

SAFE-AID TS7000 LOAD MOMENT INDICATOR

LOAD MEASUREMENT – TELESCOPIC HANDLER

Technical Data Sheet

LEGAL COMPLIANCE

The TS7000 Safe Load Indicator meets and exceeds the standards as set out in the ISO 10245-1:2008 Edition 2, the British Standard BS7262:1990 and South African standards SANS 19:2007 Edition 1.1, SANS 61-1:2009 Edition 2, The system complies fully with the requirements of the South African OSHACT (Act 85 of 1993) Driven Machinery Regulations, 2015.

SYSTEM FEATURES

- Designed for easy operator use
- System test with self-diagnostic capabilities
- Resistive touch screen operation
- Large colour display with excellent sunlight readability
- All faults displayed as text messages – no codes
- Complete load chart memory
- On board basic calibration with simple calibration techniques
- Vibration proof and tested at extreme temperatures including high humidity (-20 to 70°C)
- Rated Load Display – Max load allowed for selected configuration and sensed parameters
- Lifted Load Display – Load on hook (including hook and all ancillary lifting equipment)
- Radius Display – Distance from centre line of rotation to load centre
- Percentage of Rated Load Display - % Utilisation
- Main Boom Length Display
- Main Boom Angle Display
- Anti-2-Block incorporated into the system (only if winch fitted)
- Boom Telescope Monitoring and Control - If required
- Multiple telescopic sections monitored with percentages on screen - If required
- Control of multiple valves for telescoping - If required
- 90% Audio and Visual pre-warning
- 100% Audio and Visual overload warning
- Relay output for lever cut-off (output to hydraulic dump circuit)
- On screen override for momentarily overriding lever cut-off - Optional
- Monitored Key switch for overriding lever cut-off
- Data Logger – Optional
- Wind Speed Display with selectable units of measure – Optional
- Maximum Wind Speed allowed with audio and visual alarm – Optional

SYSTEM COMPONENTS

| QUANTITY | ITEM DESCRIPTION |
|--|--|
| 1 | TS7000 DISPLAY UNIT INCLUDING SWIVEL MOUNTING BRACKET |
| 1 | M400 MOTHERBOARD IN IP67 JUNCTION BOX SUITABLE FOR EXTERIOR MOUNTING |
| 1 | COMPLETE SPRING RECOIL CABLE REELING DRUM (INCLUDING ROLLER GUIDE, CABLE GUIDES & ANCHOR POINT |
| 1 OR 2 | PRESSURE SENSORS (250-600 BAR) |
| 1 | COMPLETE OPERATORS & INSTALLATION MANUAL |
| ALL CABLES TO COMPLETE INSTALLATION OF SAFE-AID TS7000 LOAD MOMENT INDICATOR | |

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OPTIONAL COMPONENTS

| <i>QUANTITY</i> | <i>ITEM DESCRIPTION</i> | <i>SYSTEM USE</i> |
|-----------------|--|---|
| 1 | A400 AMPLIFIER IN JUNCTION BOX FOR BOOM TIP COMMUNICATION | WIRED ANEMOMETER |
| 1 | ANTI-2-BLOCK SWITCH INCLUDING COUNTERWEIGHT ASSEMBLY | IF WINCH IS FITTED |
| 1 | WIRED ANEMOMETER – WIND SPEED METER | OPTIONAL EXTRA – REQUIRES 4 CORE CABLE ON CABLE REEL & BOOM TIP AMPLIFIER |
| 1 | 3 TIER ROTATING ROBOT LIGHT (RED, AMBER & GREEN) WITH FILAMENT TYPE BULB - 12 OR 24VDC | OPTIONAL EXTRA REQUIRED BY SOME CONSTRUCTION AND MINING REGULATIONS |
| 1 | 3 TIER FLASHING LED ROBOT LIGHT (RED, AMBER & GREEN) – 24VDC ONLY | OPTIONAL EXTRA REQUIRED BY SOME CONSTRUCTION AND MINING REGULATIONS OPTIONAL |
| 1 | DATA LOGGER WITH REAL TIME CLOCK AND BATTERY BACKUP | OPTIONAL EXTRA FOR TS7000 DISPLAY UNIT – CAN ONLY BE FITTED AT FACTORY |

