
Line 4	00000	Pomo	II Ik Soo Erog	пz uongy channol sy	alaction cha	ndicated by markers (ii)	
		Relita	K See Freq	uency channel se	election cha		
Menu 15	Pross fi	inction but	ton			Back to first menu	
Line 1	Erequency	Cursor	Marker	Unit	Phase	Remark	
Line 2	00000	Cursor	WIGHKET	Un Un	000	Lice coloctor contar button to change field. Lice dial to change value, or	
Line 2	12,000				120	Use selector center button to change field. Use dial to change value, or	
Line 4	12,000			VDC	240	down to change digit	
Lille 4	00.000			VAC	240	down to change digit	
SI				F	ROGRAM M	IENU'S	
	NEEP MODE			F	ROGRAM M	ENU'S	
	NEEP MODE			F	ROGRAM M	ENU'S	
PRES	NEEP MODE			F	PROGRAM M	ENU'S	
PRES Menu 16	VEEP MODE S PROGRAMM Press fu	unction but	tton	F	PROGRAM M	ENU'S Terug naar 1e menu item.	
PRES Menu 16 Line 1	NEEP MODE S PROGRAMM Press fu Sweep	unction but	tton 000	0,000	PROGRAM M	ENU'S Terug naar 1e menu item. Remark	
PRES Menu 16 Line 1 Line 2	NEEP MODE S PROGRAMM Press fu Sweep 00000	unction but	iton 000	0,000 Hz	PROGRAM M	ENU'S Terug naar 1e menu item. Remark Use selector center button to change field. Use dial to change value, or	
PRES Menu 16 Line 1 Line 2 Line 3	NEEP MODE S PROGRAMM Press fu Sweep 00000 0000	unction but 00	tton 000	0,000 Hz MAX. HZ	PROGRAM M	ENU'S Terug naar 1e menu item. Remark Use selector center button to change field. Use dial to change value, or use slector left right to move to numeric value. Then use selector up	
PRES Menu 16 Line 1 Line 2 Line 3 Line 4	VEEP MODE S PROGRAMM Press fu Sweep 00000 0000 0000	unction but 00 <	tton 000	0,000 Hz MAX. HZ Hz/S	Sec Ready	Terug naar 1e menu item. Terug naar 1e menu item. Remark Use selector center button to change field. Use dial to change value, or use slector left right to move to numeric value. Then use selector up down to change digit	
PRES Menu 16 Line 1 Line 2 Line 3 Line 4	VEEP MODE S PROGRAMM Press fu Sweep 00000 0000 0000	unction but 00 <	iton 000	0,000 Hz MAX. HZ Hz/S	Sec Ready	Terug naar 1e menu item. Terug naar 1e menu item. Remark Use selector center button to change field. Use dial to change value, or use slector left right to move to numeric value. Then use selector up down to change digit	
PRES Menu 16 Line 1 Line 2 Line 3 Line 4 Menu 17	VEEP MODE S PROGRAMM Press fu Sweep 00000 0000 0000 Selector	unction but 00 < Center Bu	tton 000	0,000 Hz MAX. HZ Hz/S	Sec Ready	Terug naar 1e menu item. Terug naar 1e menu item. Remark Use selector center button to change field. Use dial to change value, or use slector left right to move to numeric value. Then use selector up down to change digit Door naar volgende menu item	
PRES Menu 16 Line 1 Line 2 Line 3 Line 4 Menu 17 Line 1	VEEP MODE S PROGRAMM Press fu Sweep 00000 0000 0000 Selector Sweep	unction but 00 < Center Bu Cursor	tton 000	0,000 Hz MAX. HZ Hz/S	Sec Ready Sec	Terug naar 1e menu item. Terug naar 1e menu item. Use selector center button to change field. Use dial to change value, or use slector left right to move to numeric value. Then use selector up down to change digit Door naar volgende menu item Remark	
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# 2.2.3 XooX selection mode

