



TS350 CANBUS SLI FOR
HYDRAULIC / TELESCOPIC MOBILE CRANES

GLOBAL LEADERS IN MOBILE CRANE SAFETY & CONTROL SOLUTIONS

INNOVATIVE TECHNOLOGY | EXPERIENCE | GLOBAL SUPPORT ORIENTATED



MANUFACTURING SAFETY SYSTEMS SINCE 1983

THE MOST COMPACT & ADVANCED ENTRY-LEVEL CRANE SAFETY SLI CONTROL SOLUTION

SOFTWARE CAPABILITIES

- Maximum 5 Boom or Jib Configurations – Graphic Icon
- Outrigger Selection – Graphic Icon
- Counterweight Selection – Graphic Icon
- Winch Selection – Graphic Icon
- Lifted Load Display
- Rated Load Display
- Radius Display
- Boom Length Display
- Boom Angle Display
- Percentage Utilisation
- Reeving Display (Parts of Line) – User Selectable
- Rated Load Deductions – Maximum 5
- On Screen Buzzer Override
- On Screen Dump Output (Lever Cut-Off) Override
- Area selection

The Safe-Aid TS350 Entry Level system for basic cranes & other machines is the most compact and affordable Safe Load Indicator / Rated Capacity Indicator on the market. Safe-Aid is a market leader in safety control systems for Mobile Telescopic, Crawler cranes & 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 TS350 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 350 3.5 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 TS350 SLI

- Excellent HMI console with superb operator friendly interface supports simplistic operator interaction
- Compact & Affordable – a system built specifically for more basic cranes / applications with affordability in mind
- 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)
- "On Screen" momentary override
- Override keyswitch monitoring
- User limits may be defined by the operator or supervisor / rigging personnel
- High accuracy angle accelerometers utilized for measurement of angles (if existing angle sensor not used)
- Streamlined enhancements to fault finding process

SAFE-AID TS350 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
- Measurement of force using piston and rod side pressure transducers with PSRT (Pressure Spike Restrictor Technology)
- Rigging mode enabled
- Multiple winches



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
- Length / Angle Calibration
- Sensor Calibration
- Menu Driven Settings Adjusted

CRANE COMMISSIONING

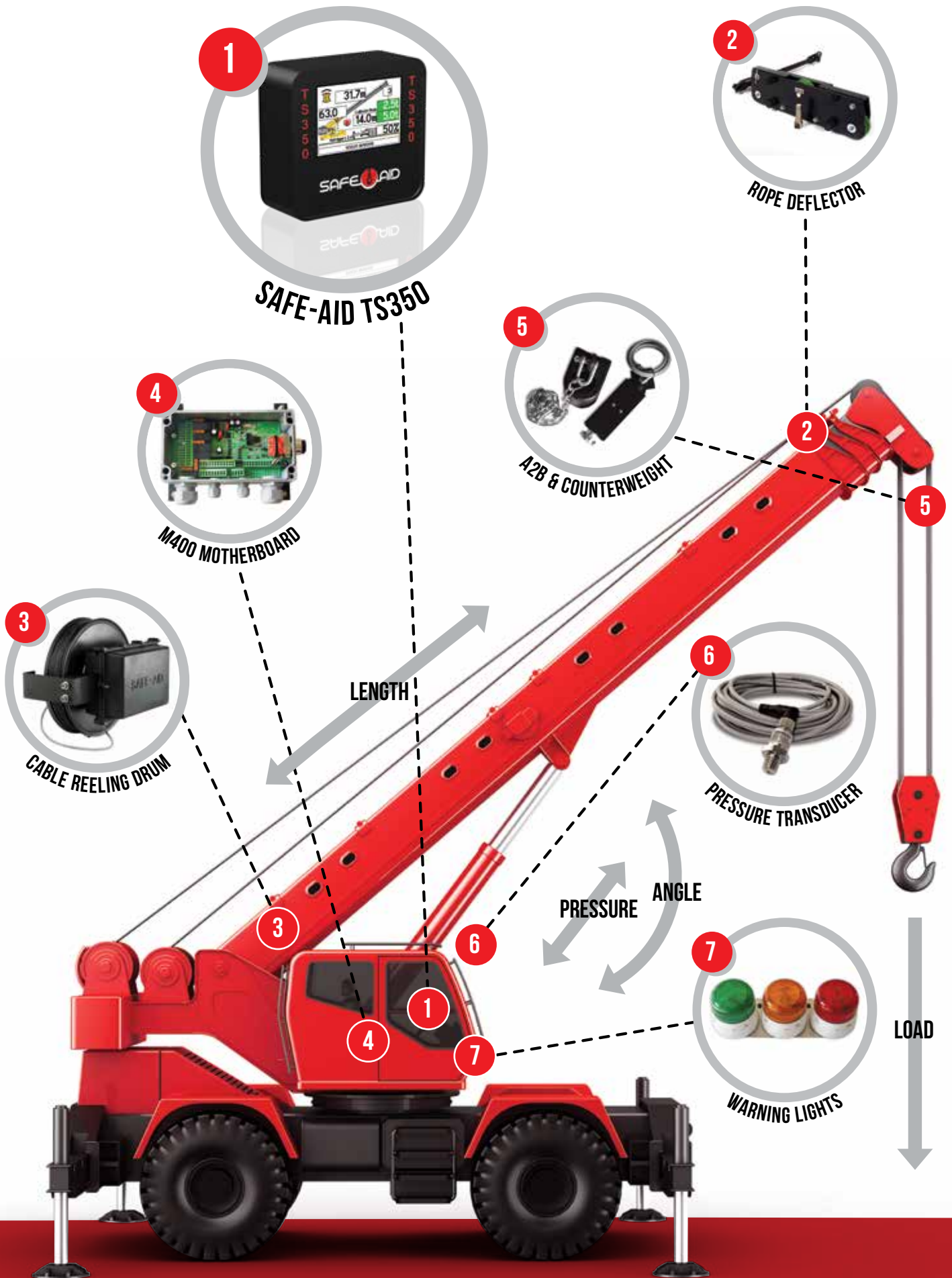
- Load Testing
- Minor Adjustments
- Operation with Weights
- Sign off

