

Operating instructions

Body sound monitoring system

TYPE KSÜ3 I/E

Dear Customer:

No measuring instrument will leave our company, unless thoroughly checked for a wide range of functional and quality criteria, in order to guarantee that the specified data are adhered to. In the event of any problems despite such controls, please inform us about these problems.

Before each sale, the serial numbers and the configuration as ordered by you will be registered by us, in order to assure a short-term and individual support. We will of course inform you about any new changes and system modifications as applicable.

Warranty

GIF is taking over warranty for the duration of one year after receipt of the merchandise.

All repairs conducted within this warranty period will be free of charge.

Warranty claims cannot be made, when damage was caused by improper use.






1 Safety Instructions



Please read the Operation Manual carefully, before taking the GIF body sound monitoring system into service. Fundamental requirement for the safe use of the device is the knowledge of the safety instructions and the safety requirements relating to the system.

In addition we refer to the following standards:

-  EC Low-Voltage Directive 73/23/EEC, EMC Directive 92/31/EEC and their harmonized standards:
-  DIN EN 292-1 Safety of Machines, Devices, and Systems
-  DIN EN 292-2 Safety of Machines, Devices, and Systems



Service or maintenance work on electric equipment must be conducted by qualified personnel only.

Caution! In case of any use other than the intended use and in case of any construction modifications on the measuring system, the EC Declaration of Conformity will become ineffective.



2 Introduction

The following paragraphs of this user manual describe all steps required for the taking into service and the installation of a GIF Body sound monitoring system of the KSÜ3 I/E type.

GIF Body sound monitoring system KSÜ3 is used to control critical bearings of fans, pumps and other machines.

Damages of bearings begin to show by increased noise level. The KSÜ3 measures the noise level with the help of an internal (model KSÜ3 I) or external (model KSÜ3 E) body sound sensor and is able to notice changes. To get the best noise profit and the lowest disturbance the sensor must be mounted as close as possible to the observed bearing.

Features:

- Body sound measuring with the help of a customary in trade body sound sensor of the automobil industry.
- Building the route value with 825 ms measuring time (effective analogue output)
- adjustable amplification via RS232 divided into amplification of the dynamic and the effective analogue value.
- Evaluation of the sound signal by a controller
- Serial interface with terminal function
- Self control
- Adjustable limiting values for output switches “warning” and “switch off”.
- Resettable running hour counter
- Post mortem memory for 500 values of effective body sound signal, external and internal temperature
- Optional external temperature measuring with PT100

INSTALLATION

3 Installation - Step by step

3.1 Component Control

The following components are required for the fully operational setup of a measuring system:



- KSÜ3
- Adapter cable for serial interface
- Central cable
- Instructions of this Manual



3.2 How Are the Components Connected?

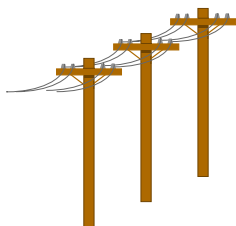
- ✓ Fix the body sound sensor as near as possible to the vibration transmitting measuring point. Take care of good vibration transmission to the sensor (flat surfaces, proper starting torque 20 Nm)
- ✓ Complete the electric connection between KSÜ and voltage supply / evaluation unit (customer specific request) by using the central cable
- ✓ For configuration adjustments connect column-type terminal J103 with the serial interface of a PC by using the adapter cable enclosed.
- ✓ When all connections have been completed, you may switch on the voltage supply.

4 Taking into Service

Before delivery, each GIF instrument is carefully checked for its technical functions. The technical specifications must be adhered to, in order to successfully comply with the requirements of this check. The instrument should be in perfect condition when received, and this condition should then be checked again.

In the event the instrument is not in proper condition, please compile a damage status report together with the forwarding agent. Also, please compare the information on the delivery note with the actually delivered units.

4.1 Mains Connection



The GIF measuring instrument purchased by you has been designed for the connection to a DC voltage supply unit with an output voltage in the range of 15VDC to 30VDC. The current input is 70 mA–100 mA.



4.2 Grounding

The housing and the internal signal common of the KSÜ have been separated by T-type filters. The shieldings of the central cable are connected to the connector at the KSÜ3. By tightening the housing the shieldings are connected to the test bench common.

4.3 Accident Prevention

The use of this instrument requires that the generally applicable accident prevention regulations are adhered to.

4.4 Pin Allocations

S6 Central connector

Power supply, switching outputs, analogue outputs, controlling lines

- | | |
|----|---|
| 1 | +15V |
| 2 | GND (housing) |
| 3 | Analogue output (effektive value) |
| 4 | 0V (to 15V Pin 1) |
| 5 | S2 (switching output caused by too high vibrations) |
| 6 | 0V (common electronics) |
| 7 | S3 (Self control) |
| 8 | S1 (warning in advance) |
| 9 | RxD (RS232) |
| 10 | TxD (RS232) |
| 11 | S4 (Watchdog, TTL-level) |
| 12 | Dynamic analogue output |
| 13 | CAN high |
| 14 | CAN low |
| 15 | S5 (switching output collective breakdown) |
| 16 | N.C. |

J103

3-pole serial interface



-
-
- 1 0V (common electronics)
 - 2 Signal RxD (RS232)
 - 3 Signal TxD (RS232)

J102

2-pole PT100 connection (optional)

- 1 PT100+
- 2 PT100-

S100

5-pole programming interface (for manufacturer only)

- 1 Signal +5V DC
- 2 0V (common electronics)
- 3 Signal MCLR
- 4 Signal RB6
- 5 Signal RB7

J400

2-pole CAN-Bus connection (optional)

- 1 CAN high
- 2 CAN low

4.5 Cable connector

X 722

9-pole serial interface RS232 (socket at adapter cable)

- 1 N.C.
- 2 TxD (RS232)
- 3 RxD (RS232)
- 4 N.C.
- 5 0V (common electronics)
- 6 N.C.
- 7 N.C.
- 8 N.C.
- 9 N.C.