TECHNICAL SPECIFICATIONS

TS7000 Display Unit

- Single Multi-layered circuit board – 4 layers
- 7” TFT Colour Touch LCD with backlight
- Graphical Colour Screen – 256,000 Colours
- Display Resolution – 800 x 480 Pixels
- 91 x 152mm Viewing Area
- Aluminium Bezel fitted to powder coated sheet metal enclosure
- Replaceable Transparent Touch Screen protection sticker
- CAN Bus or MOD Bus communication
- 1 x Optically Isolated Digital Input
- 1 x High side driver with intelligent protection and fault reporting
- IP55 Protection (BS7262 5.7)
- Outside Dimensions 145 x 203 x 55mm (L x W x H) excluding mounting bracket

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M400 Motherboard

- Single Multi-layered circuit board – 2 layers
- Phoenix Contact Spring Terminals
- 10 – 36VDC Input Voltage
- Fuse Protected Input Voltage – 2Amp
- 4 x Optically Isolated Digital Inputs (PNP or NPN user selectable)
- 1 x Load Cell Input (mV input)
- 1 x 0 – 5VDC Analogue Input
- 2 x 4-20mA Inputs
- 1 x 15Amp Relay Output (Potential free contact) with fault reporting (Dump/Auto-Cut Off) - 5Amp Fuse
- 3 x 15Amp Relay Outputs (Potential free contacts) – 3 x 5Amp Fuses
- Monitored & Fuse Protected Key Switch Input for Dump/Auto- Cut Off Relay
- USB A port for software upgrade
- CAN Bus and/or Wireless (Optional) Communication
- IP66 Glass Fibre reinforced polyester enclosure
- Cable entry via SKINTOP glands
- Outside Dimensions 220 x 120 x 100mm (L x W x H) excluding gland entries

Cable Reeling Drum

- IP66 Cast aluminium enclosure with powder coated steel reel and galvanised spring assembly
- Twin spring driven cable reel with anti-run back feature to prevent damage to spring if cable is broken
- Simple boom length cable replacement procedure
- Length measurement using potentiometer with resistor pull up feature to detect open circuit
- Angle measurement using a high sensitivity multi axis accelerometer (accuracy $\pm 0.1^\circ$)
- 2mm Single core boom length cable coated with PVC to give 3mm overall diameter
- Anti-2-Block switch monitoring with resistor pull up for short circuit detection – **If winch fitted**
- 2 Track slip ring with 2 core cable for Anti-2-Block monitoring on boom tip – **If winch fitted**
- 4 Track slip ring with 4 core cable for communication to A400 amplifier on boom tip – **Optional**
- 1 x Load Cell Input (mV input)
- 2 x 4-20mA Inputs
- 1 x 0 – 5 VDC Input
- CAN Bus and/or Wi-Fi (Optional) Communication
- USB A port for software upgrade
- Outside Dimensions 560 x 245 x 285mm (L x W x H) excluding gland entry

Pressure Sensor

- 4-20mA Output
- 250 – 600 Bar measuring range
- IP67 M12 connector
- ¼ NPT High pressure hydraulic fitting
- Outside Dimensions 50 x 22 x 22mm (L x W x H) excluding connecting cable and plug

Anemometer - Wind Speed Meter (Optional)

- Measuring range 0.5-50 meters per second (2 – 200 kilometres per hour)
- Black technical plastic body with robust flexible rotor
- High quality stainless steel bearings
- Self-levelling mounting bracket
- IP65 Environmental Protection
- Outside Dimensions 125 x 125 x 315mm (L x W x H)

