



ALM 100N BLACKBOX

More than 25,000 units installed

General information



- System designed to **control the overload**, slack cable and other desired points in the elevation devices.
- Controller of the **SWP (Safe Working Period)** according to the UNE 58919 norm
- Individual and simultaneous elevation.
- It can be connected on any kind of weight pickup sited in: fixed spur, turn pulley, carrier, cable, etc.



Characteristics



- 2 weight inputs
- Load limitator per zone
- 8 programmable limits
- RS-232-C bidirectional connection
- Optional multipoint alignment for cells or non lineal applications
- Bi-directional RS-422 o 485 connection
- Output voltage 0...10V
- Output current 0...20mA o 4...2mA
- Output by cable
- Booster



SWP formula

(Safe Working Period)

Remaining hours

Hours of theoretical use (defined in factory)

$$SWP = D \cdot \frac{K^3 \cdot t}{1000}$$

$\frac{\text{Real load}}{\text{Nominal load}}$ (minimum $K=0,5$)

Time of lifting or lowering of the hoist

Functions



- Control of the **Safe Working Period (SWP)**, established by the norm.
- Control of:
 - Number of maneuvers of elevation
 - Number of maneuvers of impulses
 - Time of maneuver of elevation
 - Number of overloads
 - Number of bypass overloads
 - Activation of review for number of hours or date
- **PC Connection:**
 - Wifi control
 - Radio remote control
 - GSM control

Software Advantages



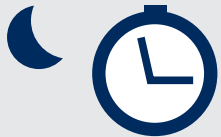
- Saving costs of working personnel
- Saving costs of crane maintenance



- Preventive maintenance which prolongs the life of the machine



- Fulfilment of the **European Union regulations.** (UNE 58919)



