



Sure to be Safe



Predictive & Monitoring TECHNOLOGIES



Sure to be Safe

SLP

Unique Snag Preventive System

HOSTING MODE

SLP Sensors Monitoring

UPCOMING SNAG

Detect Upcoming Snag
Using inertial sensors and predictive algorithm

STATUS CHECK

Fast re-start operation
Once SLP detects container is released from snag position, crane is ready for operation

SNAG STOP

Ultra fast closed < 100ms
USB-SLP & TEXU-SLP brakes are closed before snag load impacts the system

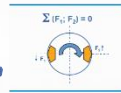
Tension release

Limited lowering/hoisting speed operation



UNIQUE TWIN CALIPER BRAKE

Service TEXU Brake take care of drive system due to NO radial load on shaft



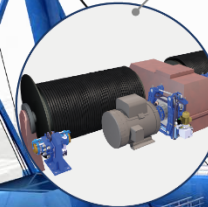
UNIQUE NO LEAKAGE BRAKE

Emergency SHI Brake NO leakage design



THE FASTEST REACTION SYSTEM

Fast detection & Fast Closing
Total Reaction time 150ms aprox

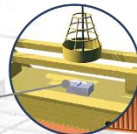


REDUNDANT DETECTION SYSTEM

Additional security due to second path detection using Load Cells

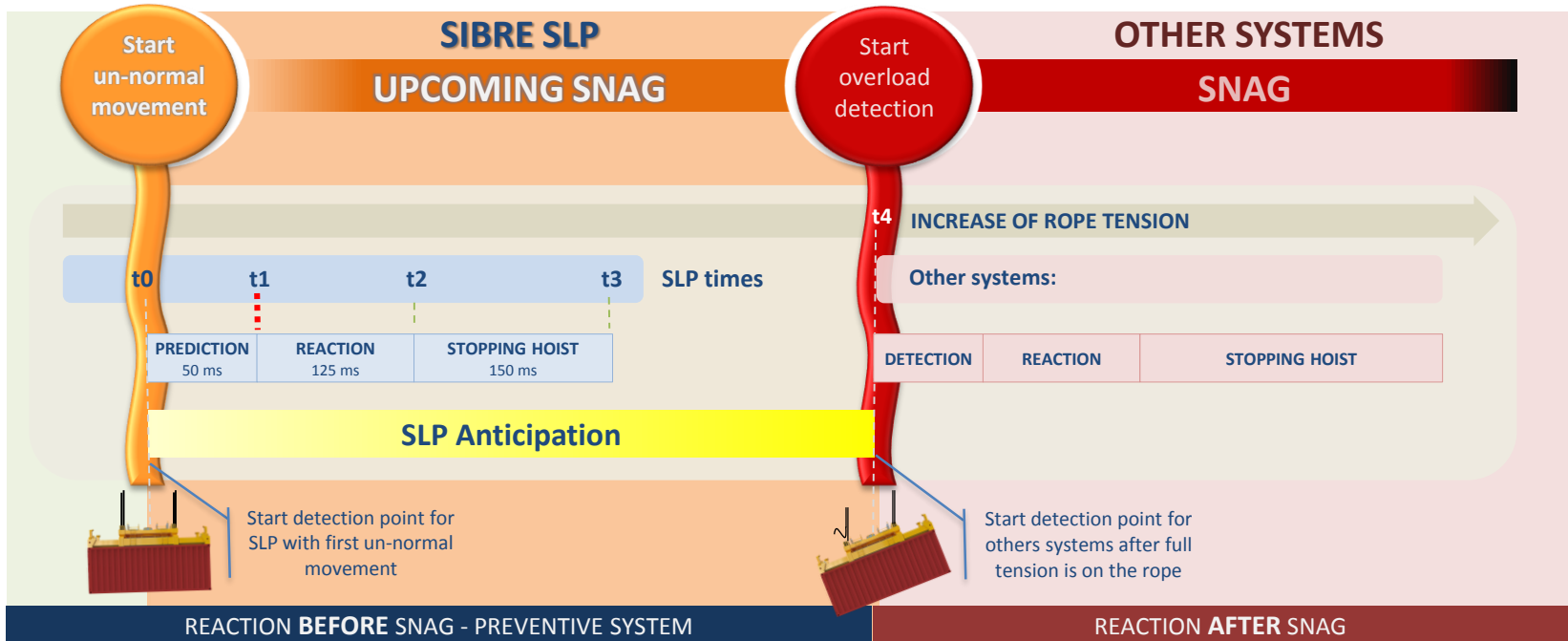
UNIQUE ANTICIPATION SYSTEM

More safe & lower stress in drive chain due to anticipation using sensors located close to upcoming snag



UNIQUE SNAG ANTICIPATION SYSTEM

SLP detects (t0) & reacts (t1) when up-coming snag is starting, meanwhile others systems start reaction only after full snag/overload happens (t4)



- t0: SLP detects an un-normal movement start
- t1: SLP reacts with confirmation of up-coming snag
- t2: SLP-brakes are closed with full torque
- t3: Stop hoist system

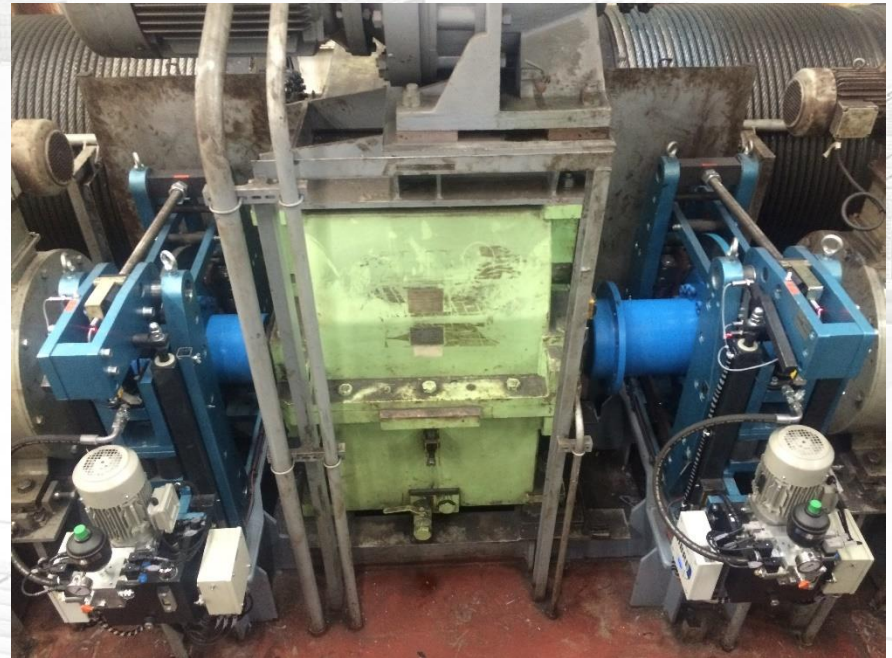
t4: Tension in rope/overload to start detection by others systems

