Installation Manual S1 Loadpins

S1

Load Pins, measuring shafts
Installation and Maintanance

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Preface

About this manual
This manual is a part of the equipment or system, supplied by KST. Keep this manual in a safe place and ensure that it is available to all users.

Liability disclaimer
The content of this manual is subject to change. KST do not provide any guarantee for this material, including the associated guarantee regarding merchantability and suitability for certain intended purposes.
KST accept no liability for errors in the contents of the manual or for direct or indirect damage in connection with the provision and use of the manual.

Copyright notice

Trademarks
The usage of common names, trade names, trademarks etc. in this documentation should not be construed to mean that such names, even without special identification, are free in the sense of trademark and trademark protection legislation and hence usable by anyone.

Use for the intended purpose
This device / system is intended exclusively for the tasks described in this manual. Any other use shall be construed as being inappropriate. The manufacturer accepts no liability for damage caused by inappropriate or impermissible use. This device / system may only be used if it is in perfect technical condition.

Qualification of the operating personnel
Only appropriately qualified personnel may work with this device / system, i.e. persons:
- who are familiar with the operation or installation and commissioning
- who know the current regulations for the prevention of accidents

Target groups
This manual addresses:
- System engineers designing machinery and equipment
- Service technicians responsible for installation and maintenance of machinery equipped with electronic control units

Use of other materials
We hereby make express reference to the fact that any parts or accessories not supplied by us have not been tested or released by us. The installation and/or use of such products may therefore have a negative effect on the design properties of your device and thus impair active and/or passive safety. No liability can be accepted for damage caused by the use of spare parts and accessories manufactured by third parties.

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Marking of notices

Dangers and other important notices are marked as follows in this system manual:

WARNING
A Warning indicates a hazardous situation which, if not avoided, could result in death or serious injury and gives instructions to take precautions to avert danger.

CAUTION
A Caution indicates a dangerous situation; it also warns of damage to property and gives instructions to avert danger.

IMPORTANT
This message indicates a possibly damaging situation for the product and provides instructions to avoid the possibly damaging situation.

NOTE
Usage instructions and information, supplementary comments and recommendations for the user.but no dangerous situation.

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Safety instructions

Follow the instructions in the description. Failure to observe instructions, operation other than for the intended use as described below, wrong installation or incorrect handling can severely impairthe safety of people and the equipment.
The system manual is intended for persons who, on account of their training, experience and the instruction they have received as well as their knowledge of relevant standards, regulations, rules for the prevention of accidents and operating conditions, can be regarded as ‘experts’.
The controller is to be installed and put into operation by technical personnel (programmer or service technician).
Use only the signals specified in the technical data as input via the system connector and only the approved components from KST to extend the system.
The device can be operated within a wide temperature range according to the technical specifications indicated in this manual. Due to the additional self-heating the housing walls can have noticeable high temperatures when touched in hot environments. In the case of malfunctions or uncertainty about usage and specifications, please contact the manufacturer.
Improper handling and misuse can severely impair the safety of people and the equipment, and will lead to the exclusion of liability and loss of warranty.

Danger of electrical short-circuits.
Switch off all systems before commencing with the installation work!

Penetration of water and dirt can damage the device.
Never clean the device with a high pressure cleaner!

Connecting to an unsuitable power supply can cause damage to the device.
The device may only be connected to a DC voltage source of 12 V or 24 V!

The use of components or extensions not approved by the manufacturer can impair system functions and breach radio transmission regulations.
Use components or extensions that are intended and approved by the manufacturer.