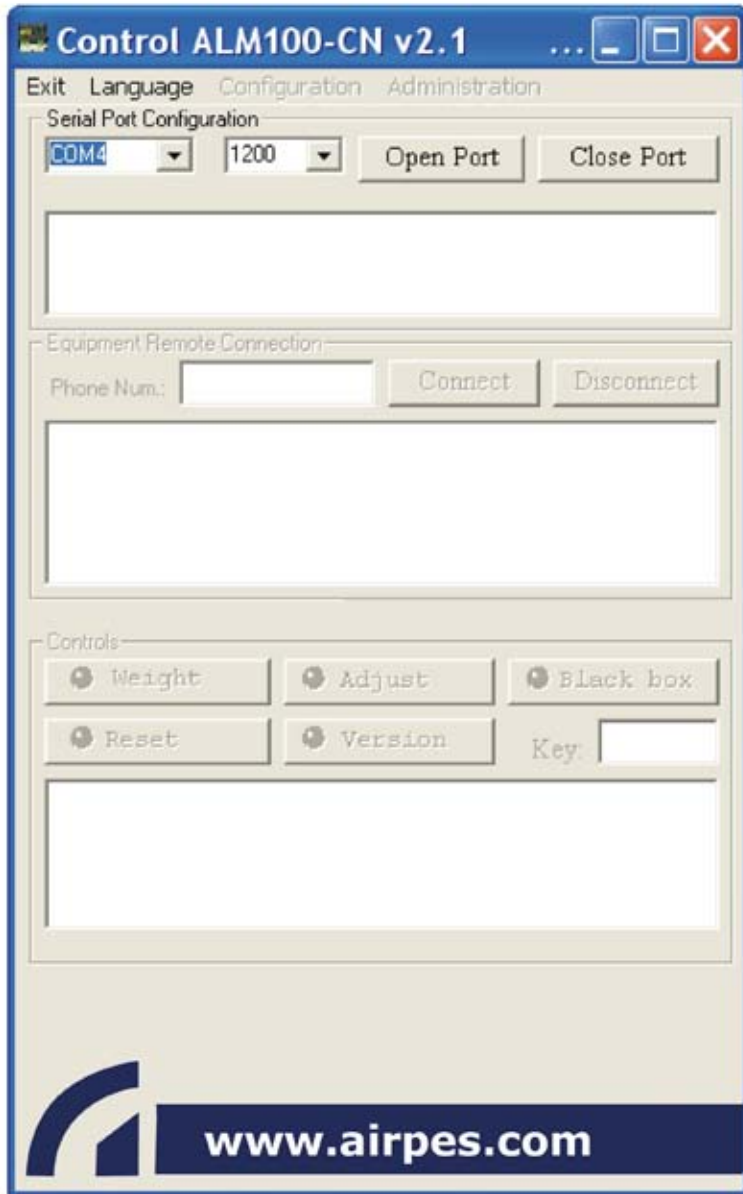
- Calculation of the shift productivity



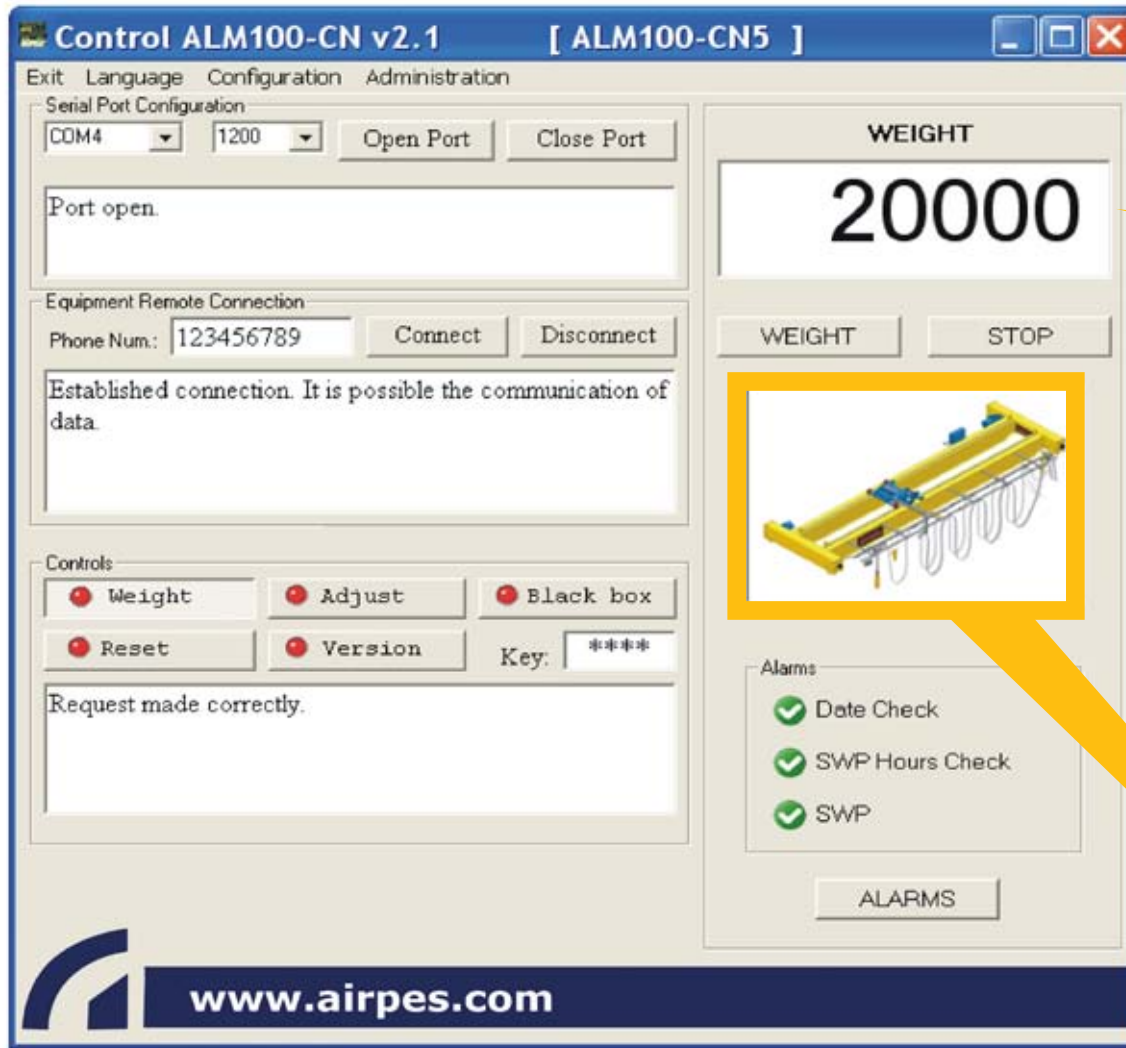
- Avoiding of unnecessary working risks



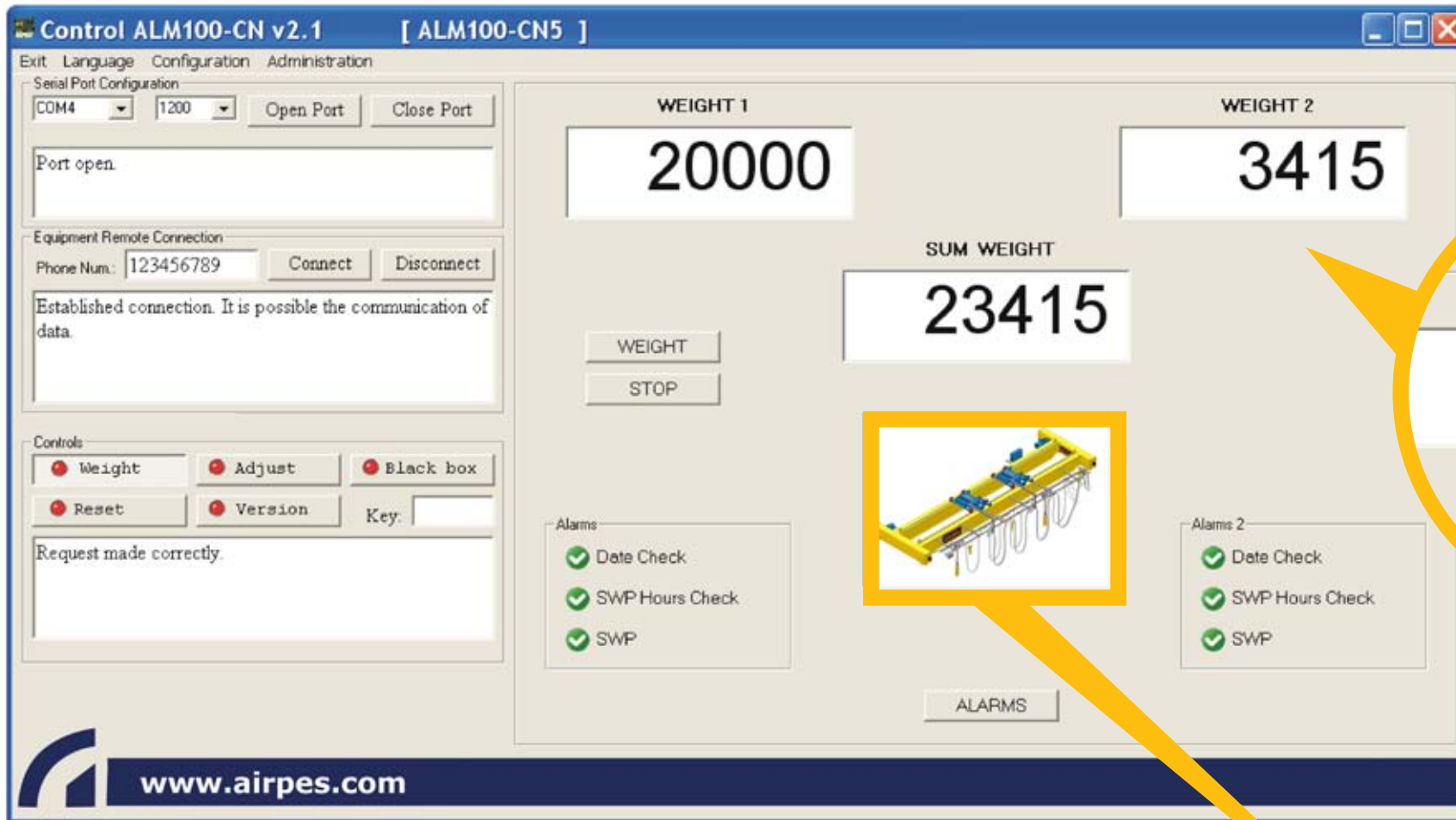
- Remote Control of all the cranes (24h 7 days per week)