X 103



3-polig Serielle Schnittstelle RS232 (Buchse an Adapterkabel)

- 1 0V (common electronics)
- 2 Signal RxD (RS232)
- 3 Signal TxD (RS232)

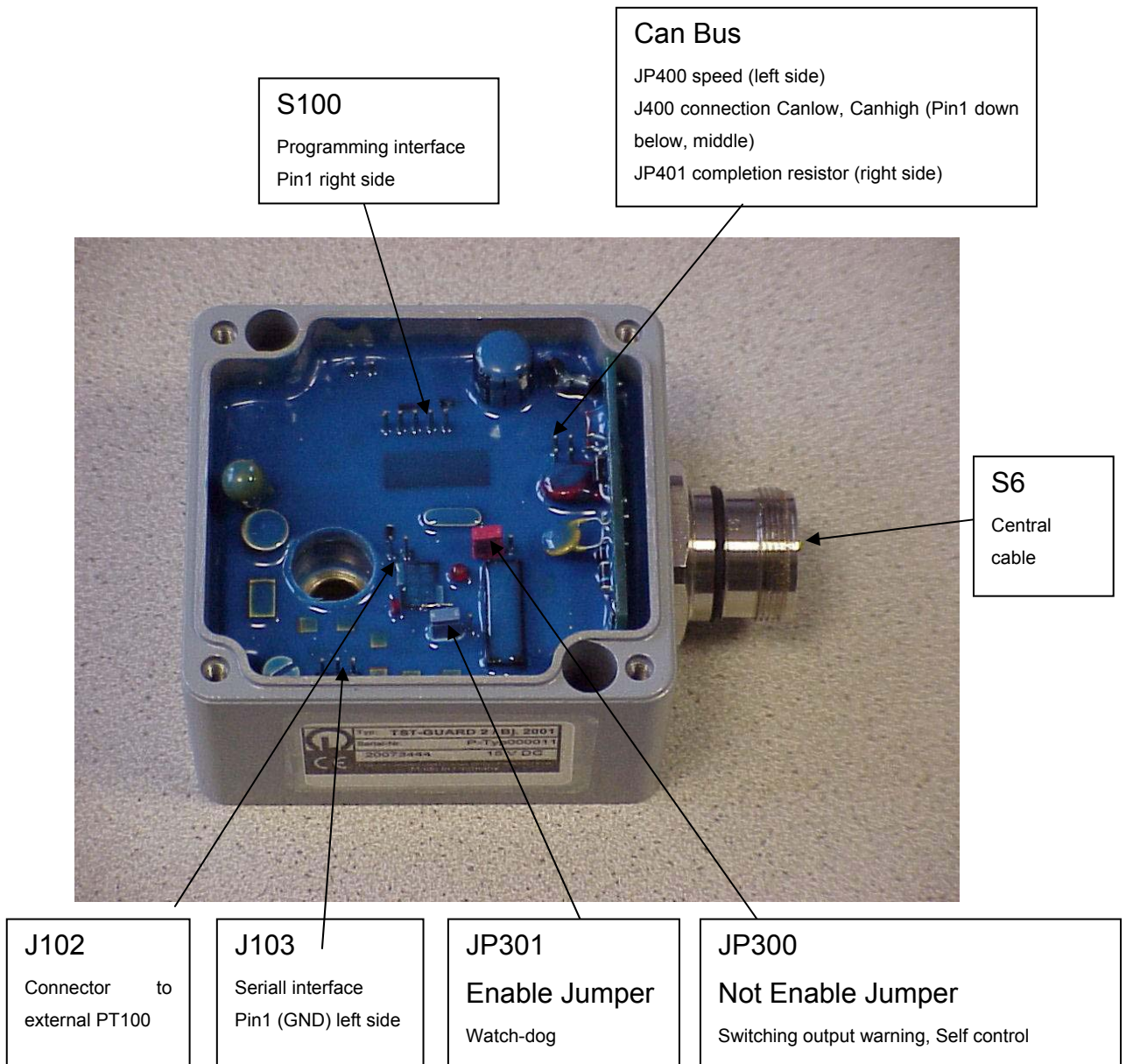


X6 Central cable

16-pole cable socket

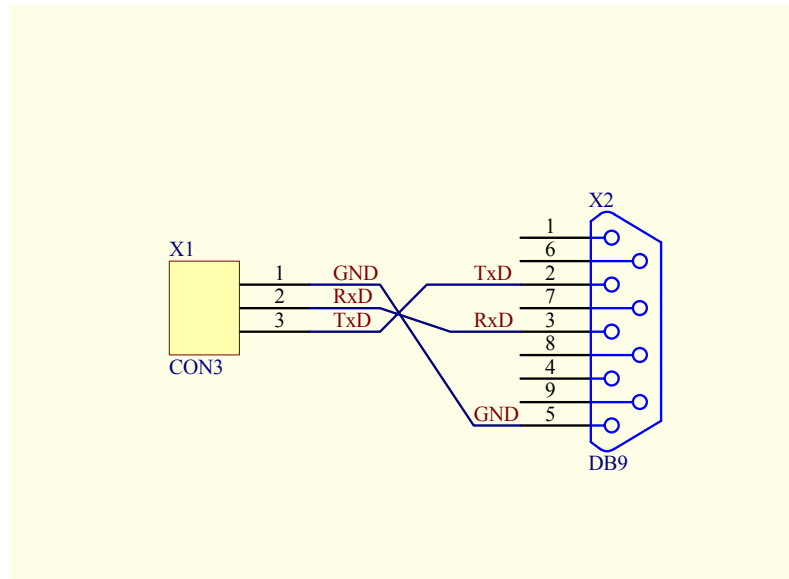
| Pin | name | colour Cable1 | colour Cable2 |
|-----|---|-------------------------|-------------------------------|
| 1 | +15V | yellow 0,5 ² | yellow-green 0,5 ² |
| 2 | GND (housing) | green 0,5 ² | blue 0,5 ² |
| 3 | Analogue output (effektive value) | white | violet |
| 4 | 0V (to 15V Pin 1) | white 0,5 ² | White 0,5 ² |
| 5 | S2 (switching output caused by too high vibrations) | yellow | yellow |
| 6 | 0V (common electronics) | brown 0,5 ² | brown-green 0,5 ² |
| 7 | S3 (Self control) | green | green |
| 8 | S1 (warning in advance) | grey | black |
| 9 | RxD (RS232) | | |
| 10 | TxD (RS232) | | |
| 11 | S4 (Watchdog, TTL-level) | | |
| 12 | Dynamic analogue output | blue | grey |
| 13 | CAN high | | |
| 14 | CAN low | | |
| 15 | S5 (switching output collective breakdown) | red | red |
| 16 | N.C. | | |

INSTALLATION



4.6 Connection of KSÜ3 with a PC

The KSÜ can be connected with the serial interface of a PC through an adapter cable. For this purpose, the interface must be adjusted to 9,600 Baud, 8 data bits, 1 stop bit, and to No Parity.



As alternative to using the adapter cable, the serial interface output can be connected through the central cable.

5 Adjustments

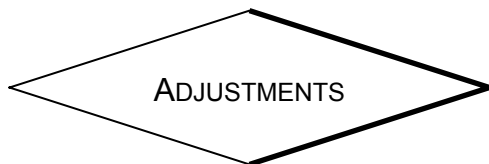
The unit can be taken into service, as soon as all components have been connected.

5.1 Operating principle

The body sound monitoring system KSÜ3 measures the noise level of an observed bearing with the help of an internal or external (depending on model, KSÜ3 I or KSÜ3 E) body sound sensor.

After the mechanical and electrical installation a test-run with a new bearing can start. The analogue output „route value“ should show noticeable deflections, f.e. 0.5V (corresponding to about 102 digits). To reach this, adjust the gain factor of the amplifiers for the dynamic and effective signal (see 5.2).

