



**TS7000 CANBUS SAFE LOAD INDICATOR (SLI)
FOR LATTICE BOOM CRANES**

GLOBAL LEADERS IN MOBILE CRANE SAFETY CONTROL SOLUTIONS

INNOVATIVE TECHNOLOGY | EXPERIENCE | GLOBAL SUPPORT ORIENTATED



MANUFACTURING SAFETY SYSTEMS SINCE 1983

UNEQUIVOCALLY THE MOST ADVANCED CRANE SAFETY SLI CONTROL SOLUTION

- Comprehensive load chart memory
- Rated Capacity as MAX load
- Lifted load
- Radius with accurate deflection factoring
- Percentage of rated capacity - % utilisation
- Main boom and fly jib length selection
- Angles – main boom and jibs
- 90% & 100% visual & audible warning
- Wind speed
- Outrigger monitoring (if applicable)
- Slew positioning (if applicable)
- On screen crane level monitoring / tilt monitoring
- Data logging

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The Safe-Aid TS7000 system is an industry-proven Safe Load Indicator / Rated Capacity Indicator and Safe-Aid is a market leader in safety control systems for Mobile Telescopic and Lattice cranes.

As one of the leading innovators in technology based crane safety systems and with over 35 years of experience in the field of Safe Load Indication, we pride ourselves in the most up-to-date hardware and software incorporated into the TS7000 Safe-Aid SLI.

Product and system consists of all hardware, consistently updated software, improvement and enhancement upgrades, robust sensors and the tried and tested Touch Screen 7000 7 inch Human Machine Interface console.

Safe-Aid is service and quality inspired and our team is committed to safety, reliability & leading edge technology in the crane industry. Long term and established relationships with our clients is a barometer of our success and more so, our clients' confidence in our products.

ADVANTAGES OF INSTALLING A TS7000 SLI

- Excellent HMI console with superb operator friendly interface supports simplistic operator interaction
- Self diagnostic capability
- Fault reporting as either virtual error messages or codes
- Simplified, seamless calibration of all parameters
- Vibration proof and tested at extreme temperatures, including high humidity
- Custom software integration (if required)
- PLC "Real time" integration enabled via CANbus (optional)
- Various different crane configurations may be stored
- "On Screen" momentary override
- Override keyswitch monitoring
- Event recording – data logging enabled
- User limits may be defined by the operator or supervisor / rigging personnel
- High accuracy angle accelerometers utilized for measurement of angles
- Streamlined enhancements to fault finding process

SAFE-AID TS7000 SUPPORTS A LARGE SET OF SLI APPLICATION FEATURES

- Measurement of force using tension load cells custom manufactured to specifications of crane or running rope deflector unit/s
- Wireless or wired outrigger monitoring (if applicable)
- Supports crane levelling and setup
- Support for additional jibs
- Rigging mode enabled
- Wind speed integration
- Multiple winches
- 3rd layer device – underwind – winch lowering limiter
- Angle deduction deflection (2 accelerometers)

SAFE-AID SLI LIFESPAN CYCLE SUPPORT

CRANE DEFINITION

- Load Chart
- Crane Geometry
- Serial Number
- Inspection
- Software Initiation
- Retrofit or OEM Prototype

SYSTEM CALIBRATION

- Radius deflection factoring
- Load Accuracy Trimming
- Angle Calibration
- Sensor Calibration
- Menu Driven Settings Adjusted

