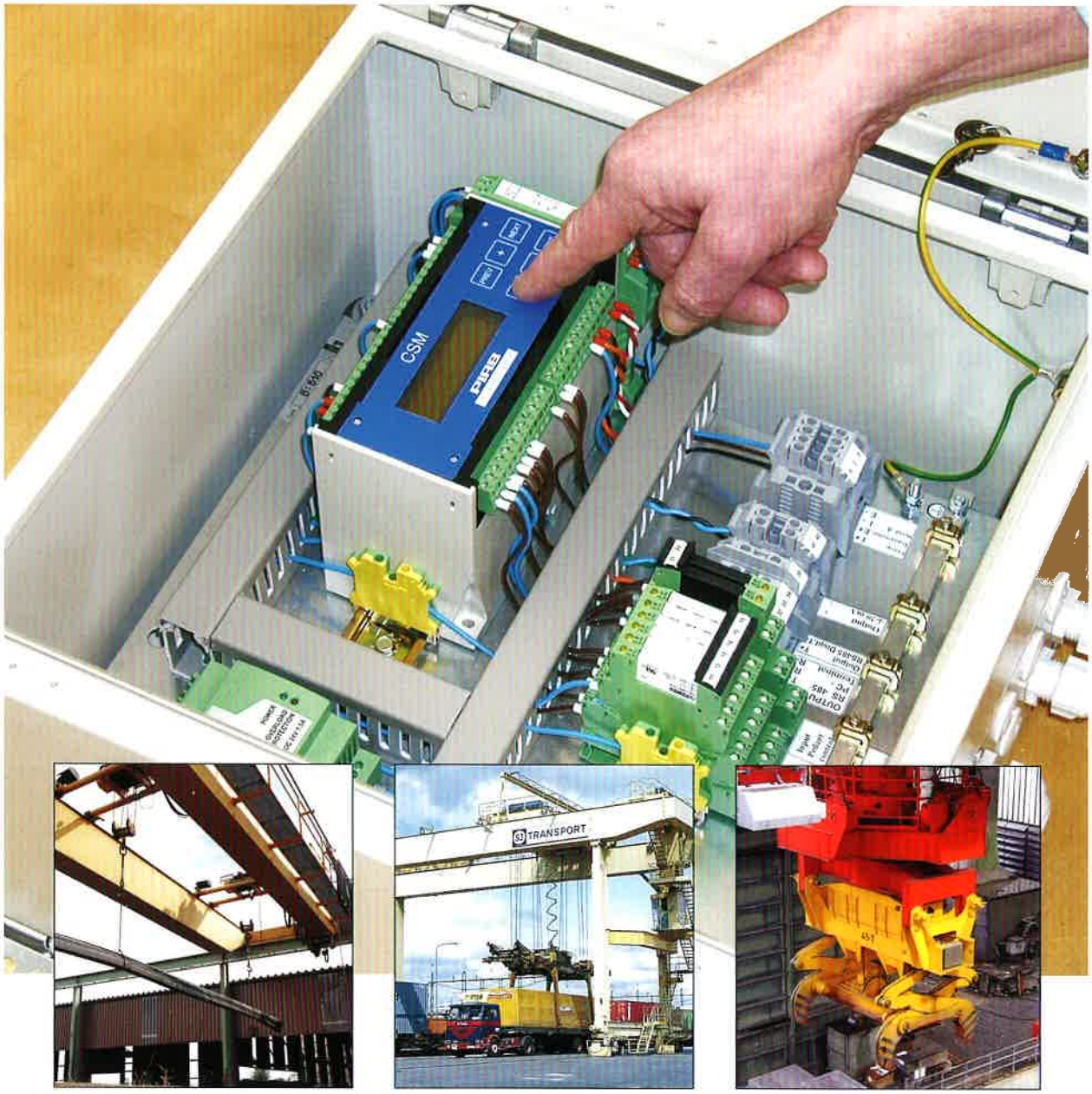
PIAB CSM Electronic Unit

for Overload Protection and Operation Recording of Lifting Devices



PIAB Crane Safety Monitor (CSM) is an electronic control unit to be used in overload protection systems. The CSM evaluates and computes signals from force transmitters and can be set for alarm at preset alarm limits. By installing the CSM, hazards for personnel and material can be avoided. The CSM will also record the operation of the hoist. The CSM is designed for indoor and outdoor operation in aggressive and demanding industrial environments.

RANGE OF APPLICATION

The CSM unit evaluates and computes signals from one or more force transmitters. The PIAB CSM is designed to be easily incorporated into new lifting equipment or to be retrofitted into existing systems.

The calibration and operation of the CSM has been simplified in comparison with existing overload protection systems. All adjustments and controls are made with six pushbuttons at the display panel. No potentiometers to adjust!

FUNCTION

The PIAB CSM controls and monitors the following functions and operations:

- Limits for slack rope control, load difference and overload, individual and overall.
- Display of individual and overall loads.
- Display of load peak values.
- Display of total service time.
- Display of overload service time.
- Display of full load hours, Safe Working Period (SWP) and Condition Monitoring according to ISO 12482-1.

Options:

- Load boom angle.
- Allowed load difference between two parallel working lifting gears.
- RS485 output to remote display, computer or to fieldbus converter to Profibus DP, etc.