When the analogue output crosses the first free choosable limiting value, the switching output S1 (warning) is set. This output is reset, when the value drops under this limit. Usually this output is used to give out a warning.



When a second free choosable limiting value is crossed for more than 0-51 seconds (adjustable) within 1 minute, the second switching output (S2) and the switching output “collective breakdown” is set. These outputs can be used for switching-off the controlled machine. Only a power supply reset or a reset of the “switch-off-counter” can reset these switches.

To bridge start procedures you can adjust a switch-on-delay time (0-255 s). During this time (after a power on reset) the limiting values are not checked.

With the help of a standard RS232 serial interface the limiting values for the switching outputs and the times for the power-on- and the switch-off-delays can be adjusted. As well the vibration process can be displayed on the monitor of a PC-system. The counters for operating hours and quantities of switch-off can be resetted. You only need a terminal program.

The software „TST3“ includes a terminal program and supplementary the possibility to read out and display the last 500 post-mortem-datas. This datas contain one value per adjusted time-base of effective vibration, internal temperature and external temperature. You are able to store and to load the datas in ASCII-files.

The system parameters of the KSÜ are stored in an EEPROM. In normal operating modus the KSÜ3 needs no serial interface to a PC. Only for service or for adjusting to a new installation you need this interface.

KSÜ3 includes two self control mechanism.

1: After power on reset a system check detects possible errors and sets, when an error happens, the switching outputs “self test” and “collective breakdown”.

2: the controller generates a watch-dog signal (frequency 1 Hz). When this signal has no more changes, the switching output “collective breakdown” is set.

The watch-dog signal itself can be routed to the central connector by closing the jumper JP301.