CRANE COMMISSIONING

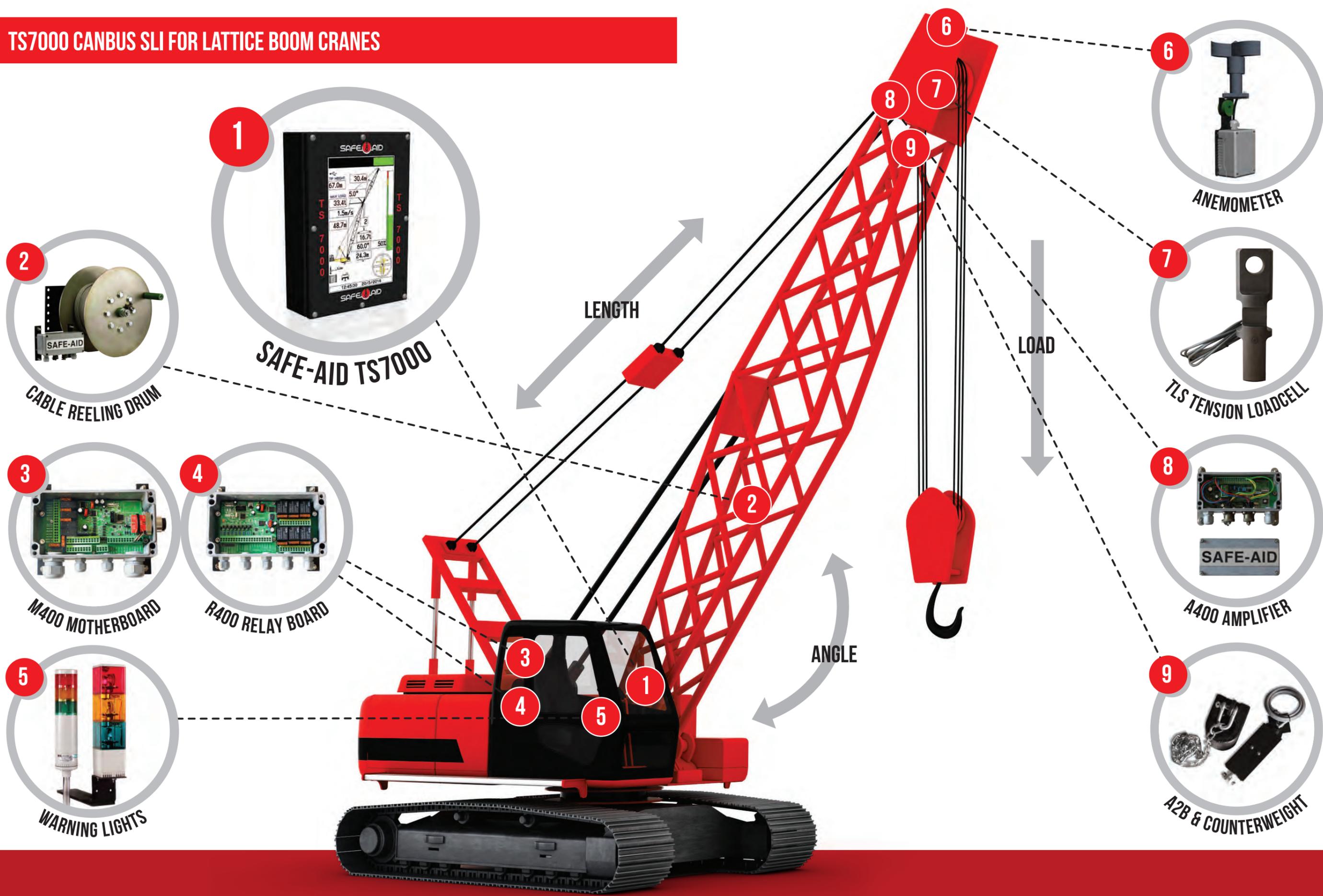
- Load Testing
- Minor Adjustments
- Operation with Weights
- Sign off

