

Electro-Magnetic Compatibility (EMC)

This product complies with Council Directive 89/336/EEC when installed and used in accordance with the relevant instructions.



Service and Technical Support

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User Guide

“Shaft Speed 6” 6-Channel Shaft Speed Monitor

Calibration and Operation

Software Reference UDJ701-5

Contents

- Overview** **3**
 - Calibration3
- The Control Switches** **4**
- RPM Channels** **5**
 - Programme a Low Speed Alarm Threshold.....5
 - Enable/Disable Alarm Function6
 - Set Shaft Speed Sensor Cal Factor6
- Wiring Connections – Shaft Speed 6** **8**
 - Connections for Cable S/CB/327-1-064..... 9

Overview

The *RDS Shaft Speed 6* has an illuminated 4-digit display with 6 display functions, monitoring and displaying the rotational speed (RPM) of up to 6 shafts.

Each shaft speed channel has a programmable low-speed alarm. If any shaft speed drops below the programmed threshold, the display will flash the speed of that shaft, and also sound an audible alarm (an external audible alarm is optional) for 5 seconds.

A second, continuous alarm output (O/P 2) is also triggered, which can be utilised for example, to physically inhibit further operation, or otherwise compensate for the alarm condition. This alarm output remains on until the alarm condition is resolved.

The alarm function on any particular channel can be easily disabled/re-enabled as necessary during normal operation.

The system comprises :

- Head unit
- 12V power supply kit.
- Individual Shaft Speed Sensor kits as required.
- Qikmate to AMP connector cable – Pt. No. S/CB/327-1-064
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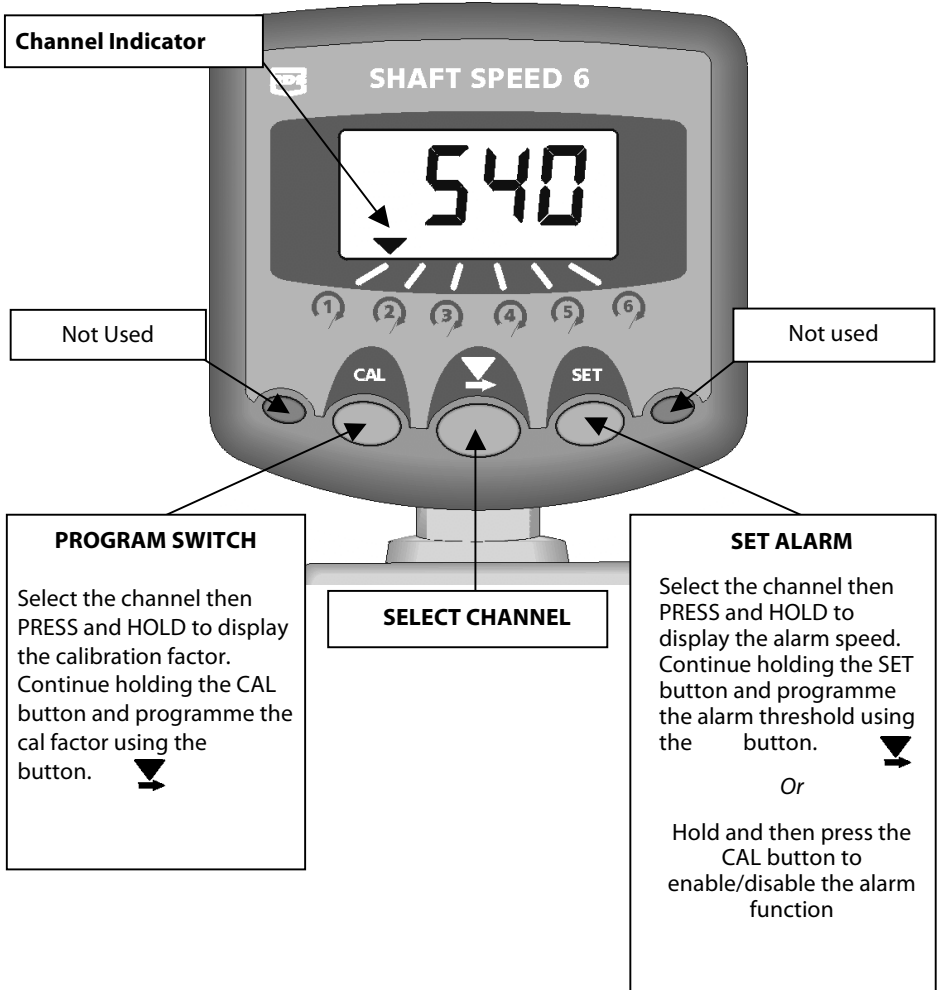
Calibration

Each shaft speed channel in operation must be programmed with a calibration factor to enable the correct RPM display. This factor is the number of pulses received from the sensor per revolution of the shaft. This varies according to the type of sensor / number of sensor magnets installed.