Marry 1		and a state of the second			FUNCTION	1 - manu item
Menu 1	5	witch on	10750			Te menu item
Line 1		INTERNATIONAL D.V.				Remark
Line 2	INTERNATIONAL B.V.					
Line 3	FREQUENCY					After 3 seconds the screen changes automatically
Line 4	GENERATOR					
Menu 1	S	witch on				1e menu item
Line 1			Verion X	Z		Remark
Line 2			month-ye	ar		
Line 2	month-year					Content may vary per revision and project After 3
Line 3	PROJECT NUMBER					seconds the screen changes automatically
Line 4				XX		
			Note: pre	ess Function But	ton untill FR	EQ. SEPARATE MENU is reached
Menu 10	Press fi	unction bu	tton			Next menu
Line 1	FREQ. SEP	ERATE	Marker			Remark
Line 2	00000	<	11	Hz	ch 1	Use selector center button to change 3003 2003 1003 channel
Line 3	00000	<	П	Hz	ch 2	selection. PRESS PROGRAMM to activate selection Chosen selection is
Line 4	00000	<	11	Hz	ch 3	indicated by markers (II)
Menu 10	Selector	r Center Bi	itton			Next menu
Line 1	EREO, SED	EDATE	Markor		1	Bomork
Line 1	PREQ. SEP	ENATE	Warker	11-		
Line 2	00000	<		Hz	ch 1	Use selector center button to change 3003 2003 1003 channel
Line 3	00000		11	Hz	ch 2	selection. PRESS PROGRAMM to activate selection Chosen selection is
Line 4	00000		П	Hz	ch 3	indicated by markers (II)
Menu 10	Selector	r Center Bu	utton			Next menu
Line 1	FREQ. SEP	ERATE	Marker			Remark
Line 2	00000	<	11	Hz	ch 1	Use selector center button to change to 1003 channel selection, PRESS
Line 3	00000		11	Hz	ch 2	PROGRAMM to activate selection. Chosen selection is indicated by
Line 4	00000			Hz	ch 3	markers (II)
Enic 4		at an Canto	Dutter to	shanan santusl	en s	al 1 to abannol 2 or 2 collid marker indicate collected abannol
	vote: press sele	ector Cente	er Button to	change control	from chann	er i to channel 2 or 3, solid marker indicate selected channel
	C 1	C				Martines
Menu 10	Selector	r Center Bu	itton		1	Next menu
Line 1	FREQ. SEP	ERATE	Marker			Remark
Line 2	00000	<		Hz	ch 1	Use selector center button to change to 1003/2003 channel selection.
Line 3	00000		11	Hz	ch 2	PRESS PROGRAMM to activate selection Chosen selection is indicated by
Line 4	00000		II.	Hz	ch 3	markers (II)
N	ote: press Sele	ctor Center	Button to	change control :	from channe	el 1 to channel 2 and 3, solid marker indicate selected channel
Menu 10	Selector	r Center Bu	utton			Next menu
Line 1	FREO, SEP	ERATE	Marker			Remark
Line 2	00000	<		Hz	ch 1	Use selector center button to change to 2003/1003 channel selection
Line 2	00000				ch 2	PRESS PROGRAMM to activate selection. Chosen selection is indicated by
Line J	00000			LI-2	ch 2	markers (II)
Line 4	occord	ctor Court	Putter I	change set	tin s	1 1 and 2 to channel 2, colid markers (ii)
N	iote: press Sele	ctor Cente	r Button to	change control	from channe	er Land 2 to channel 3, solid marker indicate selected channel
Menu 10	Selector	r Center Bu	utton			Next menu
Line 1	FREQ. SEP	ERATE	Marker			Remark
Line 2	00000	<	II	Hz	ch 1	Use selector center button to change to 2003/1003 channel selection.
Line 3	00000		II.	Hz	ch 2	PRESS PROGRAMM to activate selection Chosen selection is indicated by
Line 4	00000	<	11	Hz	ch 3	markers (II)
N	lote: press Sele	ctor Cente	r Button to	change control	from channe	el 1and 3 to channel 2, solid marker indicate selected channel
Menu 10	Press fr	unction bu	tton			Next menu
Line 1	EREO, SEP	FRATE	Marker			Remark
	00000		Indiker	Li a	ch 1	Use selector center butten to change 2002 2002 1002 themsel
Line 2	00000	<		HZ	cn I	selector center button to change 5005 2005 1003 channel
Line 3	00000	<		Hz	ch 2	selection. PRESS PROGRAMM to activate selection. Chosen selection is
Line 4	00000	<		Hz	ch 3	indicated by markers (II)
Menu 10	Press fi	unction bu	tton			Next menu
Line 1	FREQ. SEP	ERATE	Marker			Remark
Line 2	00000	<	П	Hz	ch 1	Use selector center button to change 3003 2003 1003 channel
Line 3	00000	<	II	Hz	ch 2	selection. PRESS PROGRAMM to activate selection Chosen selection is
Line 4	00000	<	11	Hz	ch 3	indicated by markers (II)

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#### 3.1 Front panel



Figure 3 IST-101 Three channel speed calibrator Front View.

The front panel consists of two parallel simulator units. Each unit consists of:

- Multi function LCD display
- FUNCTION key
- PROGRAM key
- DIAL (Incremental Dial)
- Multi function selection switch (up-down-right-left and center button)

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#### 3.2 Top Panel



Figure 4 IST-101-A03 Three channel speed calibrator Top View.

