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MSG-PEW

Measuring and Control Unit

(Linux Edition)

Getting Started Guide

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Installation Guide

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Installation Guide

Unpacking

Carefully remove all items from the box. The Standard package consists of the following items but may be changed according to the invoice:

Air Buffer

(Reduces principal fluctuations in input air pressure)

Service Unit providing dry and clean air with the regulated pressure 3 bar +-0.1 bar.

(Pneumatic Regulator with filter)

LMSG-PEW or **LMSG-LVDT**

Measuring and Control Unit.

The front and the back panel depend on the installed options i.e.
the MSG-LVDT Version posses the front panel with 8 LVDT connectors. The MSG-PEW version supports up to 4 pneumatic ports and 2 LVDT channels)
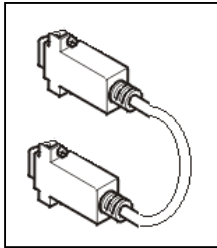

Operator Keyboard for program selection.
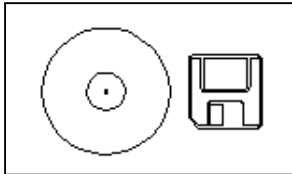
WTMSG1- up to 18 Programs
WTMSG2- up to 9 Programs

The keyboard is optional.
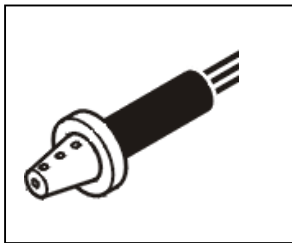
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RS232-Null Modem Cable

The MSG will be programmed via serial interface with lmsg-program-designer running on the laptop.

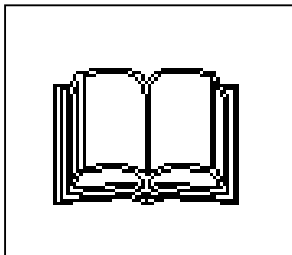**Floppy Disk or CD-ROM** with LMSG-Program Designer (Lite Version).and documentation.

The LMSG-Program Designer runs as *.JAR file and requires Java Plug In. The Plug In is also included.

The documentation is in *.PDF format.

Mechanical/Pneumatical/LVDT Gauges and Calibration Masters.

These items are strongly dependent on the measuring task and customer needs.

Getting Started Guide and User Guide

MSG Getting Started Guide is this manual.

The User Guide describes in details the theory of operation of the MSG and use of the program designer (lite version).

The full version of the program-designer together with additional libraries and options is not included in a standard shipment and has to be ordered separately.

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Installation Guide

Assembling

Please ensure that you received all ordered items with your shipment. Also check all components for damage before you start installing the system. Do not use the damaged parts!   Please contact your distributor instead.

The top level of the assembling is represented in the figure bellow:
The MSG should be connected to the pneumatic regulator (Service Unit)

Fig. 1 General Assembly for the pneumatic gauging using MSG-PEW measuring device
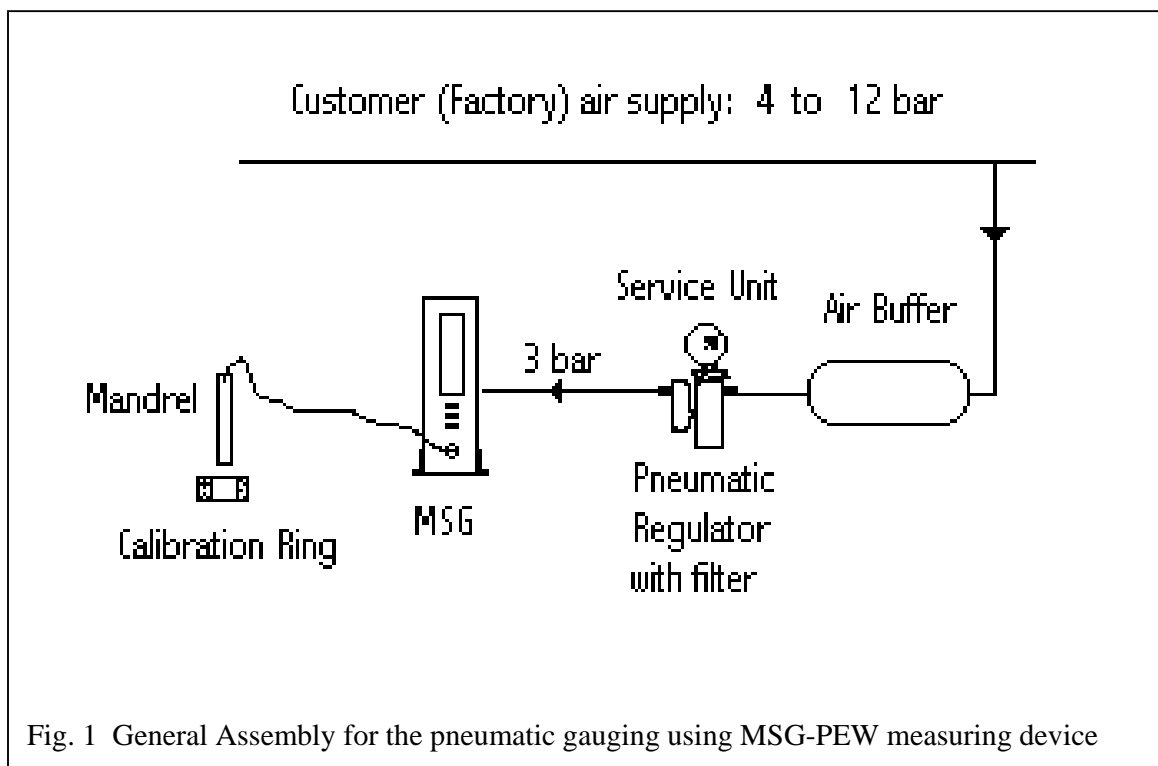
assuring a proper input pressure about 3 bar. The pneumatic gauge is connected on the front panel. The Air buffer is optional but it reduces the variation in the driving pressure of the customer (factory) air line and therefore is strongly recommended for high precision measurement.