5.2 Adjustment of amplification

The amplifications of the amplifiers of the dynamic and effective analogue signals can be adjusted separately by using the serial terminal. The following chart shows the relationship between the digital values and the real amplification:

ADJUSTMENTS

| Data word | Dynamic amplification | Effektive amplifikation | Data word | Dynamic amplification | Effektive amplifikation |
|-----------|-----------------------|-------------------------|-----------|-----------------------|-------------------------|
| 0 | -5,07239819 | 1,004950005 | 128 | -10,0909091 | 1,99000196 |
| 1 | -5,09394068 | 1,008851426 | 129 | -10,1629841 | 2,00535862 |
| 2 | -5,11563657 | 1,012783258 | 130 | -10,2360021 | 2,020954135 |
| 3 | -5,13748749 | 1,016745857 | 131 | -10,3099816 | 2,036794121 |
| 4 | -5,15949512 | 1,020739586 | 132 | -10,3849417 | 2,052884372 |
| 5 | -5,18166115 | 1,024764813 | 133 | -10,4609021 | 2,069230867 |
| 6 | -5,20398729 | 1,028821912 | 134 | -10,5378829 | 2,085839776 |
| 7 | -5,22647528 | 1,032911264 | 135 | -10,6159048 | 2,102717469 |
| 8 | -5,24912689 | 1,037033253 | 136 | -10,6949891 | 2,119870523 |
| 9 | -5,27194392 | 1,041188274 | 137 | -10,7751577 | 2,137305734 |
| 10 | -5,29492817 | 1,045376723 | 138 | -10,8564329 | 2,15503012 |
| 11 | -5,31808151 | 1,049599007 | 139 | -10,9388379 | 2,173050936 |
| 12 | -5,34140579 | 1,053855537 | 140 | -11,0223964 | 2,191375681 |
| 13 | -5,36490292 | 1,058146732 | 141 | -11,1071328 | 2,21001211 |
| 14 | -5,38857483 | 1,062473016 | 142 | -11,1930721 | 2,228968243 |
| 15 | -5,41242347 | 1,066834821 | 143 | -11,2802402 | 2,248252377 |
| 16 | -5,43645084 | 1,071232588 | 144 | -11,3686636 | 2,267873101 |
| 17 | -5,46065894 | 1,075666762 | 145 | -11,4583696 | 2,287839304 |
| 18 | -5,48504983 | 1,080137797 | 146 | -11,5493863 | 2,308160191 |
| 19 | -5,50962559 | 1,084646156 | 147 | -11,6417427 | 2,328845299 |
| 20 | -5,53438831 | 1,089192307 | 148 | -11,7354686 | 2,349904508 |
| 21 | -5,55934016 | 1,093776727 | 149 | -11,8305946 | 2,37134806 |
| 22 | -5,58448329 | 1,098399903 | 150 | -11,9271523 | 2,393186574 |
| 23 | -5,60981992 | 1,103062326 | 151 | -12,0251744 | 2,415431061 |
| 24 | -5,63535229 | 1,1077645 | 152 | -12,1246944 | 2,438092951 |
| 25 | -5,66108267 | 1,112506935 | 153 | -12,2257468 | 2,461184101 |
| 26 | -5,68701339 | 1,11729015 | 154 | -12,3283675 | 2,484716825 |
| 27 | -5,71314679 | 1,122114674 | 155 | -12,4325931 | 2,508703913 |
| 28 | -5,73948525 | 1,126981043 | 156 | -12,5384615 | 2,53315865 |
| 29 | -5,7660312 | 1,131889805 | 157 | -12,6460121 | 2,558094848 |
| 30 | -5,79278709 | 1,136841516 | 158 | -12,7552851 | 2,583526867 |
| 31 | -5,81975544 | 1,141836742 | 159 | -12,8663222 | 2,609469642 |
| 32 | -5,84693878 | 1,146876059 | 160 | -12,9791667 | 2,635938717 |
| 33 | -5,87433968 | 1,151960054 | 161 | -13,0938628 | 2,662950271 |
| 34 | -5,90196078 | 1,157089324 | 162 | -13,2104567 | 2,690521154 |
| 35 | -5,92980474 | 1,162264475 | 163 | -13,3289957 | 2,718668921 |
| 36 | -5,95787427 | 1,167486127 | 164 | -13,4495289 | 2,747411868 |
| 37 | -5,98617212 | 1,172754908 | 165 | -13,5721072 | 2,776769076 |
| 38 | -6,01470108 | 1,178071461 | 166 | -13,696783 | 2,806760447 |
| 39 | -6,043464 | 1,183436437 | 167 | -13,8236106 | 2,837406754 |
| 40 | -6,07246377 | 1,188850501 | 168 | -13,9526462 | 2,868729688 |
| 41 | -6,10170332 | 1,19431433 | 169 | -14,083948 | 2,900751907 |
| 42 | -6,13118565 | 1,199828613 | 170 | -14,2175762 | 2,933497092 |