SERVICE & UPDATE

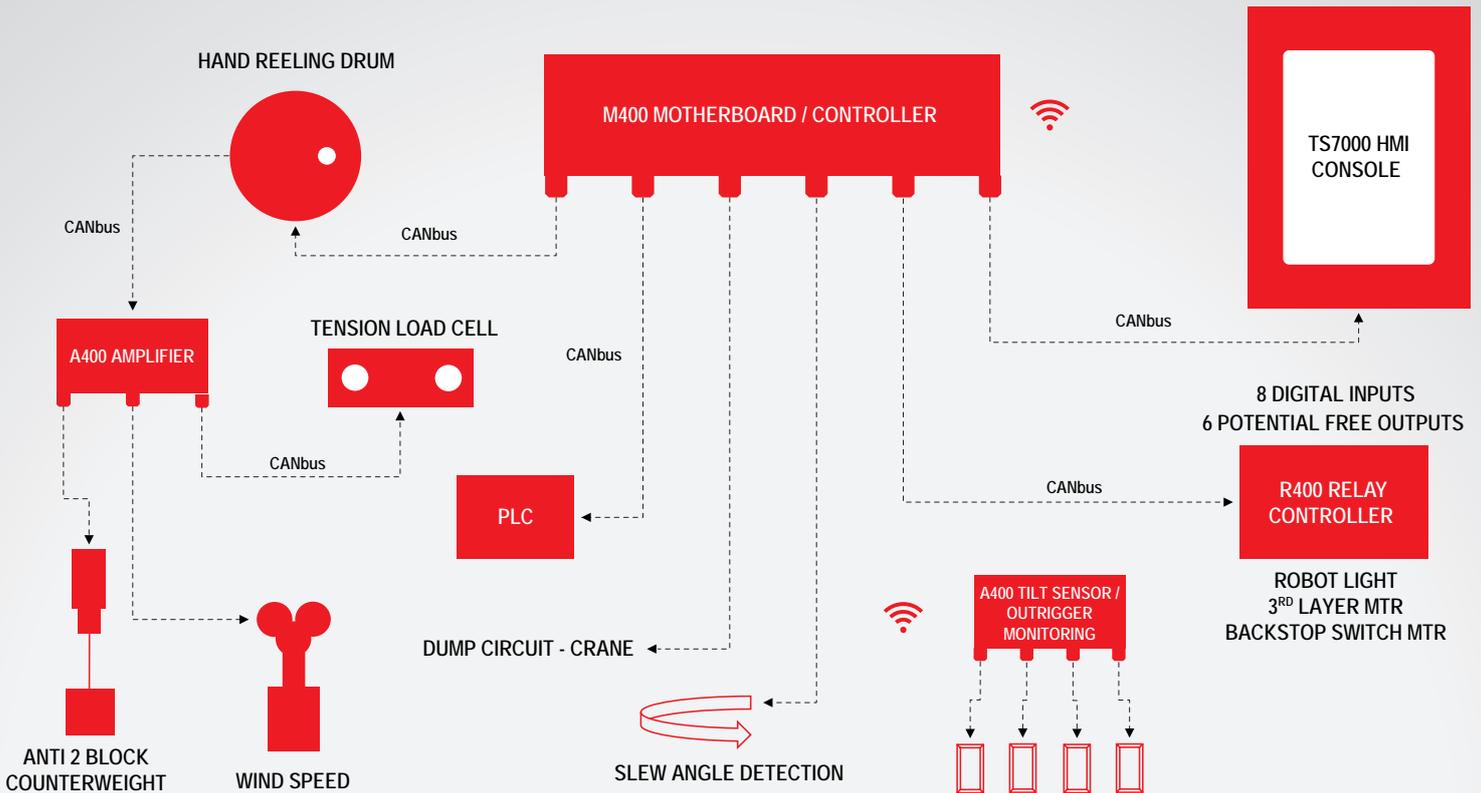
- Regularly Service
- Regularly Calibrate
- Software Enhancements
- Hardware Upgrades
- Maintenance Support

Consider the Safe-Aid TS7000 a long term investment – immeasurable safety & support throughout the life of your crane.