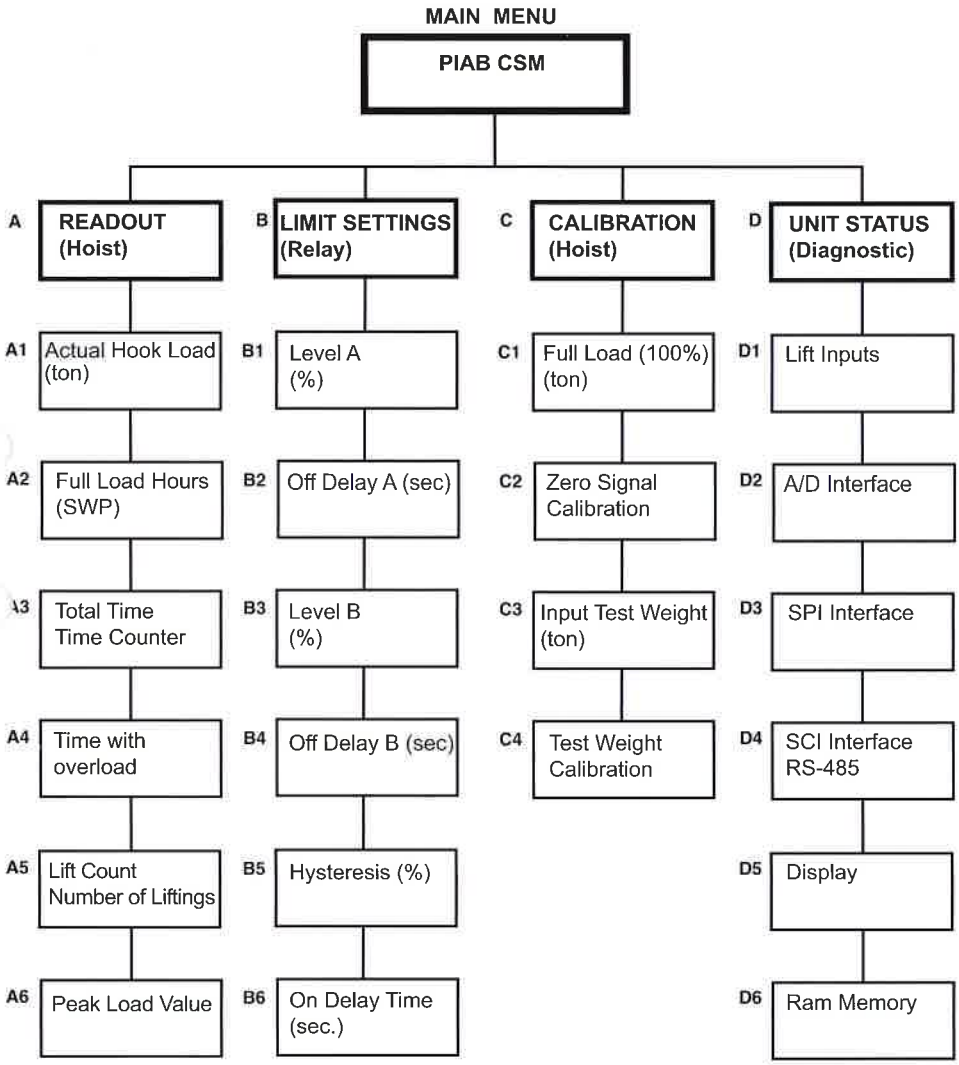
SAFETY

- PIAB CSM Units are self-checking. Malfunction of the force transmitter or cable will indicate overload.
- Protects personnel and property against hazards due to overload.
- Records crane operations.
- An entry code protects all calibrations and settings against unauthorized interference.

ECONOMY

- Reduces crane maintenance, downtime and costs.
- To be used when selecting classification code for new lifting gear investments.
- Monitors the operational conditions of the crane as well as the recommended service intervals. This monitoring enables full utilisation during the crane's entire life period, SWP (Safe Working Period).

DESCRIPTION FOR PIAB CSM



TECHNICAL DATA

OPERATING VOLTAGE
85-264 V AC, 47-440 Hz or 120-370 VDC.

ENCLOSURE
Dimensions 380x380x210 mm.

PROTECTION CLASS
IP65.

TEMPERATURE RANGE
-20°C to +70°C.

INPUT FORCE TRANSMITTERS
Current signal, 4-20 mA.

LIMIT SETTINGS
Two limit settings for each relay.

The switch limits can be set with "on-" or "off-" delay up to 5 seconds. Optionally, further limit settings can be made.

Switching capacity 5 A, 250 VAC. Higher switching capacity can be achieved by installing contactors as an option.

RECORDING OF HOISTING MOVEMENT
Two Inputs: low and high speed. Voltages: 12 VDC, 24 VDC, 115 VAC or 230 VAC.

OUTPUT
RS 485 serial, can be used for Remote Display or for other purposes.

ANALOGUE OUTPUT
4 - 20 mA

DISPLAY (BUILT IN)
LCD, 2 rows each with 16 alphanumeric characters. Height of characters is 5 mm, back light.

SETTING OF SWITCH LEVELS/ PROGRAMMING
Simply with 6 push buttons at panel.