ADJUSTMENTS

| Data word | Dynamic amplification | Effektive amplification | Data word | Dynamic amplification | Effektive amplification |
|-----------|-----------------------|-------------------------|-----------|-----------------------|-------------------------|
| 43 | -6,16091379 | 1,205394052 | 171 | -14,3535931 | 2,966990007 |
| 44 | -6,19089082 | 1,211011363 | 172 | -14,4920635 | 3,00125656 |
| 45 | -6,22111989 | 1,216681274 | 173 | -14,6330542 | 3,036323868 |
| 46 | -6,25160419 | 1,222404528 | 174 | -14,7766348 | 3,072220331 |
| 47 | -6,28234696 | 1,22818188 | 175 | -14,9228773 | 3,108975709 |
| 48 | -6,3133515 | 1,234014102 | 176 | -15,0718563 | 3,146621203 |
| 49 | -6,34462117 | 1,239901978 | 177 | -15,2236494 | 3,185189543 |
| 50 | -6,3761594 | 1,24584631 | 178 | -15,3783371 | 3,224715086 |
| 51 | -6,40796964 | 1,251847912 | 179 | -15,5360031 | 3,265233912 |
| 52 | -6,44005544 | 1,257907618 | 180 | -15,6967341 | 3,30678394 |
| 53 | -6,47242039 | 1,264026274 | 181 | -15,8606203 | 3,349405044 |
| 54 | -6,50506816 | 1,270204746 | 182 | -16,0277557 | 3,39313918 |
| 55 | -6,53800246 | 1,276443914 | 183 | -16,1982379 | 3,438030524 |
| 56 | -6,57122708 | 1,282744677 | 184 | -16,3721683 | 3,484125622 |
| 57 | -6,60474588 | 1,289107952 | 185 | -16,5496526 | 3,531473549 |
| 58 | -6,63856279 | 1,295534674 | 186 | -16,730801 | 3,580126086 |
| 59 | -6,67268179 | 1,302025797 | 187 | -16,915728 | 3,630137905 |
| 60 | -6,70710696 | 1,308582294 | 188 | -17,1045531 | 3,681566778 |
| 61 | -6,74184244 | 1,315205157 | 189 | -17,2974009 | 3,734473799 |
| 62 | -6,77689243 | 1,321895398 | 190 | -17,4944014 | 3,788923622 |
| 63 | -6,81226123 | 1,328654052 | 191 | -17,69569 | 3,84498473 |
| 64 | -6,84795322 | 1,335482173 | 192 | -17,9014085 | 3,902729719 |
| 65 | -6,88397283 | 1,342380838 | 193 | -18,1117045 | 3,962235613 |
| 66 | -6,9203246 | 1,349351146 | 194 | -18,3267327 | 4,023584205 |
| 67 | -6,95701316 | 1,356394218 | 195 | -18,5466545 | 4,086862434 |
| 68 | -6,99404319 | 1,363511199 | 196 | -18,771639 | 4,152162798 |
| 69 | -7,03141949 | 1,37070326 | 197 | -19,0018631 | 4,219583799 |
| 70 | -7,06914694 | 1,377971595 | 198 | -19,2375118 | 4,289230444 |
| 71 | -7,10723051 | 1,385317423 | 199 | -19,4787792 | 4,36121479 |
| 72 | -7,14567527 | 1,392741991 | 200 | -19,7258687 | 4,435656544 |
| 73 | -7,18448637 | 1,400246571 | 201 | -19,9789936 | 4,512683726 |
| 74 | -7,22366909 | 1,407832464 | 202 | -20,2383778 | 4,592433411 |
| 75 | -7,26322879 | 1,415500998 | 203 | -20,5042564 | 4,675052532 |
| 76 | -7,30317092 | 1,423253531 | 204 | -20,7768763 | 4,760698792 |
| 77 | -7,34350107 | 1,431091452 | 205 | -21,0564972 | 4,849541668 |
| 78 | -7,38422491 | 1,439016178 | 206 | -21,3433923 | 4,941763525 |
| 79 | -7,42534824 | 1,44702916 | 207 | -21,6378492 | 5,03756087 |
| 80 | -7,46687697 | 1,455131881 | 208 | -21,9401709 | 5,137145749 |
| 81 | -7,50881712 | 1,463325855 | 209 | -22,2506768 | 5,240747314 |
| 82 | -7,55117483 | 1,471612634 | 210 | -22,5697036 | 5,348613581 |
| 83 | -7,59395637 | 1,479993804 | 211 | -22,8976071 | 5,461013416 |
| 84 | -7,63716814 | 1,488470985 | 212 | -23,234763 | 5,578238769 |
| 85 | -7,68081666 | 1,497045838 | 213 | -23,5815684 | 5,700607209 |
| 86 | -7,72490857 | 1,50572006 | 214 | -23,9384437 | 5,828464796 |
| 87 | -7,76945068 | 1,514495389 | 215 | -24,3058338 | 5,962189347 |