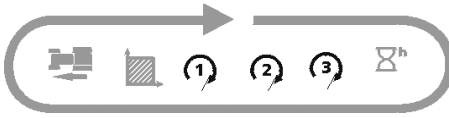
NOTE: The sensor must provide a pulse rate of more than 1 pulse per second for the instrument to work properly. For slow turning shafts, a range of magnet carriers are available with up to 8 magnets fitted. For very slow turning shafts, a shaft encoder can be fitted, giving up to 360 pulses per rev.

The Control Switches

The front panel has five buttons. Only the middle three are normally used.



RPM Channels



There are six RPM channels. Press the ▼ button to select a channel.

For a shaft speed up to 100rpm, the speed is displayed to the nearest 1 rpm.

For a shaft speed above 100 rpm the speed is displayed to the nearest 10 rpm.

Programme a Low Speed Alarm Threshold

NOTE: The default alarm speed is zero, i.e. the alarm is disabled.

1. Select the appropriate channel.
2. Press and hold the SET button and the display will show the current alarm threshold setting.
3. Continue holding the SET button and...
4. PRESS ▼ select the digit or decimal point to change.
5. HOLD ▼ to change the selected digit (or move the decimal point).
6. RELEASE ▼ to select the next digit and repeat as above, otherwise simply release both buttons. The instrument will then return to the normal display mode.

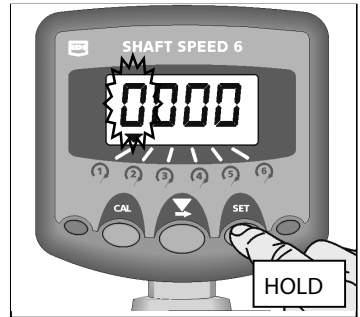


Figure 2: Display Alarm Speed

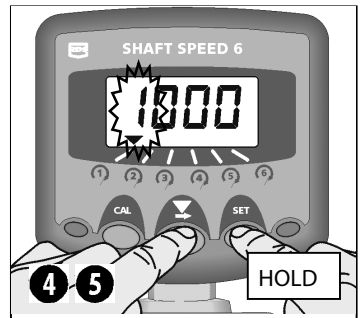


Figure 3: Set Alarm Speed

Enable/Disable Alarm Function

The alarm function on any particular channel can be easily disabled/re-enabled as necessary during normal operation, without you having to re-programme the threshold figure each time.

1. Select the appropriate channel.
2. Press and hold the SET button and press the CAL button to enable/disable the alarm function. The display will alternate between zero and the set threshold.
3. Release the CAL button when the appropriate figure is displayed

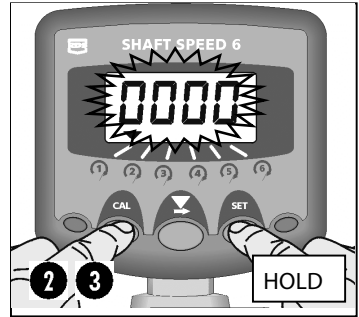


Figure 4: Enable/Disable Alarm

Set Shaft Speed Sensor Cal Factor

In order for RPM to be displayed correctly, The RPM Sensor Factor must be programmed correctly.

The factor is the number of pulses received by the instrument per revolution of the sensed shaft, e.g. for measuring Engine RPM, PTO Speed, Shaft Speed, Fan Speed etc, depending on the particular installation.




The default setting is 1 pulse per rev (p.p.r), which is OK in the case of a magnetic sensor with a single magnet on the sensed shaft.

For an 8-magnet carrier, the cal. Factor is 8.000.

In other cases, perform the following calibration procedure.

1. Run the sensed component at a known speed. If necessary measure this speed using a hand-held tachometer.
2. At the same time have someone note the RPM displayed on the instrument.

3. Calculate the new calibration factor

$$\text{New Factor} = \frac{\text{Initial Factor} \times \text{Displayed Speed}}{\text{Actual Speed}}$$
4. Select the appropriate channel.
5. Press and hold the CAL button and the display will show the current Cal. factor.
6. Continue holding the CAL button and...
7. PRESS  select the digit or decimal point to change.
8. HOLD  to change the selected digit (or move the decimal point).
9. RELEASE  to select the next digit and repeat as above, otherwise simply release both buttons. The instrument will then return to the normal display mode.