Examples of applications for PIAB CSM

Electrical Overhead Traveling Crane (EOT Crane) with two hoists

Equipped with force transmitters for individual overload protection for each hoist and overall overload protection and load indication (display).

Container Crane

Equipped with overload protection and load indication for each corner and side of the container, as well as overload protection and load indication for the total container weight.

EOT Crane for Handling Slabs in Steelworks

The PIAB LKVE-8 force transmitter is mounted at each of the eight wire rope dead-ends. The eight LKVE-8 together with the PIAB CSM electronic unit protect the crane against load imbalances and overloading. Current load or force on each force transmitter and total load can be read at the PIAB CSM display.

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0502-1_101005

PIAB Overload Guard

The solution for your lifting problems

PIAB Crane Safety Monitor (CSM) is an electronic control unit to be used in Overload Protection Systems.
The CSM evaluates and computes signals from force transducers and can be set to preset alarm limits.
By installing the CSM, many types of hazards for personnel and material can be avoided.

The CSM also enables recording of the operation service time of the hoist.
The CSM is designed for indoor or outdoor operation in aggressive and demanding industrial environments.

- **Protects people and property.**
- **Reduces crane maintenance and downtime costs.**
- **The design enables easy and quick installation into a new or existing lifting equipment.**

At present PIAB is looking for more partners worldwide.

GIGASENSE
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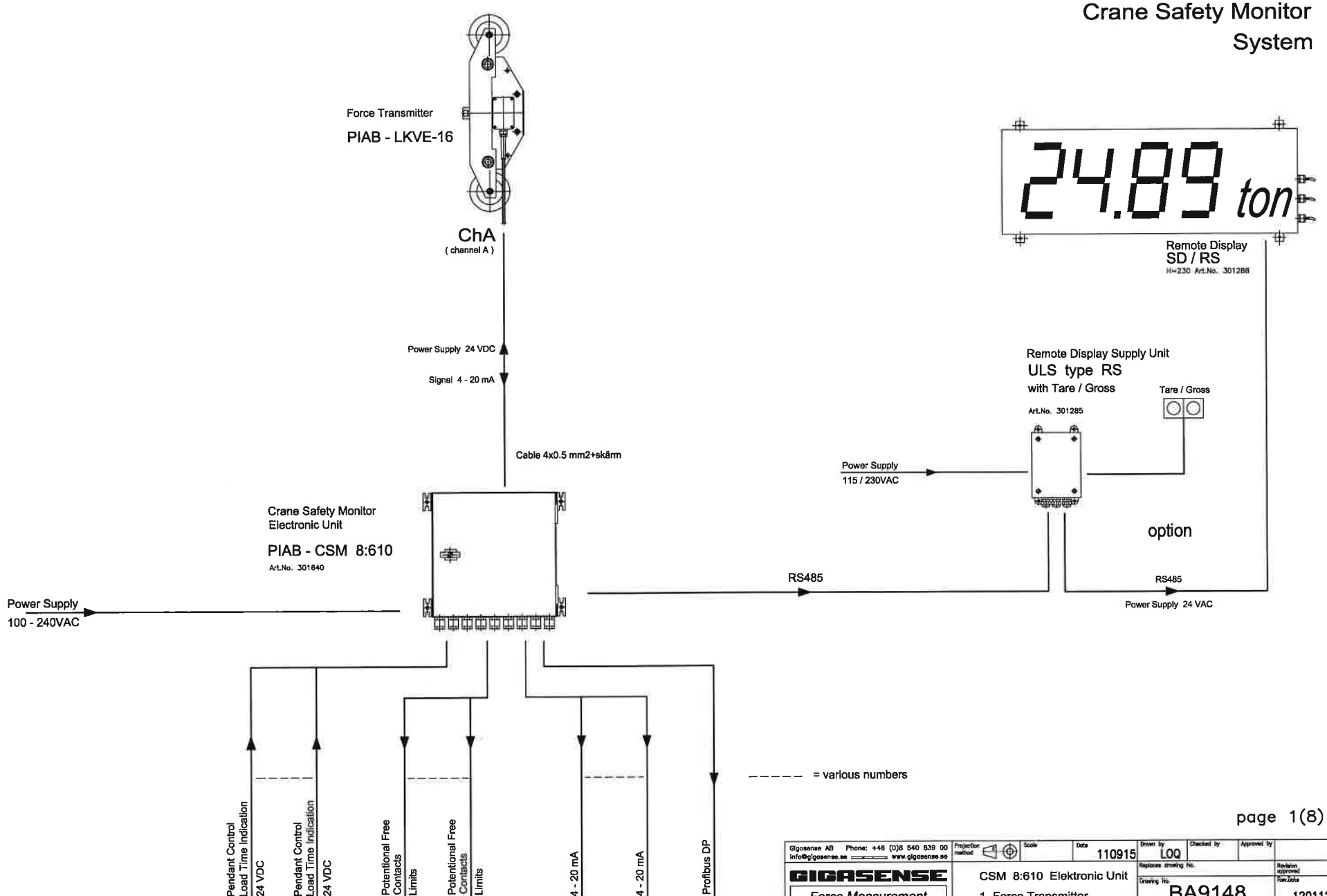
B
Phone Int +46 8 540 839 00, Fax Int +46 8 540 2

