



CRANE SAFE LOAD SYSTEMS AND WEIGHING EQUIPMENT

TECHNICAL DATA SHEET – SAFE-AID TS7000 LOAD MOMENT INDICATOR FOR HYDRAULIC CRANES PRESSURE TRANSDUCER(S)

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

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
- Fly Jib Angle Display
- Anti-2-Block incorporated into the system
- 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
- 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 CABLE REELING DRUM (INCLUDING ROLLER GUIDE, CABLE GUIDES & ANCHOR POINT)
1 OR 2	PRESSURE SENSORS (250 – 600 BAR)
1 OR 2	ANTI-2-BLOCK SWITCHES INCLUDING COUNTERWEIGHT ASSEMBLIES
1	PROXIMITY SWITCH FOR SLEW AREA SELECTION
1	COMPLETE OPERATORS MANUAL
ALL CABLES TO COMPLETE INSTALLATION OF COMPLETE TS7000 SAFE LOAD INDICATOR	

OPTIONAL COMPONENTS

QUANTITY	ITEM DESCRIPTION	SYSTEM USE
1	A400 AMPLIFIER IN JUNCTION BOX FOR BOOM TIP COMMUNICATION	LUFFING FLY OR WIRED ANEMOMETER
1	A400 AMPLIFIER IN JUNCTION BOX FOR LUFFING FLY ANGLE AND ANTI-2-BLOCK	LUFFING FLY SYSTEMS ONLY
1	DATA LOGGER WITH REAL TIME CLOCK AND BATTERY BACKUP	OPTIONAL EXTRA FOR TS7000 DISPLAY UNIT – CAN ONLY BE FITTED AT FACTORY
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

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

M400 Mother Board

- Single Multi-layered circuit board – 2 layers
- 10 – 36VDC Input Voltage
- 2 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
- 4 x Relay Outputs with intelligent protection and fault reporting
- IP66 Glass Fibre reinforced polyester enclosure
- CAN Bus and/or Wi-Fi (Optional) Communication
- 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 $\pm 0.1^\circ$)
- Anti-2-Block switch monitoring with resistor pull up for short circuit detection
- 2 Track slip ring with 2 core cable for Anti-2-Block monitoring on boom tip
- 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
- Outside Dimensions 560 x 245 x 285mm (L x W x H) excluding gland entry

Pressure Sensors

- 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

Wired Anemometer (Wind speed meter)

- Measuring range 2-30 meters per second (7.2 – 108 kilometres per hour)
- Black PVC Body with stainless steel rotor
- Self-levelling mounting bracket
- 5m Connecting cable from anemometer to A400 amplifier
- IP54 environmental protection