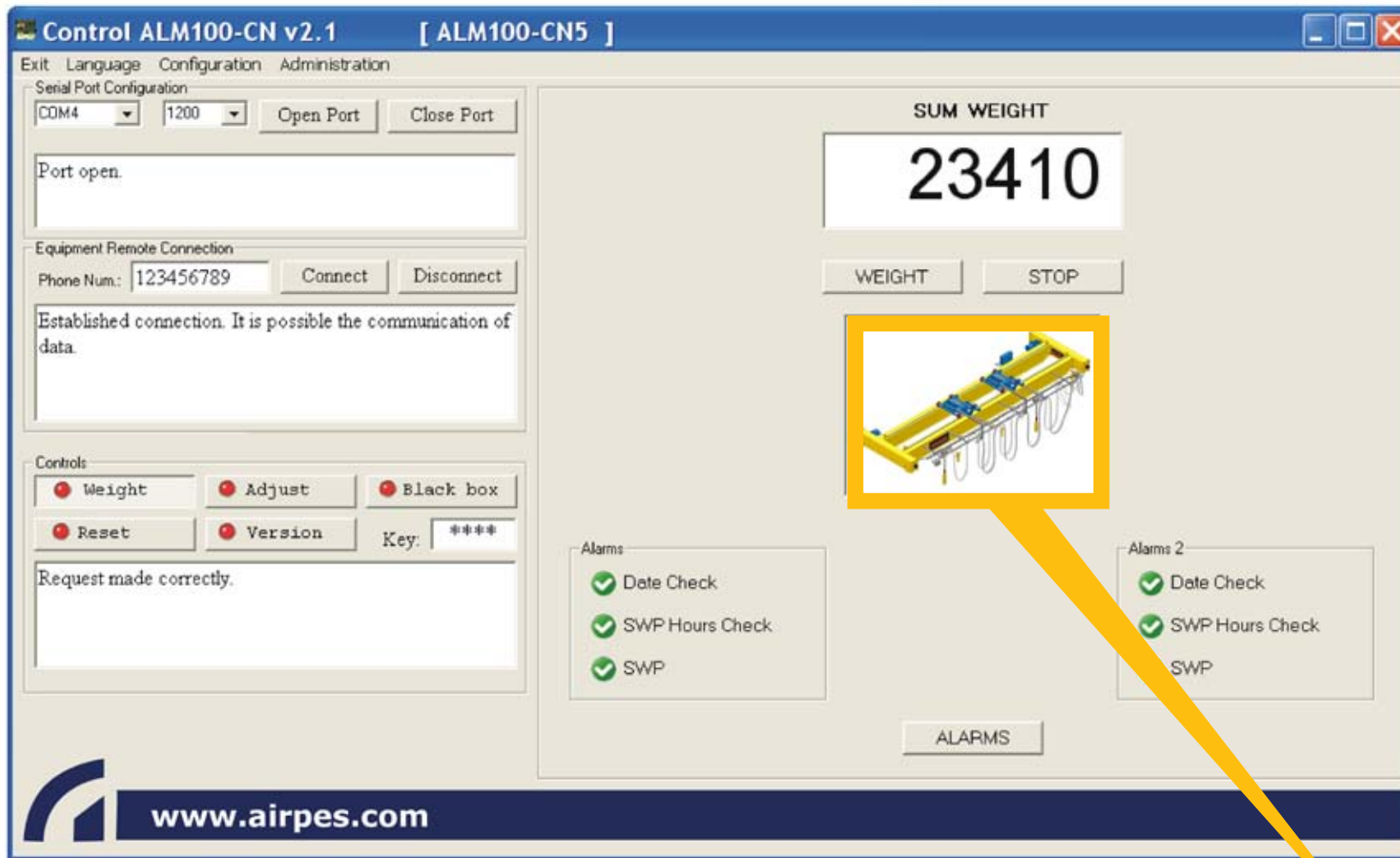
▶ CONTROL PROGRAMME FOR **ALM100N**
LIMITERS WITH INTERNAL BLACKBOX
(start)