PIAB - CSM 8:610

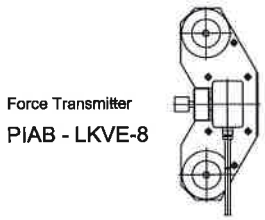
Crane Safety Monitor System



Gigosense AB Phone: +46 (0)8 540 839 00 info@gigosense.se www.gigosense.se	Projection method	Scale	Date 110915	Drawn by LOQ	Checked by / Approved by
GIGASENSE Force Measurement	CSM 8:610 Elektronic Unit 1 Force Transmitter			Replaces drawing No.	Revision approved
				Drawing No. BA9148	Rev.Date 120112

PIAB - CSM 8:611

Crane Safety Monitor System

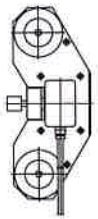


Force Transmitter
PIAB - LKVE-8

ChA
(channel A)

Power Supply 24 VDC

Signal 4 - 20 mA

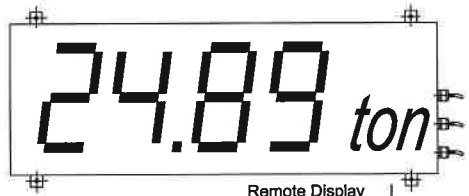


Force Transmitter
PIAB - LKVE-8

ChB
(channel B)

Power Supply 24 VDC

Signal 4 - 20 mA



Remote Display
SD / RS
H=230 Art.No. 301288

Cable 4x0.5 mm2+skärm

Remote Display Supply Unit
ULS type RS
with Tare / Gross

Art.No. 301285

Tare / Gross

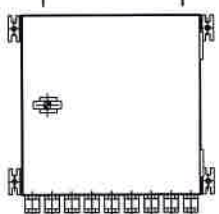
Power Supply
115 / 230VAC

option

Crane Safety Monitor
Electronic Unit

PIAB - CSM 8:611

Art.No. 301641



RS485

RS485

Power Supply 24 VAC

Power Supply
100 - 240VAC

Pendant Control
Load Time Indication
24 VDC

Pendant Control
Load Time Indication
24 VDC

Potentional Free
Contacts
Limits

Potentional Free
Contacts
Limits

4 - 20 mA

4 - 20 mA

Profibus DP

----- = various numbers

===== = one channel or sum or difference

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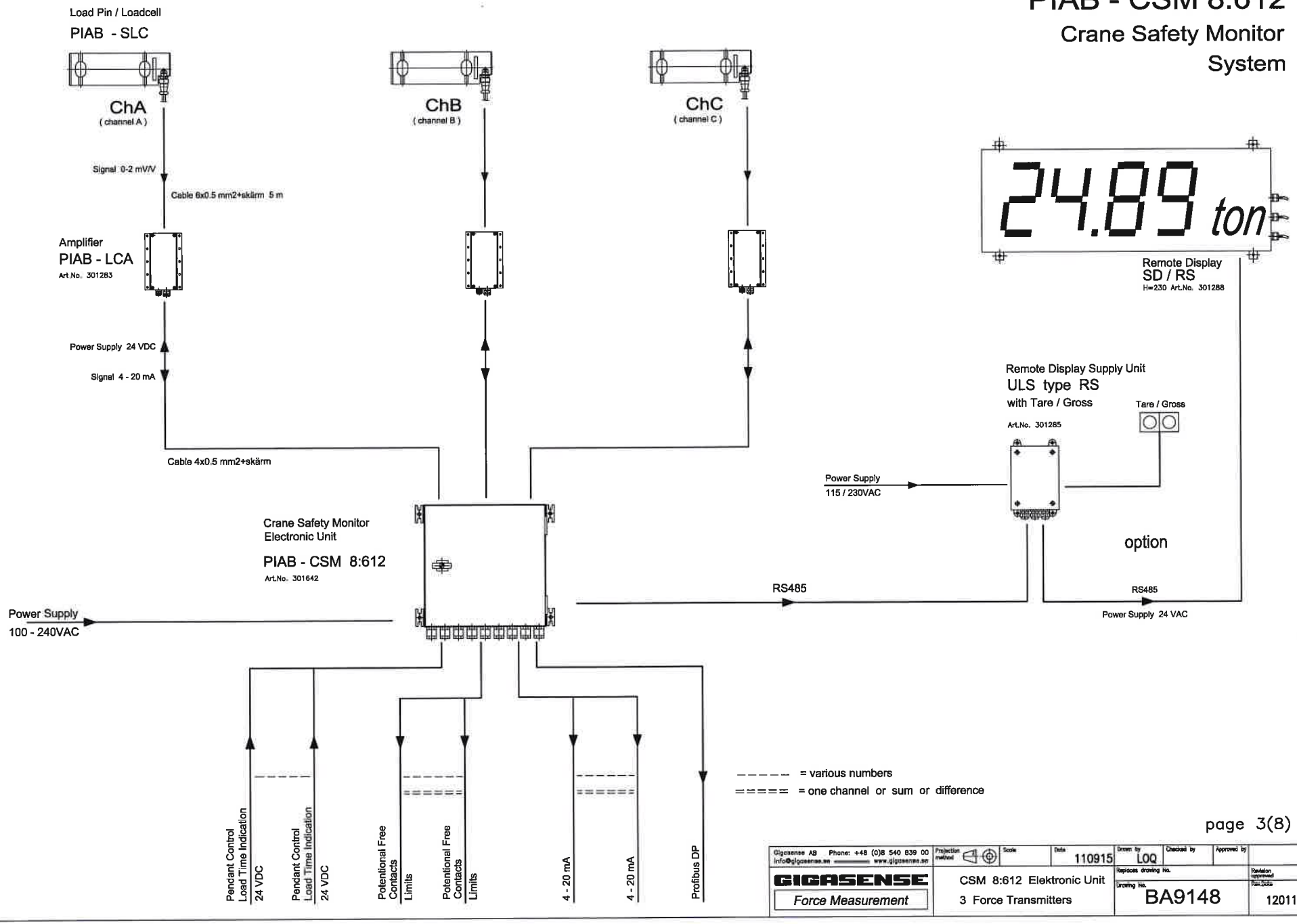
Projection method	Scale	Date 110915	Drawn by LOQ	Checked by	Approved by
GIGASENSE Force Measurement	CSM 8:611 Elektronic Unit 2 Force Transmitters		Replaces drawing No.		Revision approved
			Drawing No. BA9148		Rev.Date 120112