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Installation Guide

Connecting the air supply

The proper connecting of the air supply includes the use of the air buffer and the service unit (pneumatic regulator). Never attach the MSG-PEW directly to the customer air line. This can permanently damage pressure sensors! Please refer to the Fig. 1. (General Assembly)

Fig. 2 Air Buffer

The Air Buffer ensures a proper operation of your measuring system while sometimes considerable pressure fluctuations occur in customer pneumatic supply system.

Fig 3. Service Unit (Pneumatic regulator and air filter)

Prepare-assembly **(without air pressure)**

Connect the Service Unit (see Fig. 3) with the supplied braided hose (internal ø 8mm) with the Air Buffer (see Fig. 2). The Service Unit has to be mounted in a horizontal orientation

Ensure that the shut-off valve is closed before connecting the Service Unit to your **MSG-PEW** Device. Adjust the pneumatic pressure at 3 bar +-0.1 bar using external manometer or built-in manometer of the service unit.

Connect the Air Buffer via the braided hose (internal ø 8 mm) with your pneumatic supply system.

Connect the **MSG-PEW** Device (Point 2 on the Fig. 4) via the supplied PU-hose (6/8mm) with the output side of the Service Unit (air supply 3 + 0,1 bar).

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The nominal value of the input pressure is 3 bar. The allowed deviation of the input pressure is about +- 0.2 bar. If the deviation exceeds +-0.2 bar, the MSG-PEW should be recalibrated if the repeatability better than 0.2 µm is required. For the optimal results, the input pressure should be between 2.7 bar and 3.3 bar under all measurement conditions, because the pneumatic transducers of the MSG-PEW are optimized to operate at 3 bar. Theoretically, any input pressure between 0.4 bar and 4 bar can be used, but changing the input pressure of 3 bar will affect the linearity and stability of the measurement. An input pressure greater than 10 bar will damage the pressure sensors!

The applied air must be clean and dry. Therefore an air service unit should be installed between the air supply line and the MSG (s. Fig. 1).

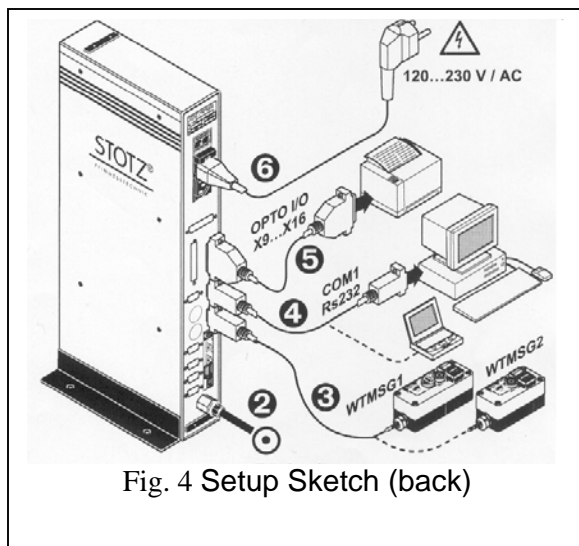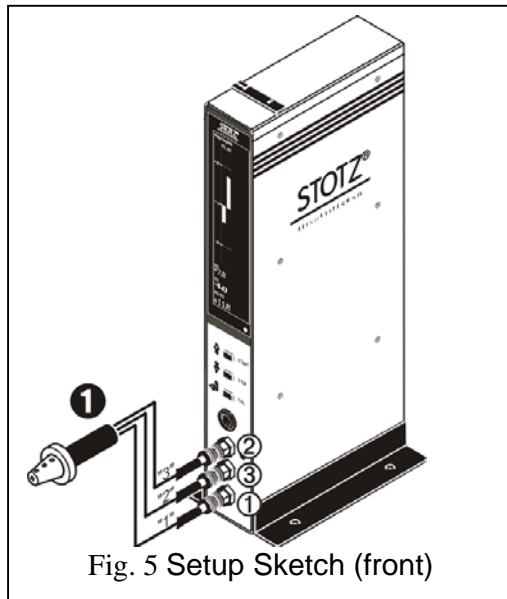Fig. 4 Setup Sketch (back)