ADJUSTMENTS

| Data word | Dynamic amplification | Effektive amplification | Data word | Dynamic amplification | Effektive amplification |
|-----------|-----------------------|-------------------------|-----------|-----------------------|-------------------------|
| 88 | -7,81444992 | 1,523373602 | 216 | -24,6842105 | 6,102194169 |
| 89 | -7,85991335 | 1,532356521 | 217 | -25,0740741 | 6,248932323 |
| 90 | -7,9058482 | 1,541446007 | 218 | -25,4759556 | 6,402901522 |
| 91 | -7,95226183 | 1,550643969 | 219 | -25,8904195 | 6,564649772 |
| 92 | -7,99916178 | 1,559952361 | 220 | -26,3180662 | 6,734781888 |
| 93 | -8,04655572 | 1,569373182 | 221 | -26,7595346 | 6,913967051 |
| 94 | -8,0944515 | 1,578908483 | 222 | -27,2155059 | 7,102947608 |
| 95 | -8,14285714 | 1,588560362 | 223 | -27,6867067 | 7,302549346 |
| 96 | -8,19178082 | 1,598330972 | 224 | -28,173913 | 7,51369356 |
| 97 | -8,2412309 | 1,608222515 | 225 | -28,6779544 | 7,737411271 |
| 98 | -8,29121592 | 1,618237252 | 226 | -29,1997187 | 7,974860061 |
| 99 | -8,34174462 | 1,628377498 | 227 | -29,7401575 | 8,227344106 |
| 100 | -8,3928259 | 1,638645627 | 228 | -30,3002915 | 8,496338146 |
| 101 | -8,44446888 | 1,649044075 | 229 | -30,8812175 | 8,783516305 |
| 102 | -8,49668288 | 1,659575338 | 230 | -31,484115 | 9,09078697 |
| 103 | -8,54947743 | 1,670241976 | 231 | -32,1102544 | 9,420335247 |
| 104 | -8,60286225 | 1,681046618 | 232 | -32,7610063 | 9,774675012 |
| 105 | -8,65684731 | 1,691991958 | 233 | -33,4378508 | 10,15671315 |
| 106 | -8,71144279 | 1,703080763 | 234 | -34,1423895 | 10,56982949 |
| 107 | -8,76665909 | 1,714315872 | 235 | -34,8763576 | 11,01797707 |
| 108 | -8,82250686 | 1,7257002 | 236 | -35,6416382 | 11,50580901 |
| 109 | -8,87899701 | 1,737236739 | 237 | -36,440279 | 12,03884071 |
| 110 | -8,93614068 | 1,748928564 | 238 | -37,2745098 | 12,62365926 |
| 111 | -8,99394927 | 1,760778829 | 239 | -38,1467639 | 13,26819704 |
| 112 | -9,05243446 | 1,772790779 | 240 | -39,0597015 | 13,98209366 |
| 113 | -9,11160819 | 1,784967744 | 241 | -40,0162369 | 14,77718133 |
| 114 | -9,17148271 | 1,797313149 | 242 | -41,0195695 | 15,66814586 |
| 115 | -9,23207053 | 1,809830512 | 243 | -42,0732197 | 16,67344215 |
| 116 | -9,29338447 | 1,822523453 | 244 | -43,18107 | 17,81658622 |
| 117 | -9,35543767 | 1,83539569 | 245 | -44,3474129 | 19,1280179 |
| 118 | -9,41824357 | 1,84845105 | 246 | -45,5770065 | 20,64785151 |
| 119 | -9,48181596 | 1,86169347 | 247 | -46,8751394 | 22,4300511 |
| 120 | -9,54616896 | 1,875126997 | 248 | -48,2477064 | 24,54897219 |
| 121 | -9,61131702 | 1,8887558 | 249 | -49,7012987 | 27,10999833 |
| 122 | -9,67727499 | 1,902584167 | 250 | -51,243309 | 30,26761088 |
| 123 | -9,74405804 | 1,916616514 | 251 | -52,8820577 | 34,25775153 |
| 124 | -9,81168177 | 1,930857387 | 252 | -54,626943 | 39,45966958 |
| 125 | -9,88016215 | 1,945311471 | 253 | -56,4886212 | 46,5242051 |
| 126 | -9,94951555 | 1,959983588 | 254 | -58,4792244 | 56,66992324 |
| 127 | -10,0197588 | 1,97487871 | 255 | -60,6126255 | 72,47478804 |



5.3 Positions of jumpers

The KSÜ has 4 jumpers to configure the switching outputs and to configure the CAN-bus.

JP 300

Jumper for activating/deactivating the switching outputs “warning” und “self control”. Jumper open means switching outputs are activated.

JP 301

Jumper for routing the watch-dog output to the central connector. Jumper closed means watch-dog output (TTL-signal) is connected to the central connector.

JP 400

Jumper for activating/deactivating the flank-control of the CAN-signal. Jumper closed means the flank-control is deactivated. The CAN-transceiver switches as fast as possible (-> only use shielded cable!).

JP401

Jumper for the completion resistor of the CAN-bus (120 Ohm). Jumper closed means completion with 120 Ohm.

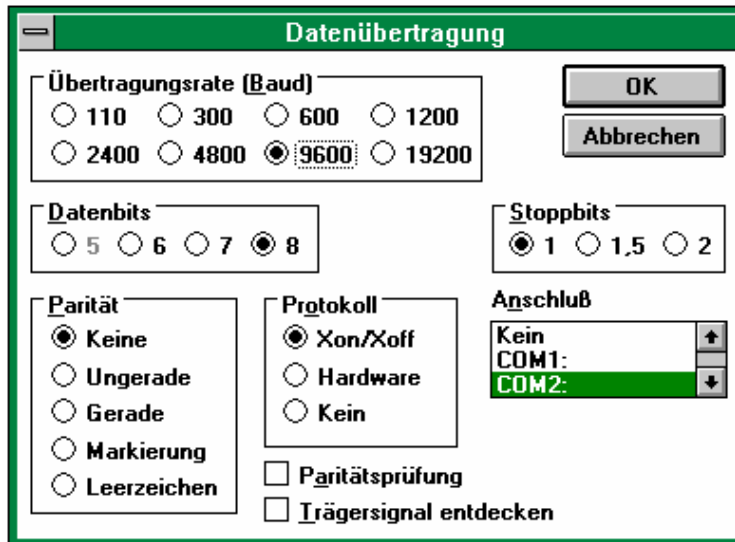
5.4 Setting with the terminal program

All parameters which are required to adapt the KSÜ to a new observed bearing can be set through the serial interface. You can use any terminal program (e.g. Terminal from Windows). As an option GIF delivers a software called TST3. The following description refers to the terminal program from Windows.