PIAB - CSM 8:612

Crane Safety Monitor System



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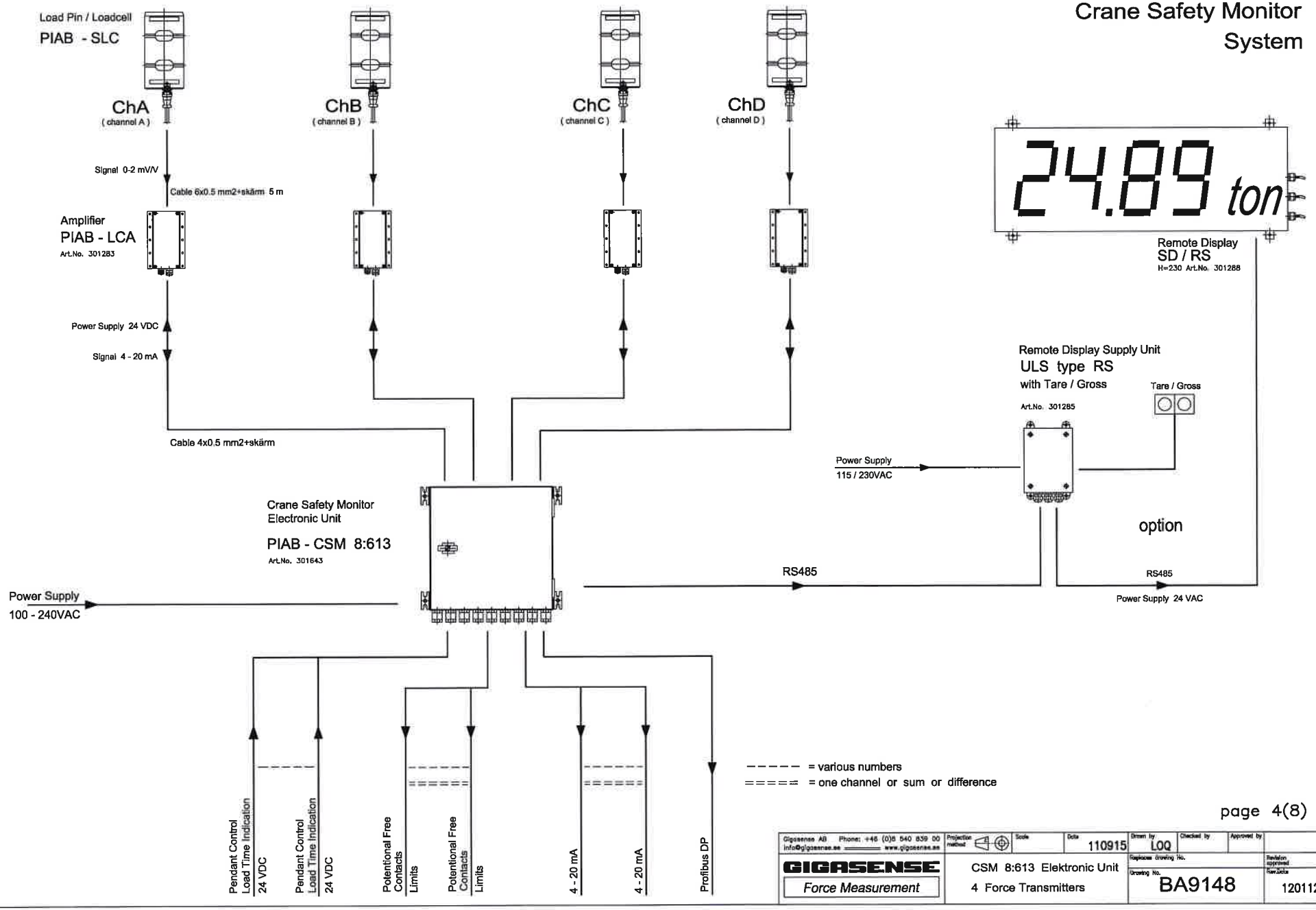
GIGASENSE Force Measurement	CSM 8:612 Elektronic Unit 3 Force Transmitters		Replaces drawing No. Drawing No. BA9148		Revision approved Rev. Date 120112