- **Air supply (3 +- 0,2 bar)**
÷ **Operating box**
   WTMSG1 for more than 9 programs
   WTMSG2 for **max.** 9 programs
≠ **COM1/RS232** (PC or Laptop)
≡ **OPTO I/O – X9...X16**
≈ **120...230 V / AC** power supply

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Installation Guide

Connecting the pneumatic Gauge

The pneumatic gauge (1) is normally connected to the front panel of the MSG as shown in the Fig. bellow.

∂ **Pneumatic Air Gauge**
← **Channel1** (pneumatic connection "**1**")
↑ **Channel2** (pneumatic connection "**2**")
→ **Channel 3** (pneumatic connection "**3**")

Fig. 5 Setup Sketch (front)

Use ONLY appropriate pneumatic gauges, compatible with the built in MSG-PEW transducer. The Standard types of the transducers are following:

No.	Type	Color	Measuring Range (µm)	Repeatability Range* (µm)
1	K	Red	+-20	< 0.2
2	M	Yellow	+-50	< 0.4
3	M1	Blue	+-50	< 0.4
4	P	Green	+60/-120	< 0.7
5	X	white	Customer	

Tab. 1 Standard types of MSG-PEW built in transducers

* The repeatability is measured as difference between max and – min value of 50 measurements about „0"-point of the measuring range with one pneumatic port (i.e. Mandrel measuring a single diameter)

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Some of pneumatic gauges from other producers are compatible with STOTZ MSG-PEW built in transducers, but before attaching them to the MSG-PEW please contact your distributor in order to avoid wrong interpretation of the obtained measurements.

If you need other measuring range or higher accuracy, please contact your distributor or mail to info@stotz.com.

During the start up of the MSG software, the list of the built in transducer is showed on the local display, according to the tab. 1.

If there is some trouble in measuring process, please make sure the compatible pneumatic gauge and transducer in MSG-PEW are used before calling the support.

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Installation Guide

Installation of the Measuring System

Connect the Operating Box (WTMSG1 or WTMSG2, if available) with connector ÷ (see Setup Sketch from Fig. 4) of the **MSG**-Device

Fig. 6. WMTSG1 Operating Box

Fig. 7. WMTGS2 Operating Box

Please refer to CHAPTER – **MSG**-Guide for more information about the Operating Box

Now connect all additional peripheral devices e.g. Printer, PC or Laptop, etc. according to the Setup Sketch from Fig. 4 with your **MSG**-Device.

Connect your Gauge (pneumatic, mechanical or inductive) according to the Setup Sketch (Fig. 3) with the appropriate pneumatic connection ∂ of your **MSG**-Device.

Now connect the **MSG**-Device to the power supply $\approx$ (120...230 V/AC auto switch, 45...60Hz) and switch on the main switch on the back of the **MSG**-Device. (s. Fig. 4)

During the booting the red LED on the right side is turned on. Please allow the unit about 30 seconds to boot properly. (If the networking option is included, the boot process may take a little bit longer too!)

After the boot process has been completed, the info-display with customer data will be showed and in few seconds after that, the graphical representation of the built in pneumatic and LVDT ports will be showed too. After a few seconds, the MSG Unit will activate the program according to the selected position on the Operating Box (WTMSG1 or WTMSG2). If the Operating Box is not available (i.e. disabled) , the measuring program can be selected using the start/stop/cal buttons on the front panel of the MSG unit. In this case, the program before last switch off of the MSG unit, will be reactivated..

Please refer to CHAPTER – **MSG**-User Guide for a detailed description of how to operate and program the **MSG**-Device

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Quick Reference Guide

Calibration

Always store the Calibration Masters in the supplied protective wooden box and avoid any damage to the Calibration Masters. Please refer to CHAPTER – **MSG**-User Guide for the measuring and calibration procedure.