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Contents

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General

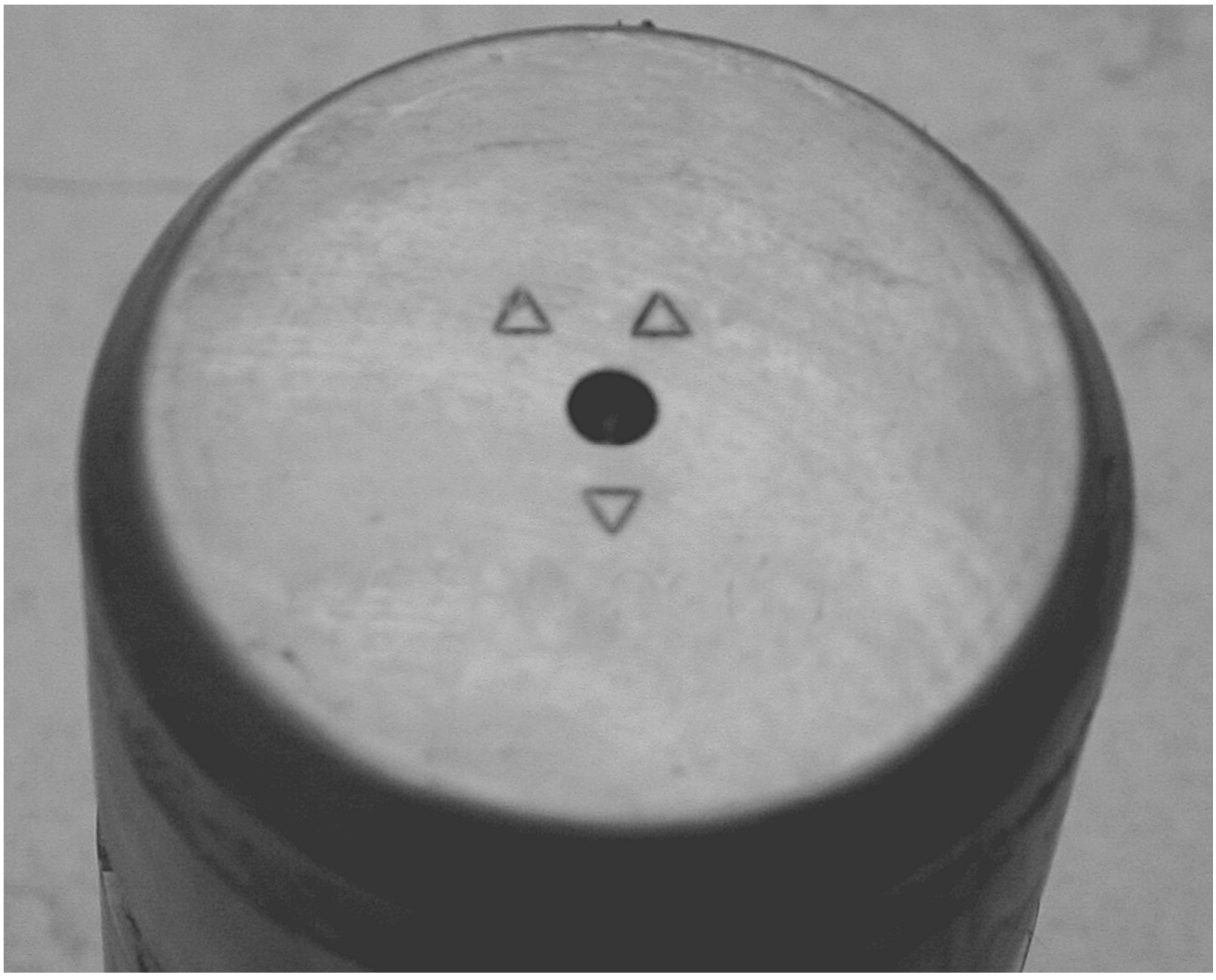
In their character as precision transducers, the Load Pins require careful handling during transport, assembly and operation.
The allowable limits for mechanical, thermal and electrical loads are listed in the data sheets.

The unconditional respecting of these limits is to be observed at all times.

Installation instruction for S1 Loadpins

S1 Load Pins may only be used for recording shearing force in a radial direction. Under no circumstances should they be subjected to other forces such as pull or pressure in an axial direction, or to bending or torsion.
These falsify the measurement result and destroy the Loadpin, even when they occur only minimally.

The direction of the shearing force on the inner bearing of the axis is marked on the front with arrows. This is to be observed with a maximum of **2 degrees** tolerance.