SCREEN OF VISUALISATION OF THE **WEIGHT** FOR CRANES WITH **1 HOIST**



SCREEN OF VISUALISATION OF THE **WEIGHT** FOR CRANES WITH **2 HOISTS**



SCREEN OF VISUALISATION OF THE **SUM WEIGHT** FOR CRANES WITH **2 HOISTS**

Control ALM100-CN v2.1 [ALM100-CN5]

Exit Language Configuration Administration

Serial Port Configuration
 COM4 1200 Open Port Close Port
 Port open.

Equipment Remote Connection
 Phone Num.: 123456789 Connect Disconnect
 Established connection. It is possible the communication of data.

Controls
 Weight Adjust Black box
 Reset Version Key:

Data received correctly.

Black Box


Data Clock Key Checks SWP

DATA Serial Num: 1A2B3C4D5 Ref.: AIRPES S.L. Save Print

Especial Line-Group Date: 03/04/2009 16:11

SWP Program. Hours	1600		
SWP Remaining Hours	1400,236612	87,51 %	
N. of Liftings	50246	Clear	Clear Data
N. of Impulse Liftings	18695	Clear	
Hours of Liftings	206	Clear	
N. of Overloads	71	Clear	
N. of Links Overloads	11	Clear	
Prog SWP H. Next Chk.	1000		
Rem. SWP H. Next Chk.	801		
Date Next Check	10/11/2012		

Alarms
 Date Check
 SWP Hrs. Check
 SWP

 www.airpes.com

DOWNLOAD **DATA AND STATE OF ALARMS** OF THE BLACK BOX (1 HOIST)

Serial number: 1A2B3C4D5 Reference: AIRPES S.L.

Data in Black Box

Date: 31/03/2009 17:18

Especial Line-Group

SWP Programmed Hours: 1600

SWP Remaining Hours: 1400,236748 (87,51 %)

N. of Liftings: 50243

N. of Impulse Liftings: 18694

Hours of Liftings: 206

N. of Overloads: 69

N. of Links Overloads: 11

Programmed SWP Hours Next Check: 1000

Remaining SWP Hours Next Check: 801

Date Next Check: 10/11/2012

Alarms

No alarm is activated at the moment.



REPORT OF THE **ALM 100N BLACK BOX** **(1 HOIST)**

Control ALM100-CN v2.1 [ALM100-CN5]

Exit Language Configuration Administration

Serial Port Configuration
COM4 1200 Open Port Close Port

Port open.

Equipment Remote Connection
Phone Num: 123456789 Connect Disconnect

Established connection. It is possible the communication of data.

Controls
 Weight Adjust Black box
 Reset Version Key: ****

Data received correctly.

Black Box

Data Clock Key Checks SWP

DATA Serial Num: 1A2B3C4D5 Ref: AIRPES S.L. Save Print

Especial Line-Group Date: 03/04/2009 15:27

	WEIGHT 1		WEIGHT 2	
SWP Program Hours	1600		800	
SWP Remaining Hours	1400,236612	87,51 %	653,259467	81,65 %
N. of Liftings	50246	Clear	45980	Clear
N. of Impulse Liftings	18695	Clear	23089	Clear
Hours of Liftings	206	Clear	194	Clear
N. of Overloads	71	Clear	21	Clear
N. of Links Overloads	11	Clear	2	Clear
Prog. SWP H. Next Chk.	1000		500	
Rem. SWP H. Next Chk.	801		354	
Date Next Check	10/11/2012		10/11/2012	

Alarms

W 1

- D.Chk.
- H.Chk.
- SWP

W 2

- D.Chk.
- H.Chk.
- SWP

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DOWNLOAD **DATA AND STATE OF ALARMS** OF THE BLACK BOX (2 HOISTS)

Serial number: 1A2B3C4D5 Reference: AIRPES S.L.

Data in Black Box
Date: 31/03/2009 17:15
Especial Line-Group

WEIGHT 1

SWP Programmed Hours: 1600
SWP Remaining Hours: 1400,236748 (87,51 %)
N. of Liftings: 50243
N. of Impulse Liftings: 18694
Hours of Liftings: 206
N. of Overloads: 69
N. of Links Overloads: 11

Programmed SWP Hours Next Check: 1000
Remaining SWP Hours Next Check: 801
Date Next Check: 10/11/2012

Alarms

No alarm is activated at the moment.