	SLP	
SNAG	Detection ¹	False Alarm ¹
10	10	0

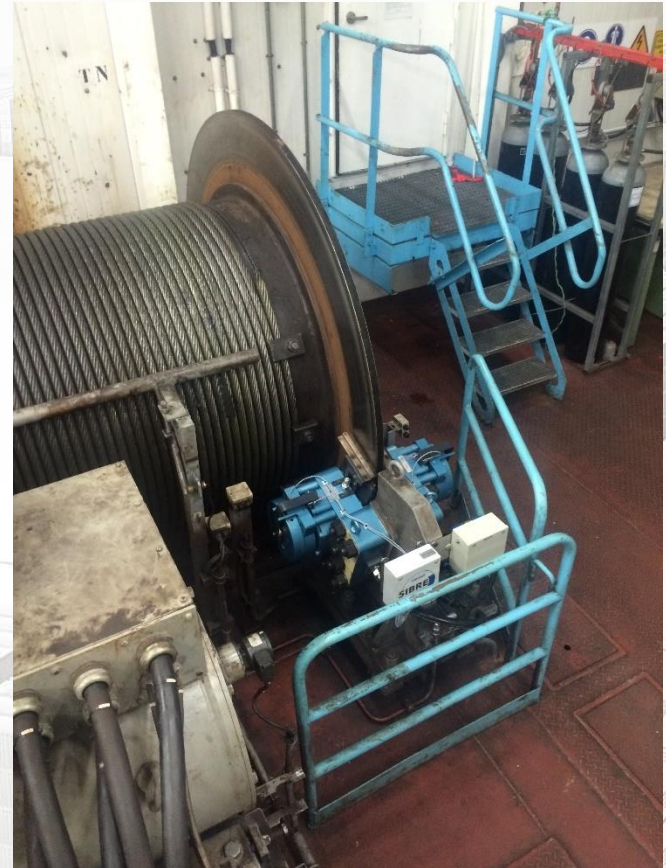


Ref	Date	Prediction Time (ms)	Reaction Time (ms)	Braking Time (ms)	Stopping Time (ms) Stopping Distance (m)		Hoist Status			
		t0-t1	t1-t2	t1-t3	t1-t3		Hoist (m/min)	Weight (T)	Spreader (ft)	Type
S1 ⁴	10.08.2017	355	150	144	294	0,4	150	30	40	Single
S2	12.10.2017	55	110	55	165	0,17	30	57	40	Twin
S3	25.11.2017	53	127	165	292	0,38	52	empty	20	Single
S4	23.12.2017	49	119	91	210	0,1	35	23	40	Twin
S5	16.02.2018	215	120	240	360	0,36	94	empty	40	Single
S6	31.03.2018	4	116	36	152	0,06	32	empty	40	Single
S7	19.06.2018	5	130	316	446	0,79	162	empty	40	Single
S8	14.07.2018	50	119	234	353	0,48	127	60	20	Single
S9	08.08.2018	30	136	69	205	0,11	44	empty	20	Single
S10	30.08.2018	15	129	181	310	0,37	106	empty	20	Single
Average fine adj. <small>(S1 not included)</small>		53	123	154	277	0,31				

TEXU-SLP ■ Main hoist



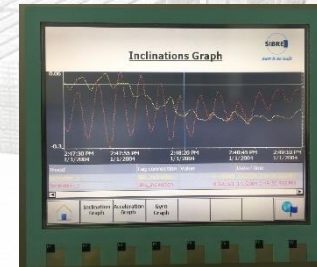
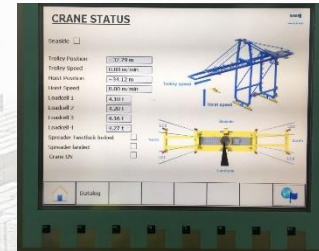
SHI-SLP ■ Main hoist



SLP Reset - Operator Cabin



SLP-PLC - Electrical Room



TEXU-SLP



Test





Sure to be Safe

SLP

▶ **Certifications**

A 3D wireframe rendering of a port or industrial facility, showing numerous stacks of containers and a large cargo ship docked at a pier. A prominent yellow circle is overlaid in the center of the image, containing the text "SIL2 Functional Safety PLd".