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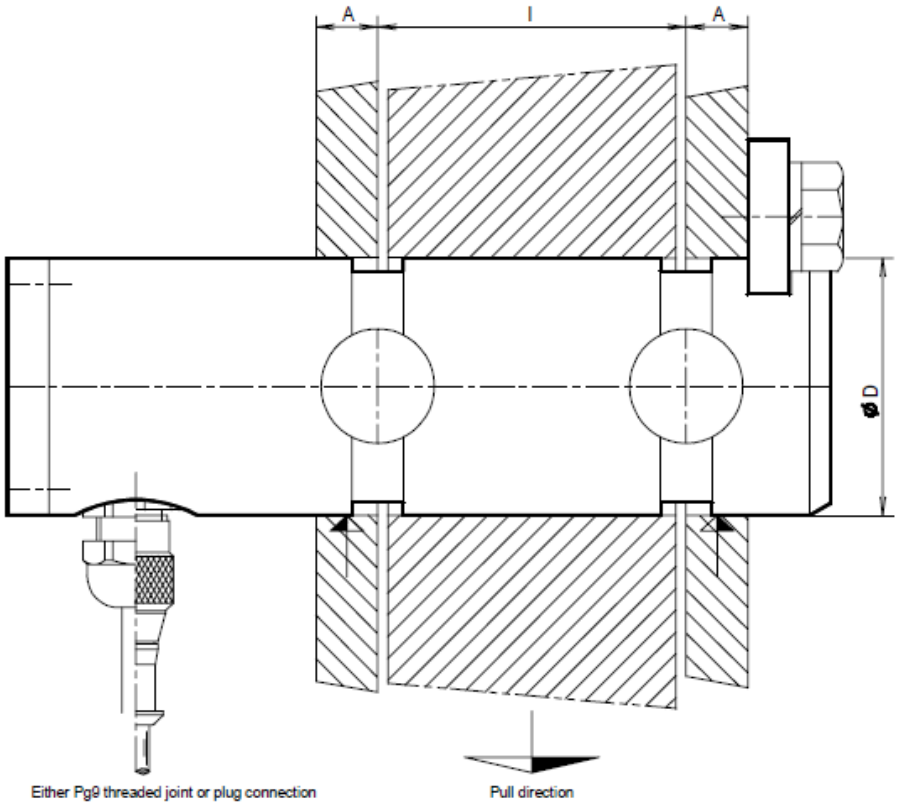
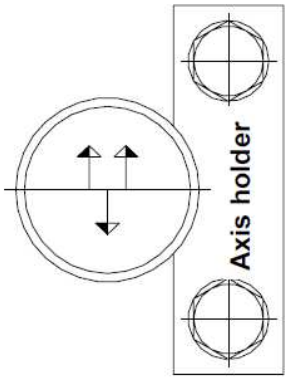
In order to avoid a bending of the axis, under no circumstances should clearance be allowed to form between the inner and outer bearings. The separation between the bearings must lie at exactly the height of the shearing nut.

The thickness of outer bearing **"A"** must be at least **20 mm**.

The allowed for radial shearing forces are to be introduced symmetrically, where necessary with the application of appropriate bearings or guiding mechanisms.



The Load Pin must be embedded in a smooth running but free of mechanical play in the inner bearing and lubricated.
If the Load Pin is equipped with lubricating nuts or drill holes, maintenance must be carried out at regular intervals.



By means of an **Axis holder** which engages the milled nut of one of the outer bearings
either *horizontally, vertically, from the left or from the right*, the axis must be fixed and
secured in an axial and a radial direction.

Under no circumstances should blunt instruments or force be applied during installation.

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Electrical Installation

The Load Pins must be wired and connected according to the specifications of the accompanying circuit diagram and connectionplan.

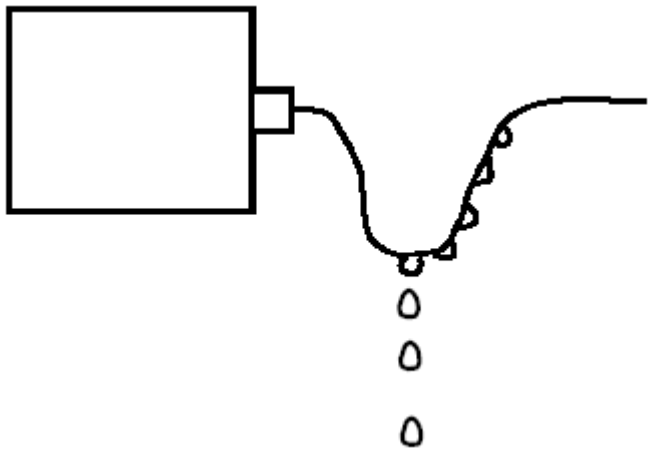
The connection cable may not be laid parallel to high voltage or control cables.

Leakage fields from transformers, motors, etc.,must be avoided.

Where electric welding is carried out in the vicinity of the Load Pins all connections should be disconnected and insulated prior to this.

When installing outside of a dry interior space, be sure that the Load Pins and their WSG amplifiers are installed in such a way that both the sockets and the entry points into a housing point downwards.

In this way you avoid the possibility of liquid running into the interior of the device over the cable. If such an installation is not possible, the cable should be laid in such a way that a drop catching loop is formed



Pinning with M12 connector / Cable colours without M12

+Vcc 10 ... 30	1
N.C.	2
GND	3
4-20 mA	4

CONECTOR M-12

+Vcc 10 ... 30	RED
N.C.	WHITE
GND	BLACK
4-20 mA	GREEN

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Preventive Maintenance

The KST Load Pin series S1 consists of electronic, electrical and mechanical parts.
The system may only be serviced and maintained by Service personnel from **KST**, by personnel authorized by the manufacturers, or by personnel who have been specially trained by **KST.**
Since even minor damage can impair the effectiveness of the system or even put it out of action altogether, the operator must check the condition and completeness of the system before starting his daily work.

Daily Inspections

To be carried out by the operator:

- Condition of Load Pin and cables on visual damage
- Overload cut off test

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