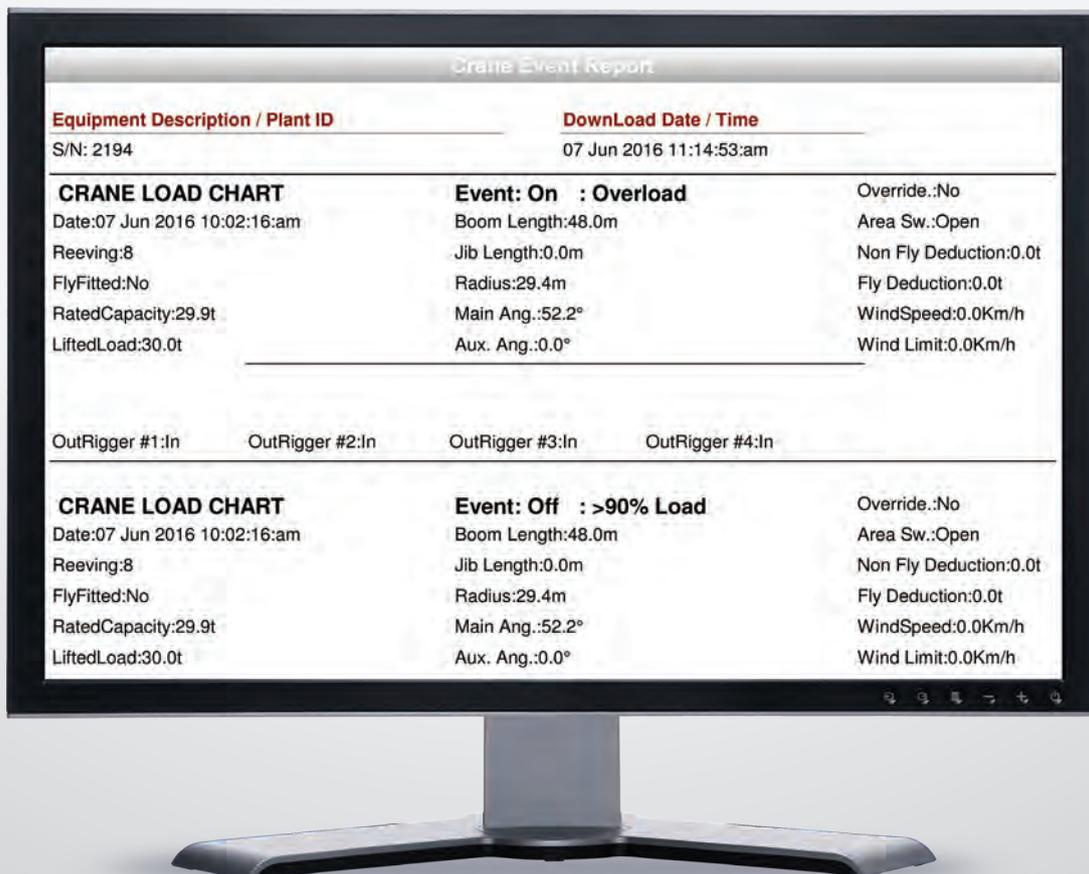
TS7000 CANBUS SLI FOR LATTICE BOOM CRANES



SAFE-AID TS7000 SLI SYSTEM BASIC SCHEMATIC



SAFE-AID TS7000 LATTICE CRANE LOG REPORT



TECHNICAL SPECIFICATIONS

TS7000 DISPLAY UNIT

- Single Multi-Layered Circuit Board – 4 layers
- 7" TFT Colour Touch LCD
- 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 Low Side Driver
- IP55 Protection (BS7262 5.7)
- Outside Dimensions 145 x 203 x 55mm (L x W x H)

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 12Amp 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
- Outside Dimensions 220 x 120 x 100mm (L x W x H)
- 3 Inputs can be configured simultaneously

HAND REELING DRUM

- Tried and tested rugged design
- Powder coated and galvanised steel assembly with simple bolt on brackets
- Lockable once correct cable length is reached
- Military specification plugs with end caps for reliability and durability
- Screened 4 core data cable for CAN BUS communication and power
- Simple cable replacement procedure if required
- Nylon bushes and handle for extreme durability
- Outside Dimensions 360 x 360 x 350mm (L x W x H) excluding gland entry

ANEMOMETER WIRED WIND SPEED METER (OPTIONAL)

- Measuring Range 0.5 to 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)