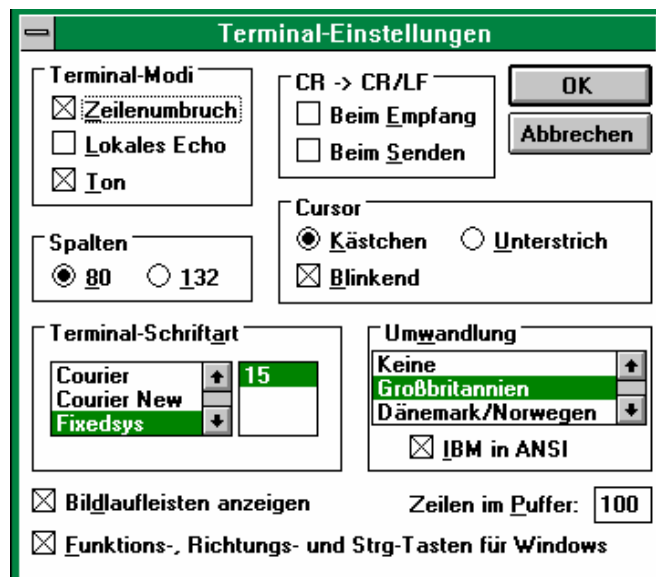
The following parameters must be set for the serial interface, where the connection must be selected, to which KSÜ has been connected.



5.4.1 WINDOWS 3.0



In addition, the correct character set and the correct terminal emulation must be selected in the menu item Settings ("Einstellungen").

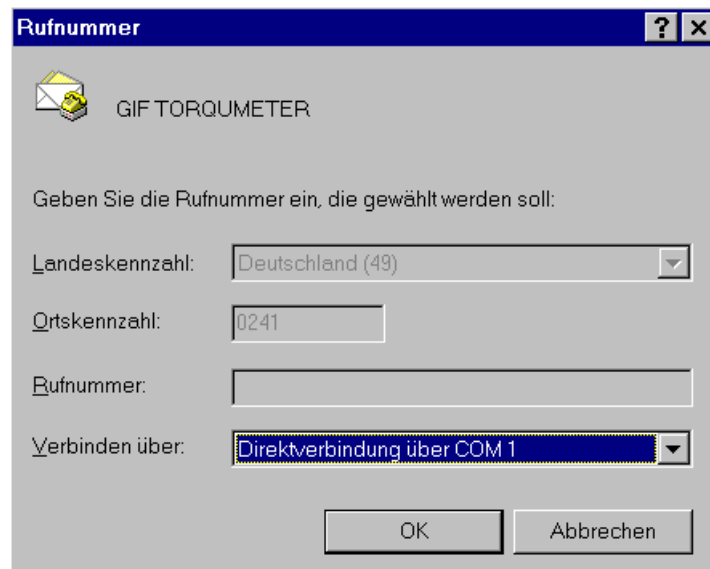


5.4.2 WINDOWS 95

Windows 95 contains also a terminal program which can be dialed into in this way:

ADJUSTMENTS

START -> PROGRAMS -> ACCESSORIES -> HYPERTERMINAL -> HYPERTRM



ADJUSTMENTS

The screenshot shows a Windows dialog box titled "Eigenschaften für COM1". It has a tab labeled "Anschlußbeinstellungen". Inside the dialog, there are five dropdown menus for configuring serial port settings: "Bjts pro Sekunde" is set to 9600, "Datenbits" is set to 8, "Parität" is set to Keine, "Stopbits" is set to 1, and "Protokoll" is set to Kein. At the bottom of the dialog, there are three buttons: "Erweitert...", "Standard wiederherstellen", and "Übernehmen". At the very bottom of the window are the standard "OK", "Abbrechen", and "Übernehmen" buttons.

The screenshot shows a Windows dialog box titled "Eigenschaften von GIF TORQUMETER". It has two tabs: "Rufnummer" and "Einstellungen", with "Einstellungen" selected. The main area contains a section for "Belegung der Funktions-, Pfeil- und Strg-Tasten gemäß" with two radio buttons: "Terminal" (selected) and "Windows". Below this is an "Emulation:" section with a dropdown menu set to "ANSI" and a "Terminalkonfiguration..." button. Underneath is a "Zeilen im Bildlaufpuffer:" section with a spinner box set to "500". At the bottom of the main area is a checkbox labeled "Akustisches Signal beim Verbinden oder beim Trennen." which is unchecked. A "ASCII-Konfiguration..." button is located at the bottom right of the main area. At the very bottom of the dialog are the "OK" and "Abbrechen" buttons.