Connect the gauges to the **MSG** channels **1** through **4** according to your application (see setup sketch from Fig. 5)

In this chapter a standard two-point calibration will be described. For detailed description of the other modes of the calibration (with one, three or four calibration masters) please refer to **MSG** User Guide.

The buttons **CAL** / **STOP** / **START** on the front side of the column are synchronized with the buttons on the operating box (if available). To start the calibration process, push the red button "**O**" or "**K**" or "**C**" (depends on the version) on the operating box or the CAL button from the front panel. The display changes to calibration mode and "**CAL: MIN"** will be displayed.

Insert the calibration piece **MIN** mandrel or **MIN** ring into the work piece fixture. Push **START** button and wait for a few seconds (approx. 2-3 seconds) until the dynamic measurement value settles. Push **STOP** and remove the calibration pieces from the fixture. (a short interval is needed between pushing **START** and **STOP**)

The display changes again and "**CAL**: **MAX"** is displayed (on display upper right). Repeat the procedure accordingly with the **MAX** calibration pieces.

> *Note:*
> A delay of approx. 2 – 3 seconds between pushing the buttons **Start** and **Stop** is necessary to ensure stable values.

> The description on the calibration pieces has to always face towards the operator!

After completing the calibration cycle measuring program is displayed.

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Measurement

The measuring process will be in most cases started pressing the **START** button. Pressing the **STOP** button will stop the dynamic measurement of the current program. The program is to be selected using operating box or entering it's number using **START/STOP/CAL** buttons from the front pane if the operating box is disabled.

Example 1:   Measuring of internal or external features

Insert the work piece into the measuring fixture and push **START**. The measurement value will be displayed on the display

The work pieces can be exchanged as often as needed during a normal measuring cycle without pushing any additional buttons.

To freeze the obtained measurement value push **STOP** and the value will be stored temporarily.

Switching from one measuring program to the next will delete the previously measured values.

Note:
Multiple values of different measuring cycles can be saved with the **"Data logging"** option of the measuring and control device **MSG**. This option allows saving of multiple measuring values. Without this option only single measurements can be saved temporarily!
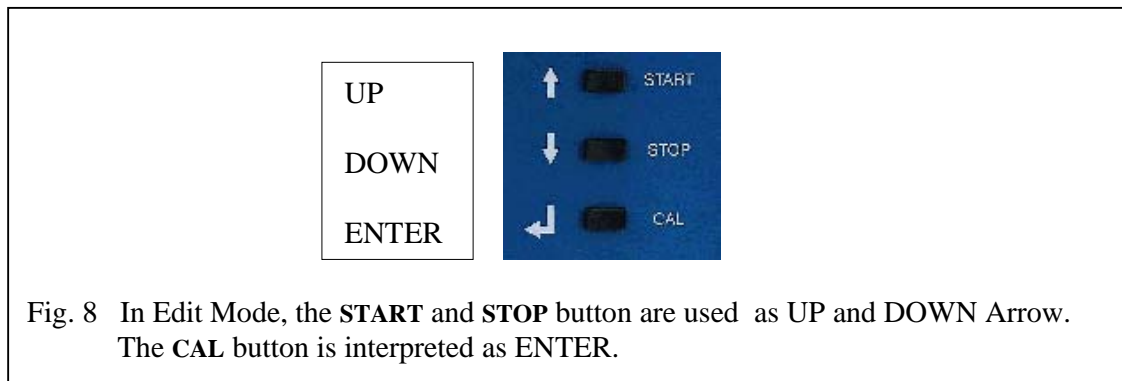
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Changing the program parameter

Push **STOP** and **CAL** simultaneously. The display will switch to a selection window with the following criteria:

MP1 (measuring program 1) MP2, MP3 ... / OK /ESC

Choose the position you would like to change by using the UP (button **START**) or DOWN (button **STOP**) Arrow (on the front of the column). And enter with **CAL** (ENTER). After completion save the changes by choosing **OK** on the display and enter with **CAL**. (ENTER)

Fig. 8   In Edit Mode, the **START** and **STOP** button are used as UP and DOWN Arrow.
The **CAL** button is interpreted as ENTER.

Leaving one editing level bye choosing **ESC** button will discard the changes.

The **CAL** (ENTER) function allows the selection of different criteria and parameter levels. If you do not wish to change the original setting push **CAL** (ENTER) to leave the configuration mode you are in. **ESC** and **CAL** (ENTER) will bring you one level back

To return back to the measurement, leave the first menu level bye selecting **OK** field and pressing **CAL** (ENTER) button.

Note:
During the calibration and measuring cycle the column **must not** be switched off!