SIL2
Functional Safety
PLd

SLP Installation - APMT
Working in watching mode

SLP 100%Active

SLP type approval
from APMT HQ

SLP Installation in
DWP Dubai

2016

2017

2018

2019

1st year full operation:
x10 snag detected
x0 false alarms



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SMART

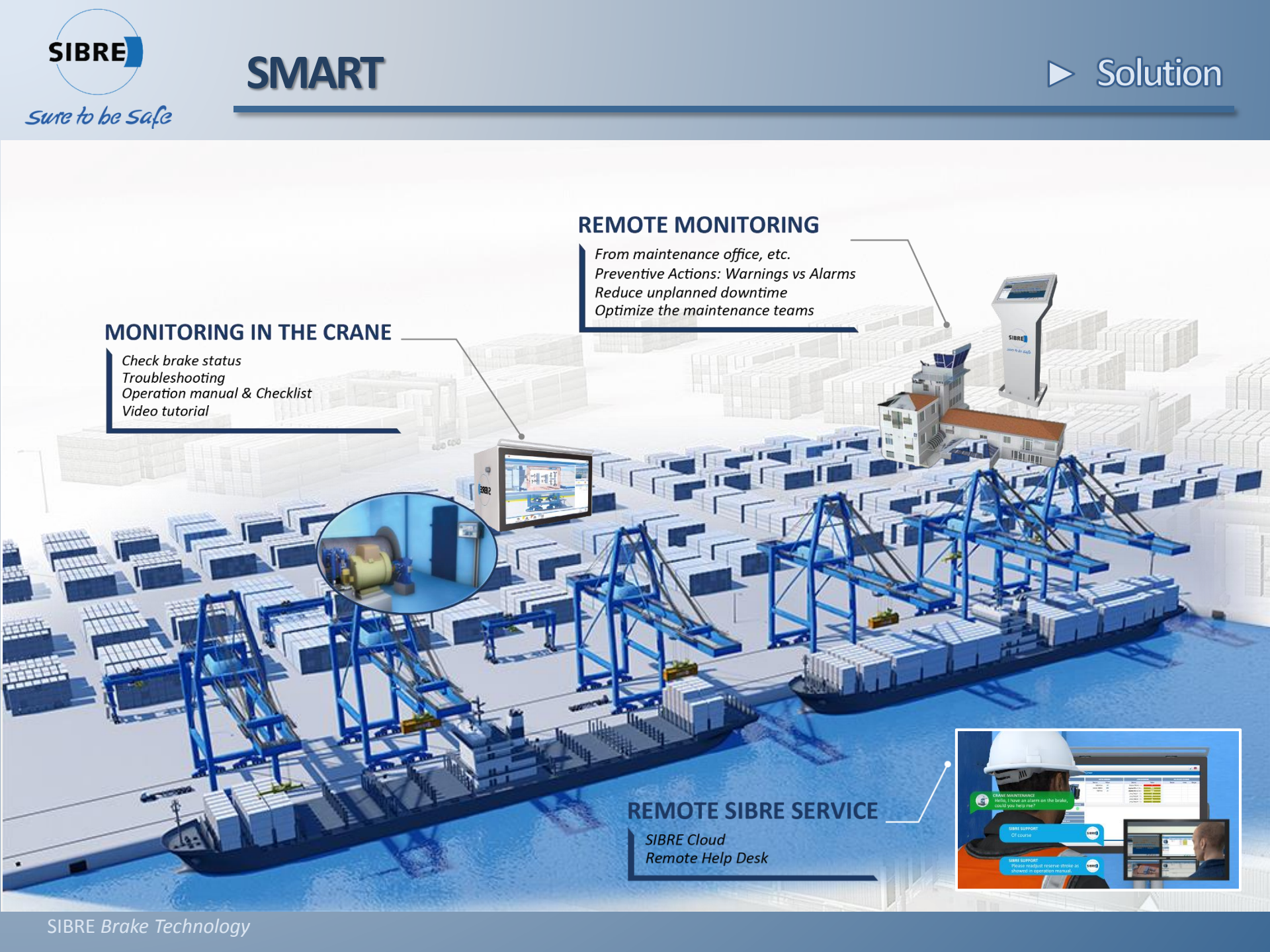
Unique Monitoring Preventive System

REMOTE MONITORING

From maintenance office, etc.
Preventive Actions: Warnings vs Alarms
Reduce unplanned downtime
Optimize the maintenance teams