WEIGHT 2

SWP Programmed Hours: 800
SWP Remaining Hours: 653,894066 (81,73 %)
N. of Liftings: 45974
N. of Impulse Liftings: 23088
Hours of Liftings: 194
N. of Overloads: 16
N. of Links Overloads: 2

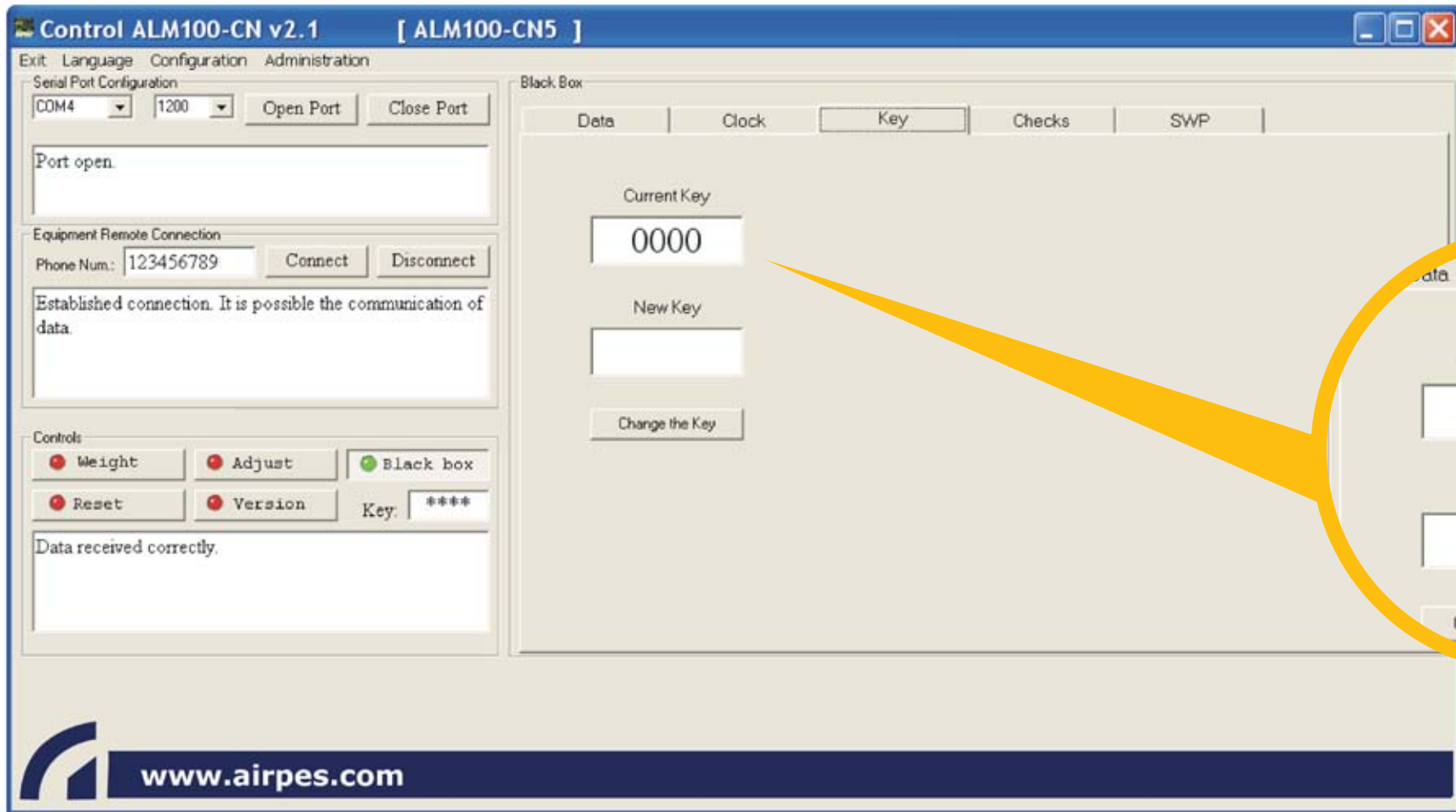
Programmed SWP Hours Next Check: 500
Remaining SWP Hours Next Check: 354
Date Next Check: 10/11/2012