SERVICE & UPDATE

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

Consider the Safe-Aid TS350 a long term investment – immeasurable safety & support throughout the life of your crane.

TS350 CANBUS SLI FOR HYDRAULIC / TELESCOPIC MOBILE CRANES



TECHNICAL SPECIFICATIONS

TS350 ENTRY LEVEL DISPLAY UNIT

SYSTEM FEATURES

- Designed for Easy Operator Use
- System Test with Self-Diagnostic Capabilities
- Resistive Touch Screen Operation
- Colour Display with Excellent Sunlight Readability
- On-Board Basic Setup with Simple Setup Techniques
- Vibration Proof and Tested at Extreme Temperatures Including High Humidity (-20 to 70°C)
- Real-Time Clock with Calendar
- Setup with Machine ID
- Data Logger (to USB Memory Stick) – Logging of 10 000 Events
- Easily Downloadable Using USB Stick to Specifically Designed PC Software - Optional

TECHNICAL SPECIFICATIONS

- 6 – 36 VDC Input Voltage
- Multi-Layered Circuit Board – 2 layers
- 3.5" TFT Colour Touch LCD with Backlight
- Graphical Colour Screen – 256,000 Colours
- Display Resolution – 320 x 240 Pixels
- 55 x 73mm Viewing Area
- CNC Machined Nylon Box with Powder Coated Sheet Metal Backend
- Replaceable Transparent Touch Screen Protection Sticker – Seals Touch Panel
- CAN Bus Communication
- 1 x USB Device Port (USB-A)
- 1 x 85db Audible Alarm
- IP54 Environmental Protection
- Battery Backed up Real Time Clock
- Outside Dimensions 112 x 120 x 49mm (L x W x H) Excluding Mounting Bracket

SAFE-AID M400 ENTRY LEVEL MOTHERBOARD

TECHNICAL SPECIFICATIONS

- Single Multi-Layered Circuit Board – 2 Layers
- Phoenix Contact Spring Terminals
- 6 – 36VDC Input Voltage
- Fuse Protected Input Voltage – 2Amp
- 4 x Optically Isolated Digital Inputs (PNP or NPN User Selectable via Mini Jumper)
- 1 x Load Cell Input (mV input) 5V Excitation -16800 to +16800 Count Resolution
- 2 x 0 – 5VDC Analogue Input – 750 to 32500 Count Resolution
- 2 x 4-20mA Inputs – 0 to 22500 Count Resolution
- 2 x 10Amp Relay Output (Potential Free Contact) – 5Amp Fuses
- Monitored Key Switch via Digital Input for Dump/Auto- Cut Off Relay
- USB A Port for Software Upgrade
- CAN Bus and/or Wireless (Optional) Communication
- Power LED, CPU Running LED and Communication Status LED
- Outside Dimensions 220 x 120 x 100mm (L x W x H) Excluding Gland Entries
- IP66 Glass Fibre Reinforced Polyester Enclosure
- Cable Entry via SKINTOP Glands

PRESSURE SENSOR

- 4-20mA Output
- 0 – 600 Bar Measuring Range
- IP67 M12 Connector
- ¼ NPT High Pressure Hydraulic Fitting
- Pressure Spike Restriction
- Outside Dimensions 50 x 22 x 22mm (L x W x H)

BOOM TIP JUNCTION BOX – A-2-B

- Single Layered Circuit Board
- Phoenix Contact Spring Terminals
- Two A-2-B Connections
- Outside Dimensions 75 x 80 x 65mm (L x W x H)

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 $\pm 0.1^\circ$)
- 2 x Load Cell Input (mV Input)
- 2 x 0 - 5 VDC Inputs (Standard) or 2 x 4-20mA Inputs (Optional)
- 3 Analog Inputs Maximum can be Configured and used Simultaneously
- 1x 4K7 Sensing Input for Anti-2-Block Input (Can be Built as Optional Optically Isolated Digital Input)
- 3 x Optically Isolated Digital Inputs (PNP or NPN User Selectable)
- CAN Bus and/or 2.4Ghz Wireless (Optional) Communication
- Outside Dimensions 160 x 75 x 60mm (L x W x H) Excluding Gland and Plug Entries

RUNNING ROPE DEFLECTOR UNIT (OPTIONAL)

- 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 $350\Omega + 4\Omega$
- 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
- IP67 Military Specification Connector on Load Cell
- Splash Cover over Load Cell Assembly to Prevent Build-up of Grease etc.

| | | |
|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------|---------------------------------------------------------------------------------------|
| QUALITY | | |
|  TÜVRheinland CERTIFIED | Management System ISO 9001:2015 |  |
| | www.tuv.com ID 9105087034 | |

LEGAL COMPLIANCES

The TS350 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.

TS350 ENTRY-LEVEL 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