ADJUSTMENTS

When all adjustments have been set correctly, then the following screen will appear upon calling up of the program:

```

KSÜ Terminal
Optionen  Einstellungen
KSUE VER2.2                (S) Ser.Nr.  TST3V200001
Analog                    0000          032      249
Analogdyn                 0514
Temp. int. (°C)           022
Temp. ext. (°C)           222          Referenz  0040
SpeiseSp. (V)             0179
(a) Schwelle1             0010
(b) Schwelle2             1000
Warnung                   0
Abschaltung               0
Fehlerausgang             0

Betriebsstd.              0000002:45,55
Abschaltungen              000
(c) Abschaltzeit (* 0.2s) 150
(d) Einschaltverzögerung  060
(e) Ringspeicherzeit (s)  030
(f) Pot11 dyn.            248
(g) Pot12 eff.            000
(H) S-logik on/off aktiv  On
(B) Selbsttest            ok
Letzte Tasteneingabe      @      1524

Bildschirmneuaufbau -n- Abschaltzaehlerreset -R- Betriebsstundenreset -T-

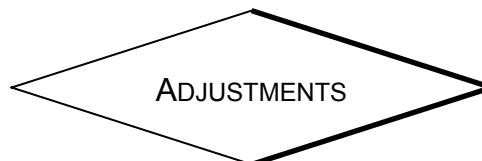
```

5.4.3 Inputs through the terminal

The terminal screen will display the current measuring units such as effective vibration value, dynamic vibration value, internal and external temperature, power supply, limiting values 1 and 2, state of the switching outputs, running hour counter and counter for switchings caused by too high vibration values.

The figures in brackets are used for starting an input or balancing process.

| Key | Process | Input | Remark |
|-----|---|--|--|
| a | Limiting value 1 (Schwelle1) | 4-digit number between 0000 and 1023 + „ENTER“-key | 10-Bit limiting value 1, valuation of effective vibration value for generat- ing switching output “warning” |
| b | Limiting value 2 (Schwelle2) | 4-digit number between 0000 and 1023 + „ENTER“-key | 10-Bit limiting value 2, valuation of effective vibration value for generat- ing switching output “switch-off” |
| c | Switch-off delay time (Abschaltzeit) | 3-digit number between 000 and 255 + „ENTER“- key | During this time (0-51s) within 1 min- ute limiting value 2 must be crossed, so that switching output “switch-off” is activated |



ADJUSTMENTS

| Key | Process | Input | Remark |
|-----|--|--|---|
| d | Power-on delay time (Einschaltzeitverzögerung) | 3-digit number between 000 and 255 + „ENTER“-key | During power-on delay time (0-255s) the limiting values are not supervised. |
| e | Post-mortem store interval (Ringspeicherzeit) | 3-digit number between 000 and 255 + „ENTER“-key | Time base (1-255s) for storing post-mortem-datas into the EEPROM of KSÜ. |
| f | Poti dyn. | 3-digit number between 000 and 255 + „ENTER“-key | Adjustment of amplification of the dynamic analogue amplifier |
| g | Poti eff. | 3-digit number between 000 and 255 + „ENTER“-key | Adjustment of amplification of the effective analogue amplifier |
| p | Post-mortem Data output | | Output of the post-mortem-datas |
| H | Switch-off logic on/off (S-logik on/off) | . | Toggles between on and off. On means: when switching the output jumps from low (normal) to high. |
| B | Self test (Selbsttest) | | The routine for self test will be started |
| S | Serial number (Ser.Nr.) | Input of any 11-digit character string + „ENTER“-key | Usually the serial number of KSÜ3 is placed here. |
| T | Running-hour-counter reset (Betriebsstundenreset) | | The running hour counter is resetted. |
| n | Clear screen | | Regeneration of the terminal screen |
| R | Reset of counter for switches-off (Abschaltzählerreset) | | The switch-off counter is resetted, the switching outputs are resetted, the post-mortem memory gets unlocked. |

In case of any problems you may contact us at our telephone hotline 0 24 04 / 98 70-575, where you can reach us on workdays from 8:00 am until 5:00 pm.



6 Post-Mortem Memory

The post-mortem memory is a circle memory with 500 values for measured values: effective vibration, internal and external temperature. You can adjust the time base, in which the data are stored into the internal EEPROM of KSÜ. By this you are able to define the sampling time and with that the period of time for measured values.

When a switch-off is carried out (switching output S2 is set) there only will be stored 100 further values. If the sensor is powered down before this, no more values are stored. The post-mortem memory now is bolt. Only a reset of the counter for "switches-off" will unclamp the memory.

By pressing the key „p“ the KSÜ3 is told to transmit the internal stored post-mortem-datas via the serial interface. The used data format is as follows:

Always 3 ASCII-characters, then a semicolon.

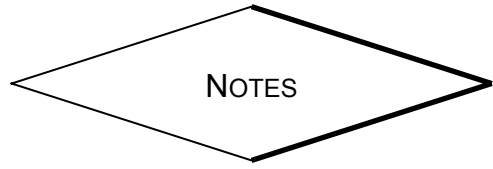
First: 3 characters high byte effective value vibration

Second: 3 characters low byte effective value vibration

Third: 3 characters 8 bit internal temperature

Fourth: 3 characters 8 bit external temperature

The GIF-software TST3 integrates a terminal function with the possibility to read out the post-mortem-datas. A file management is integrated. The data can be stored in a text-file. With this you are able to use other software to carry out a possibly damage analyses.



7 Notes

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