Alarms

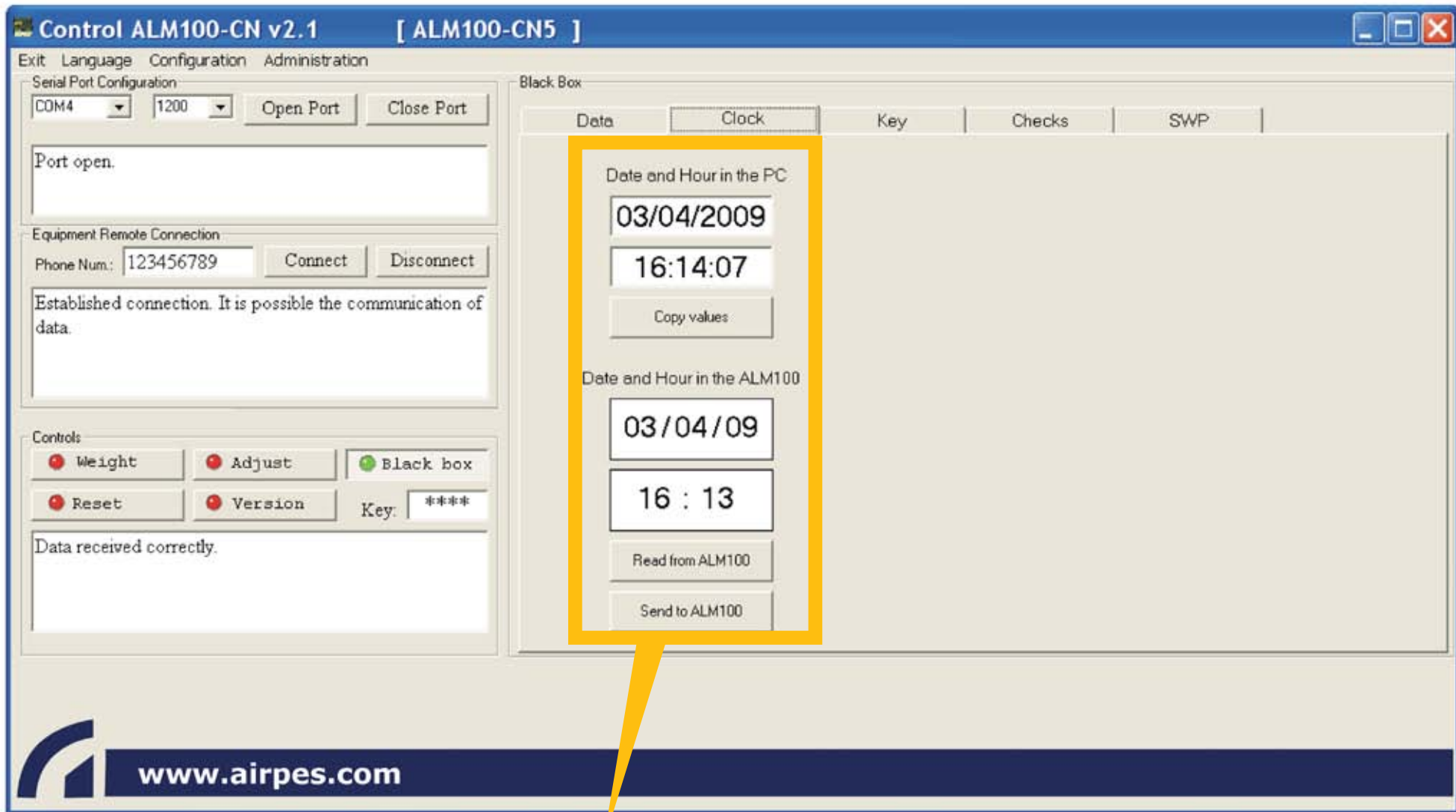
No alarm is activated at the moment.



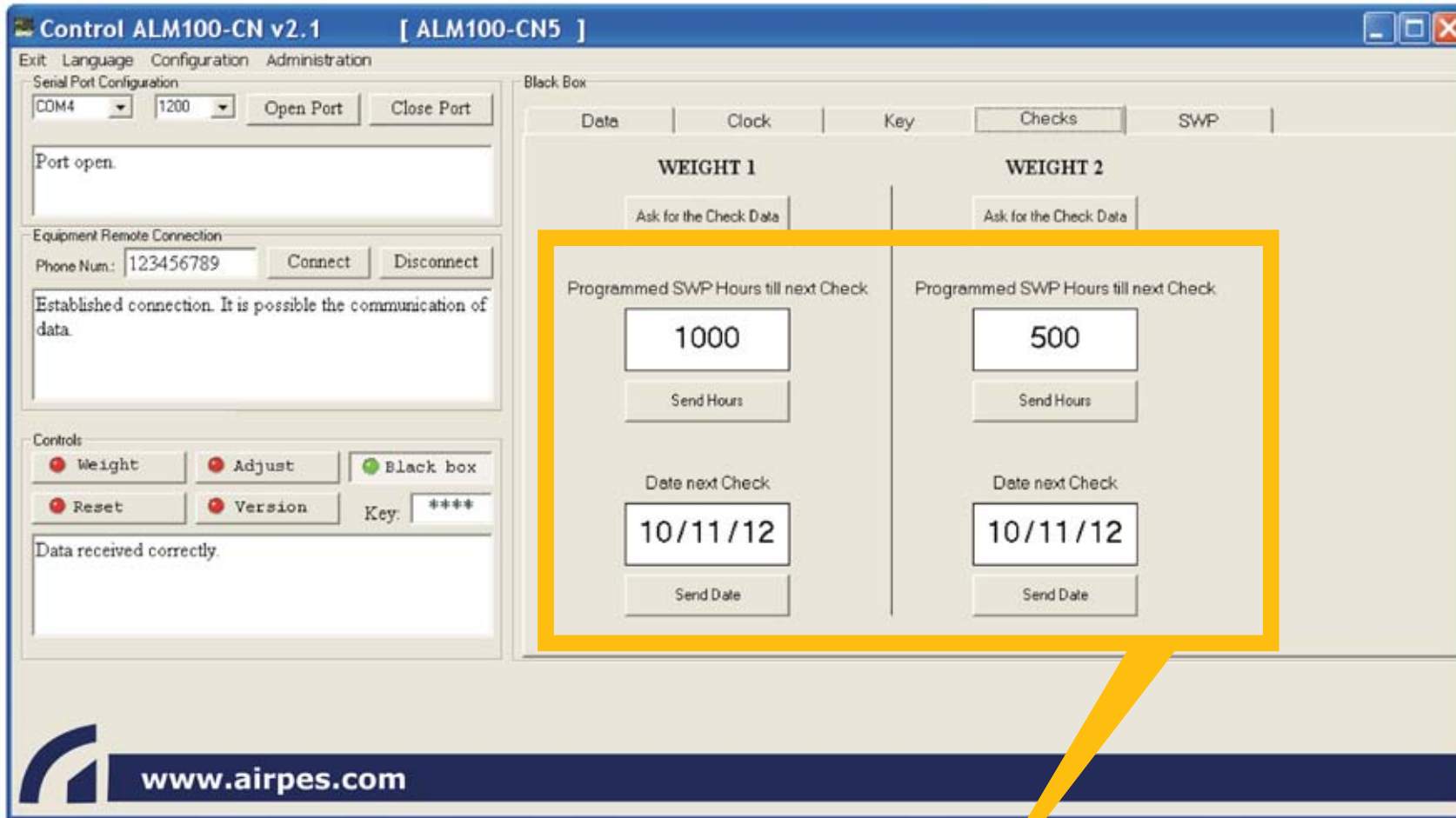
REPORT OF THE **ALM 100N BLACK BOX** (2 HOISTS)