MONITORING IN THE CRANE

Check brake status
Troubleshooting
Operation manual & Checklist
Video tutorial



REMOTE SIBRE SERVICE

SIBRE Cloud
Remote Help Desk



Sure to be Safe

SIBRE SMART

▶ SMART platform

The screenshot displays the SIBRE SMART web platform interface, which is a drill-down web platform for monitoring crane systems. The interface is organized into several sections:

- Navigation and Location:** Includes a sidebar with 'Mundo' (World) and 'Málaga' location options, and a top navigation bar with a language selector (English flag).
- System Overview:** Shows 'GRÚA: SIBRE' and 'MAIN HOIST' information, including a terminal ID 'SIBRE OC1' and a brake unit 'TEKU #01'.
- Sensors Data:**
 - SENSORES DIGITALES (Digital Sensors):**

Sensor	Valor
Brake Open	YES
Manual Release	OFF
Pad Wear	OK
 - SENSORES ANALÓGICOS (Analog Sensors):**

Sensor	Valor
Reverse Stroke (mm)	16
Scale #1 (Nm)	4033
Scale #2 (Nm)	3527
Lining Temp #1 (°C)	14
Lining Temp #2 (°C)	4
Lining Temp #3 (°C)	3
Lining Temp #4 (°C)	1
 - SENSORES CALCULADOS (Calculated Sensors):** A table with columns for Sensor, Valor, and Rango, currently empty.
- TIEMPO REAL (Real Time):** A line graph showing data over time from 17:34:00 to 17:35:00. The y-axis ranges from -1k to 1k. A blue line shows a sharp increase in the data around 17:34:35.
- Alerts and Warnings:** A section with 'ALERTAS' and 'WARNINGS' indicators, showing a red '3' for alerts and a yellow '0' for warnings.
- General Data:** A list of technical specifications for the brake unit:
 - TIPO: TEKU
 - MODELO: 800-E
 - SOT: 00113ae3
 - ACTUADOR: EB2000/120
 - GRÚA: SIBRE OC1
 - POSICIÓN: Left-Seaside
 - KOM: 123456
 - TAMAÑO DEL DISCO: 900x30
- Footer:** A navigation bar with icons for 'NEWS', 'ALERTS', 'WARNINGS', and 'USER MANUAL'.

Worldwide

Port

Crane

System

Brake

**Drill-down web platform:
Worldwide, port, crane, system and brake overview**



Sure to be Safe

SMART 3.0

▶ Assistance on-site

The most powerfull & friendly platform

Sibre Málaga · Sibre TS1 Slave · Main Hoist · TEXU 800-E

RESERVE STROKE

OPEN ●



SENSOR STATUS

SDT Channel: #13

Reserve Stroke
 Adjust Value: 16 mm.
 Limit: Min. 8 mm. - Max. 24 mm.
 Normal operation range: 10 mm. - 20 mm.

CURRENT SENSOR STATUS: **OK** (13 mm.)

Everything is fine for this sensor.

ADJUSTMENT SENSORS

Reserve Stroke	13 mm.
Torque Adjusted	19700 Nm. NO SIGNAL

DIAGNOSYS SENSORS

Pad Wear	OK
Lining Temp	33° 32° 28° 113°
Operations per Hour	68 C/h

STATE SENSORS

Brake Open	YES
Manual Release	OFF
Total Brake Operation	251

SMART BRAKES



SMART BRAKES



MONITORING ON-SITE





Sure to be Safe

SMART

▶ Gallery – APMT ALR

MONITORING ON-SITE



MONITORING ON-SITE



MONITORING from maintenance Office



A large, bold, black CE mark is positioned on the left side of the slide, partially overlapping the background image of a port.

Non-substantial modification of machines

SIBRE SMART keeps CE certification of the machine where it is installed, and increases the safety and reability of the machine.

Certified by i9s - Industrial Safety Engineering

CURRENT SIBRE MONITORING PROJECTS





Sure to be Safe

SLP & SMART systems

Thank you for your attention!

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