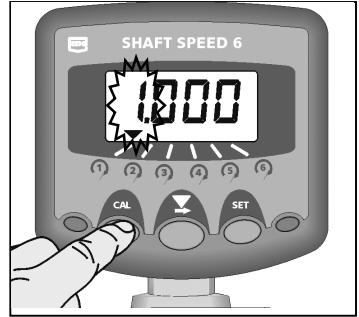


Figure 5: Display Cal. Factor

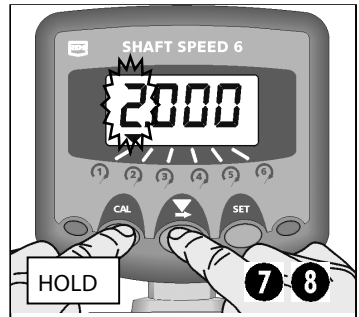
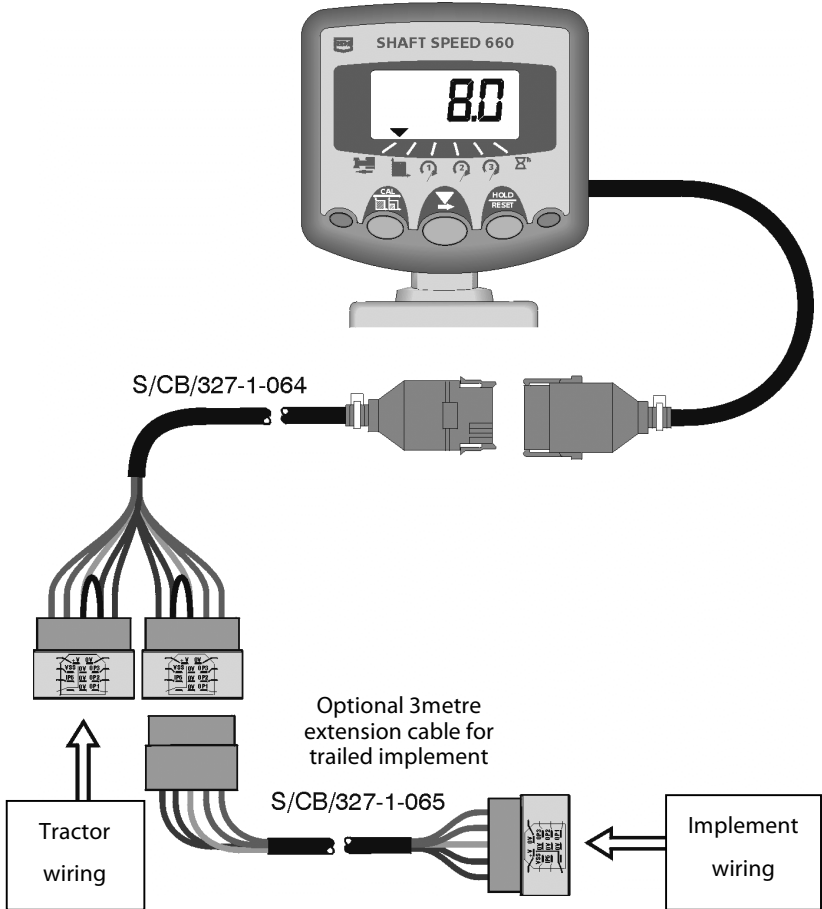


Figure 6: Set Cal. Factor

Wiring Connections – Shaft Speed 6

A 12-way Qikmate to 2 x 11-way AMP extension cable Pt No. S/CB/327-1-064 is supplied to connect to the sensors, power supply etc.



Refer to the “Work measurement Installation” manual S/DC/500-10-261 for details on fitting sensors / cutout switches etc.

Connections for Cable S/CB/327-1-064

CONNECTOR – RED		
KEY	COLOUR	FUNCTION
+V	RED	+V IN
0V	BLACK	0V IN (+ 3 x COMMON 0V FOR SENSORS)
Vss	RED	NOT USED
IP6	WHITE	RPM 6 +V
OP3	GREY	NOT USED
OP2	ORANGE	ALARM OUTPUT – CONTINUOUS +V
OP1	TURQUOISE	AUDIBLE ALARM – PULSED +V

CONNECTOR – GREEN		
KEY	COLOUR	FUNCTION
0V	PINK/BLACK	5 x COMMON 0V FOR SENSORS
IP5	BLUE	RPM 5 +V
IP4	BROWN	RPM 4 +V
IP3	PURPLE	RPM 3 +V
IP2	YELLOW	RPM 2 +V
IP1	GREEN	RPM 1 +V

NOTE: *There is no provision for WCI connection on cable S/CB/327-1-064*

In some cases for installations on trailed implements, in order to make all the necessary connections between the tractor and implement using the extension cable S/CB/327-1-065, you may need to switch one or more terminal blades between the two connectors.

Carefully insert a suitable thin-bladed screwdriver into the appropriate blade housing and lever the locking tab slightly inwards. The blade can then be withdrawn from the rear of the connector housing. The tabs will probably need to be levered back out so that the blade will lock properly when re-inserted.

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