PIAB - CSM 8:613

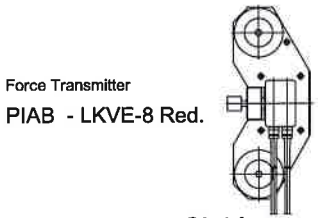
Crane Safety Monitor System



Gigasense AB Phone: +46 (0)8 540 839 00 info@gigasense.se www.gigasense.se	Projection method	Scale	Date 110915	Drawn by LOQ	Checked by	Approved by
GIGASENSE Force Measurement	CSM 8:613 Elektronic Unit 4 Force Transmitters			Replaces drawing No. Drawing No. BA9148		Revision approved Rev.Date 120112

PIAB - CSM 8:644

Crane Safety Monitor
Redundant System



Force Transmitter

PIAB - LKVE-8 Red.

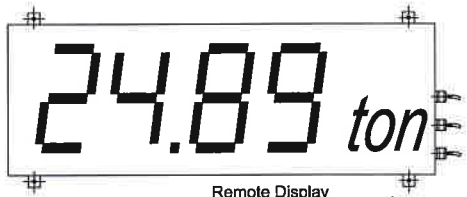
Ch1A
(channel 1A)

Ch2A
(channel 2A)

Power Supply 24 VDC
Signal 4 - 20 mA

Power Supply 24 VDC
Signal 4 - 20 mA

Cable 4x0.5 mm2+skärm



Remote Display
SD / RS
Art.No. 301288

Remote Display Supply Unit
ULS type RS
with Tare / Gross
Art.No. 301285

Tare / Gross

Power Supply
115 / 230VAC

option

Crane Safety Monitor
Electronic Unit

PIAB - CSM 8:644
Art.No. 301644

Power Supply
100 - 240VAC

RS485

RS485
Power Supply 24 VAC

Category 3 Alarms
Potentional Free Contacts

Load Time Indication
24 VDC

Load Time Indication
24 VDC

24 VDC Supply (Customer)

Limits
0 / 24 VDC

Limits
0 / 24 VDC

4 - 20 mA

4 - 20 mA

Profibus DP

- - - - - = various numbers

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GIGASENSE
Force Measurement

Projection method	Scale	Date	Drawn by	Checked by	Approved by
		110915	LOQ		

CSM 8:644 Elektronic Unit
1 Redundant Force Transm.

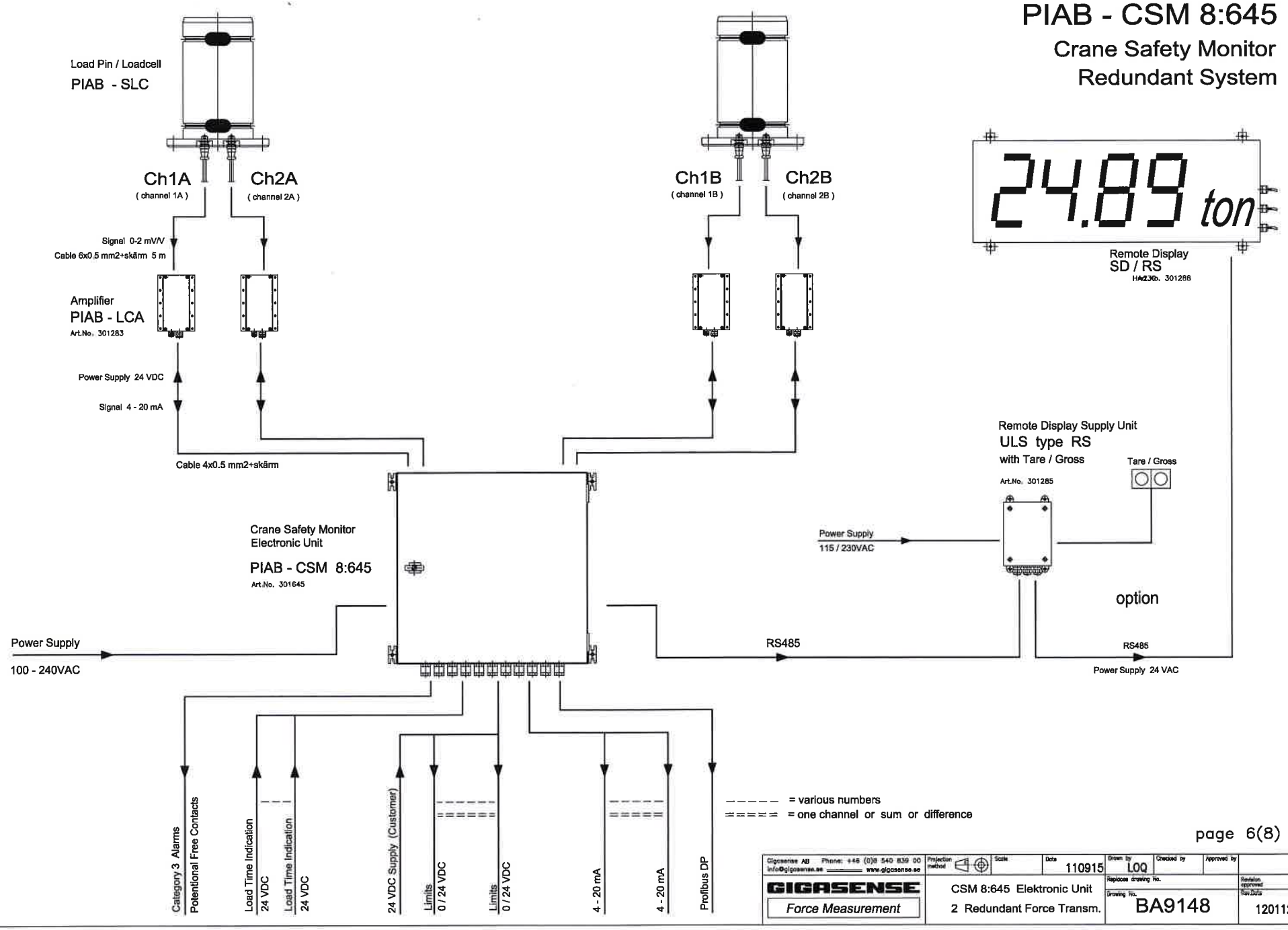
Replaces drawing No.