▼
PROGRAMMING OF THE KEY TO ACCEDE TO THE PARAMETERS OF CONFIGURATION AND OTHER FUNCTIONS



PROGRAMMING OF THE DATE AND HOUR OF THE ALM100-CN LIMITER



OPTION FOR THE PROGRAMMING OF **NEXT CHECKUPS**

Control ALM100-CN v2.1 [ALM100-CN5]

Exit Language Configuration Administration

Serial Port Configuration
COM4 1200 Open Port Close Port
Port open.

Equipment Remote Connection
Phone Num.: 123456789 Connect Disconnect
Established connection. It is possible the communication of data.

Controls
 Weight Adjust Black box
 Reset Version Key: ****

Data received correctly.

Black Box

Data	Clock	Key	Checks	SWP					
Line	Group of Motors	10m/M1	10m/M2	10m/M3	10m/M4	2m/M5	3m/M6	4m/M7	5m/M8
1	Light/a1/L1 K = 0.5 (km1=0.125)	800	1600	3200	6300	12500	25000	50000	100000
2	Middle/a2/L2 0.5 < K < 0.63 (km2=0.25)	400	800	1600	3200	6300	12500	25000	50000
3	Heavy/a3/L3 0.63 < K < 0.8 (km3=0.5)	200	400	800	1600	3200	6300	12500	25000
4	Very Heavy/a4/L4 0.8 < K < 1 (km4=1)	100	200	400	800	1600	3200	6300	12500

THEORETICAL UTILIZATION D (h)