The top panel consists of:

- 3 sets of 4 mm connection sockets
- On-off switch
- Power input socket.( NIMH Battery Charger model Mascot type 2115 )
- Probe adapter connector (extern)
- Product label (containing product number, serial number, charger make and model, CE label)

V = Power connection S = Signal connection Gnd = Common connection



# 3.3 Setting up

To operate the unit either the batteries need to be charged or the unit needs to be connected to the power adapter

## 3.3.1 Connection:

Connect the banana plug output to the device to be tested.

## 3.3.2 Function key

The Function button is used to select the basic operation menus In each menu the values can be modified by using the:

- Incremental dial
- Multi function selection switch (up-down-right-left and center button)

After switching on the IST-101-A03 the version and serial/project number will be displayed



Figure 5 IST-101-A03 Start-up screen.

Automatically the screen changes to the selection screen for RPM / Hz. Make a selection by using the center button and use the function button to continue to the menu.





Figure 6 IST-101-A03 Frequency menu

Note: the unit is now active. Changing the dial or numerical values will change the outputs immediately.

In this menu following can be set:

- Frequency for 3003 mode.
- DC value of the signal
- AC amplitude of the signal.

The shown phase information is for information only.

With the Function button the following menus are selected:

#### Phase angel selection



Figure 7 IST-101-A03 Phase menu screen



#### Sensor power consumption

151-	101
Sensor 10.00+mA 10.00 mA 10.00 mA	mA/volt

Figure 8 IST-101-A03 current use.

#### Frequency mode menu



Figure 9 IST-101-A03 Frequency mode menu.

After pressing Function the frequency menu appears again

In the frequency mode menu the various options may be selected:

3003 (default)

1003 (each channel can be varied independent)

1003/2003 (channels can be varied as follows 1-2 and 3 coupled, 2-1 and 3 coupled 3-1 and 2 coupled)

# Note: in the 3003 menu it is possible to reverse the rotation by turning the INCREMENTAL DIAL counter clock wise.

Various selections are made using the Center button of the selector. The chosen function is activated with the Program button.



See various screens below:



Figure 10 Frequency mode menu



Figure 11 Frequency mode menu 3003 active



Figure 12 Frequency mode menu 1001



Figure 13 Frequency mode menu 1001



Figure 14 Frequency mode menu 2003



Figure 15 Frequency mode menu 1001

Note: The Center button selects the required function. The Program button activates the selected function.



# 3.3.3 Program button

The Program button is used to select the Sweep mode.

The Sweep mode can be activated from the frequency menu. The sweep menu can only be entered when the unit is in 3003 mode.

While in the frequency mode menu, press the Program button to enter the sweep menu.



Figure 16 IST-101-A03 Sweep mode



Figure 17 IST-101-A03 Sweep mode menu

Note, line two is the start frequency; the starting frequency is taken from the frequency menu.

To change the starting frequency you have to return to the frequency menu by pressing the Function button.

The Center button allows you to stop the sweep function and reset the reached value.



# 3.3.4 Machine factor



Figure 17 IST-101-A03 Machine factor menu

Note: The Machine Factor is a calculation module only. In version 2 and up, it is possible to display in both RPM and Hz.





# 4 Probe Adapter

# 4.1 Description

The probe adapter is a separate device that can be connected to the Extern slot of the IST-101. The adapter works as a three channel electrical pole wheel, that allows the user to test a complete overspeed system and ESD connections. The probe adapter is controlled by the IST-101.

# 4.2 Setting up

The adapter must be placed on a stable, flat surface. Avoid any vibrations, other movements or electrical fields that can influence the sensors.

Place the sensors in the holders.

Connect the adapter to the Extern slot of the IST-101. The IST-101 will now automatically use the adapter to generate the output.

Switch on the IST-101.

Use the IST-101 as described in this manual to control the adapter output signals.



# **5** Declaration of conformity



# Declaration of Conformity

Istec International B.V. Meren Duln 8, 2163 HA Lisse

Declare under our sole responsibility that the product range

# ISTCAL-101-A03-XXX

Speed Calibrator

Note: A03-XXX indicates all models which are covered by any number variation of the X's

To which this declaration relates is in conformity with the following standard(s)

EN-55022, EN-61000-4-2, ENV50140, EN61000-4-4, ENV50141

Following provisions of the Electromagnetic Compatibility (89/336/EEC) Directive

Lisse , Netherlands 13-07-2011

D.Verschuren Managing Director

Declaration of Conformity ISTCAL-101-A03-XXX 13 July 2011 Created on 13-7-2011 11:56 Page 1 of 1 Istec International B.V. Meer en Duin 8, 2163 HA Lisse, Netherlands