Drawing No. BA9148

Revision approved
Rev.Date 120112

PIAB - CSM 8:645

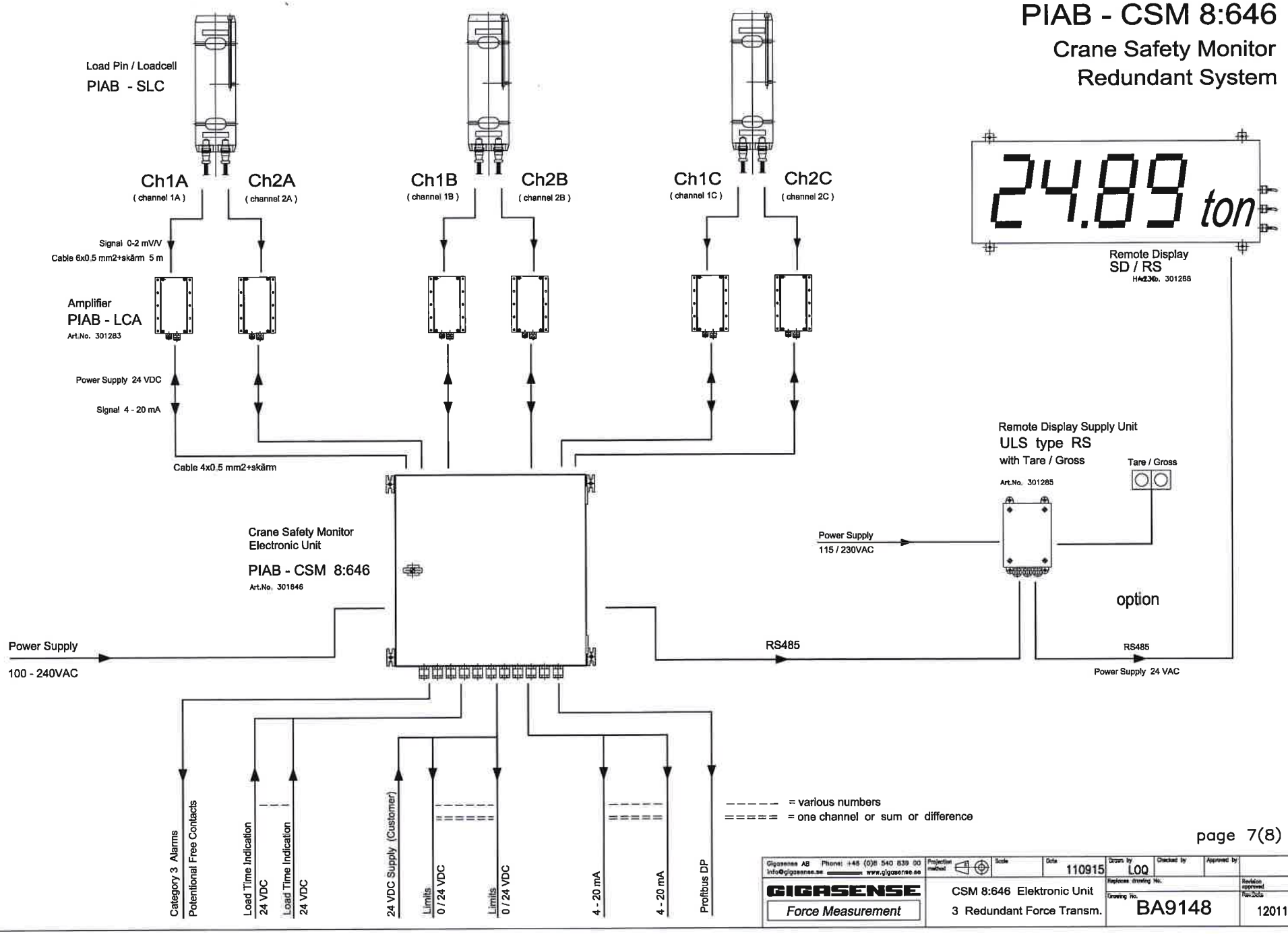
Crane Safety Monitor
Redundant System



Gigasense AB Phone: +46 (0)8 540 839 00 info@gigasense.se www.gigasense.se	Projection method	Scale	Date 110915	Drawn by LOQ	Checked by	Approved by
GIGASENSE Force Measurement	CSM 8:645 Elektronic Unit 2 Redundant Force Transm.			Replaces drawing No.		Revision approved Rev.date
				Drawing No. BA9148		120112