A400 AMPLIFIER BOARD

- IP66 Glass Fibre reinforced polyester enclosure
- 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 x Load Cell Input (mV input)
- 2 x 4-20mA Inputs
- 2 x 0 – 5 VDC Input
- 4 x Optically Isolated Digital Inputs (PNP or NPN User Selectable)
- CAN Bus and/or WiFi (Optional) Communication
- Outside Dimensions 160 x 75 x 60mm (L x W x H) excluding gland and plug entries
- 3 Inputs can be configured simultaneously

TENSION LOAD CELL (CAN BE MOUNTED IN DERRICKING DEAD OR WINCH DEAD END)

- Stainless steel and hardened body for extreme durability
- Bridge resistance 350 Ω + 4 Ω
- Rated Output $\pm 1\text{mV/V}$
- Maximum excitation 15 VDC
- Measuring range – As per crane manufacturers maximum single line pull specifications 2t - 200t
- IP67 Military Specification connector

RUNNING ROPE DEFLECTOR UNIT

- Rugged Galvanised OR Stainless Steel Assembly
- Oilon (Nylon) OR Steel Pulleys with Twin Bearings to prevent rope damage and for longevity
- Oilon (Nylon) Sleeves to facilitate easy removal of Load Cell and Shafts
- Individually Designed with 1.5t load cell to suit Crane Specifications
- Load cell Bridge Resistance 350 Ω + 4 Ω
- Load Cell Rated Output $\pm 1\text{mV/V}$
- Load Cell Maximum Excitation 15 VDC
- Measuring Range – As per crane manufacturers Maximum Single Line Pull Specifications 2t - 200t
- IP67 Military Specification Connector on Load Cell
- Splash Cover over Load Cell Assembly to prevent build-up of grease etc.

R400 INPUT OUTPUT BOARD (OPTIONAL)

- Single Multilayered Circuit Board – 2 layers
- Phoenix Contact Spring Terminals
- 10 – 36VDC Input Voltage
- 6 x 30Amp Relay Outputs (Potential free contacts) – 6 x 5Amp Fuses
- 8 x Optically Isolated Digital Inputs (PNP or NPN User Selectable)
- USB A port for Software Upgrade
- CAN Bus Communication
- IP66 Glass Fibre Reinforced Polyester Enclosure
- Outside Dimensions 220 x 120 x 100mm (L x W x H)

LEGAL COMPLIANCES

The TS7000 Safe Load Indicator meets and exceeds the standards as set out in the ISO 10245-2:2014, British Standard BS7262:1990 & SANS 578-2:2008.

TS7000 SAFE LOAD INDICATOR SLI

INVEST IN YOUR CRANE

- Crane pays off the entire system within only months
- Current and future developments and trends employed with software updates
- A high quality, complex yet simple solution
- Minimization of repair and maintenance costs due to quality of all system components
- You not only procure a system but our experience and lifelong support
- Guaranteed constant enhancements and upgrades for the safety of your crane
- Understanding of turnaround times

SAFETY A PRIORITY

- HMI console allows for easy operation, minimal input
- System with watchdog constantly monitoring operation
- Step by step guidance throughout the operation of the crane
- Virtual graphical interface highly readable and interpretation made easy with real crane graphic configuration
- Crane profile software and parameters a mirror image of OEM load chart and specifications
- Cut out on all errors – early warning enabled
- Safety risk of selecting wrong program or mode is minimized

SIMPLIFIED CALIBRATION

- Constant improvements to calibration procedures
- User friendly menu driven calibration procedure and setup
- Cost reduction in time of calibration
- SCP – Specific Crane Profile uploaded and kept in secure database
- OEM or retrofit cranes
- Installation manuals with step by step instructions streamline installation and calibration
- Calibration stored values protection

SUPPORT

- Basic problems or issues serviced via telephonic or email support line
- Reduced software update time
- Technical experience spanning decades
- Turnaround time consideration
- Hardware designed for easy replacement or upgrade
- Support throughout the lifecycle of the crane
- Commitment and service orientated backup