PIAB - CSM 8:646

Crane Safety Monitor
Redundant System



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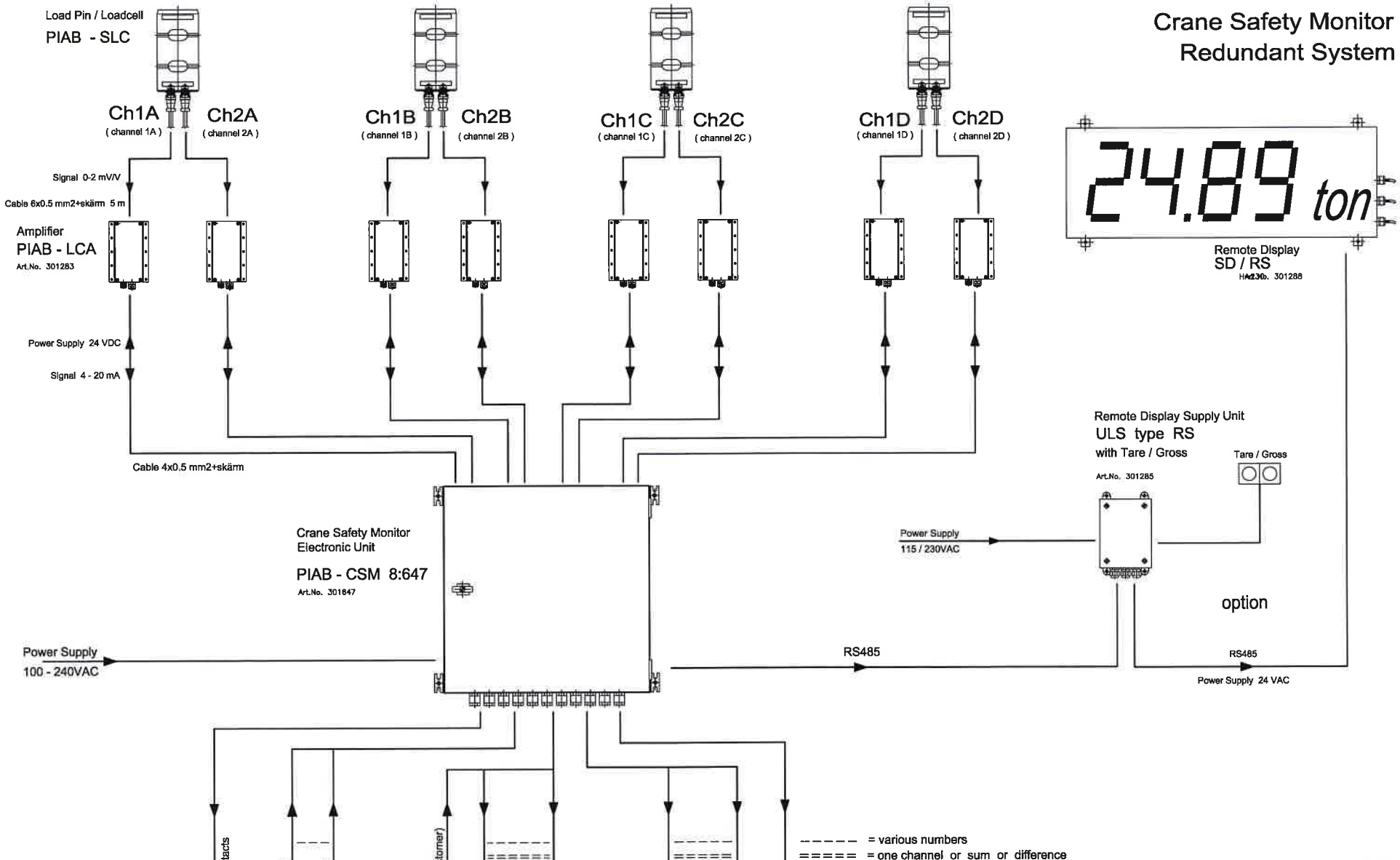
GIGASENSE Force Measurement	CSM 8:646 Elektronic Unit 3 Redundant Force Transm.			Replaces drawing No.		Revision approved
				Drawing No. BA9148		Rev.Date 120112

PIAB - CSM 8:647

Crane Safety Monitor
Redundant System



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Projection method	Scale	Date 110915	Drawn by LOQ	Checked by	Approved by
GIGASENSE Force Measurement	CSM 8:647 Elektronic Unit 4 Redundant Force Transm.		Replaces drawing no.		Revision approved Rev.Date
			Drawing No. BA9148		120112