Theoretical Hours of Safe Working Period

Line 2 - Group 3

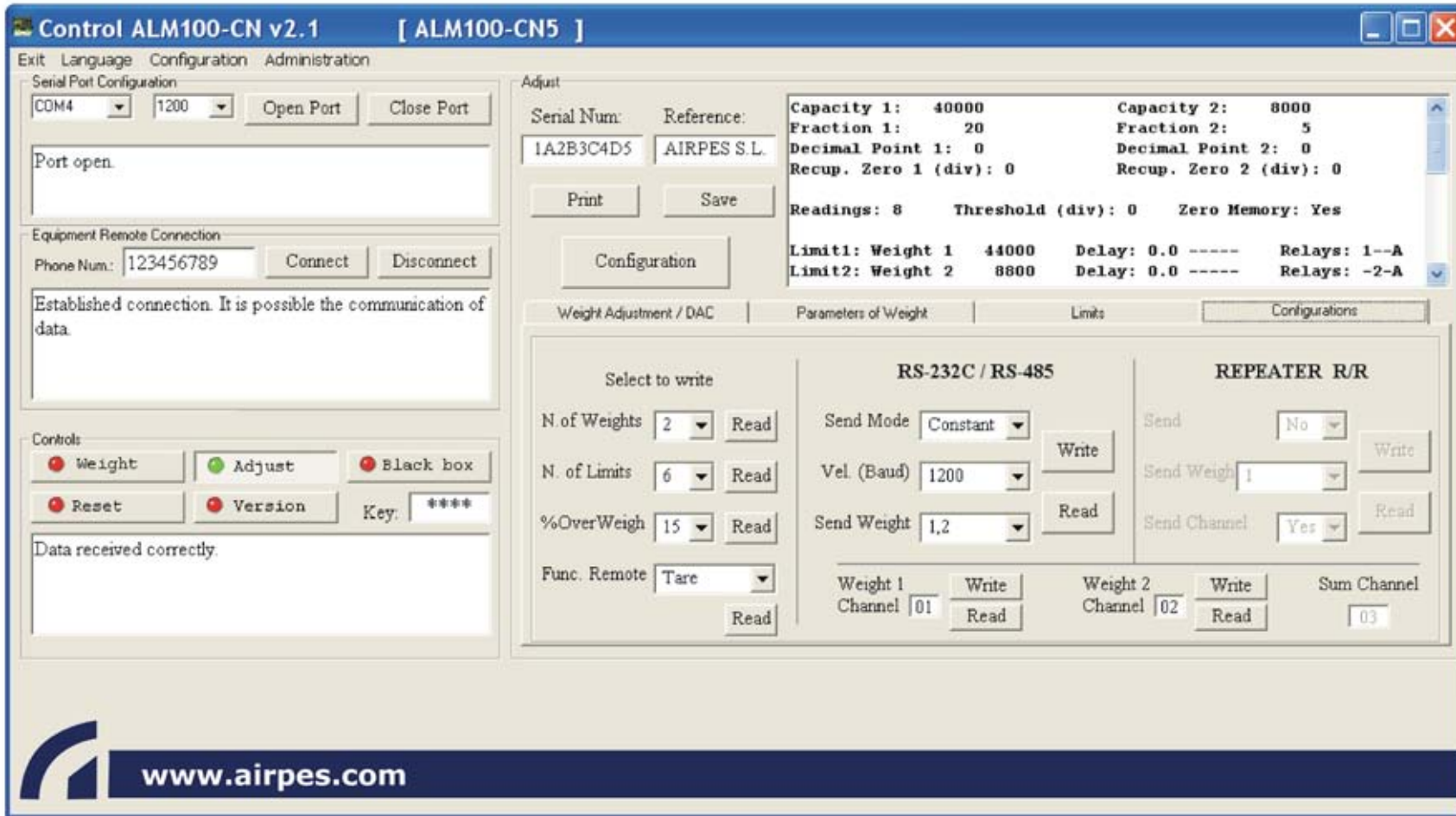
SWP 1: 1600

SWP 2: 1600

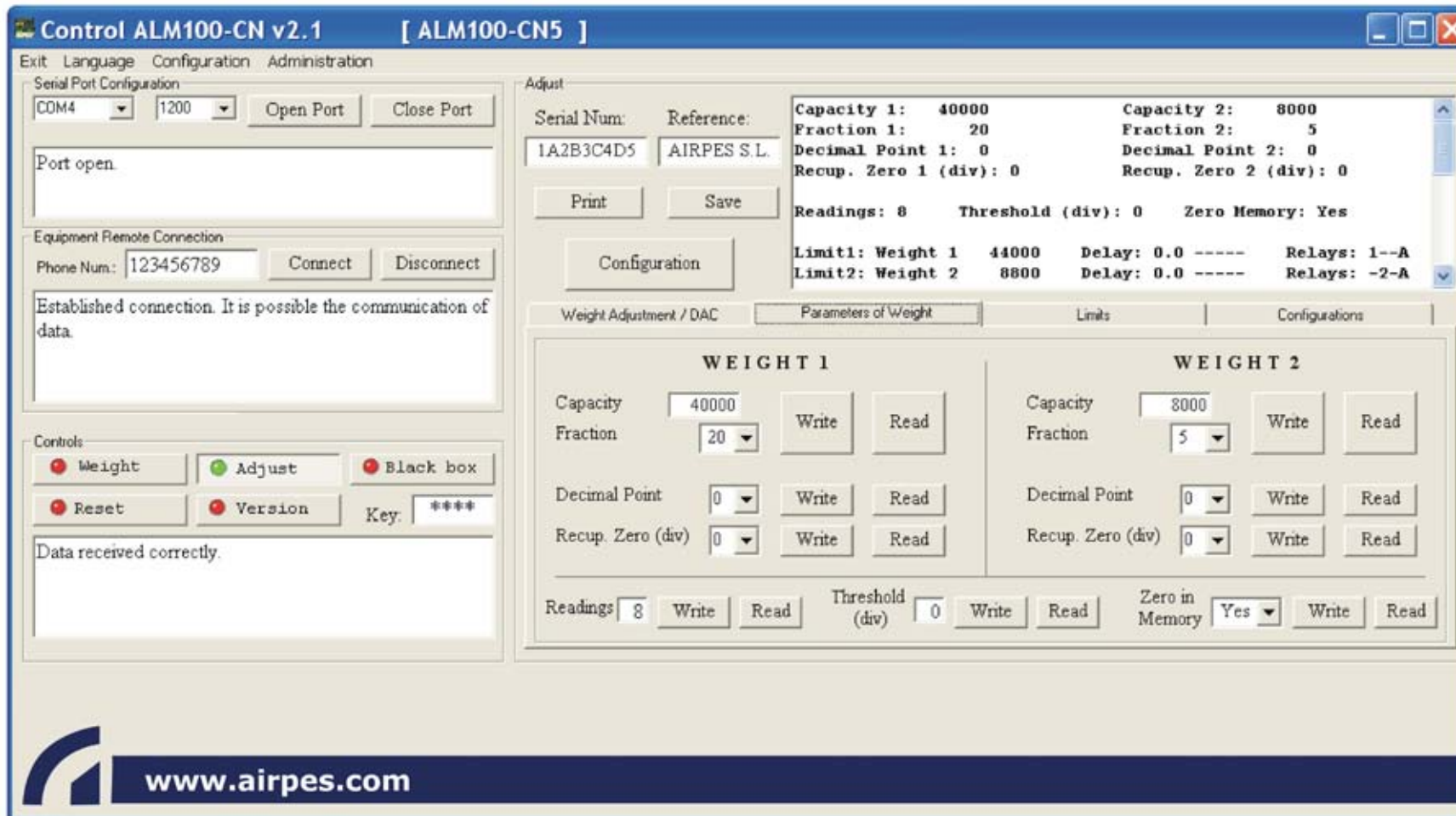
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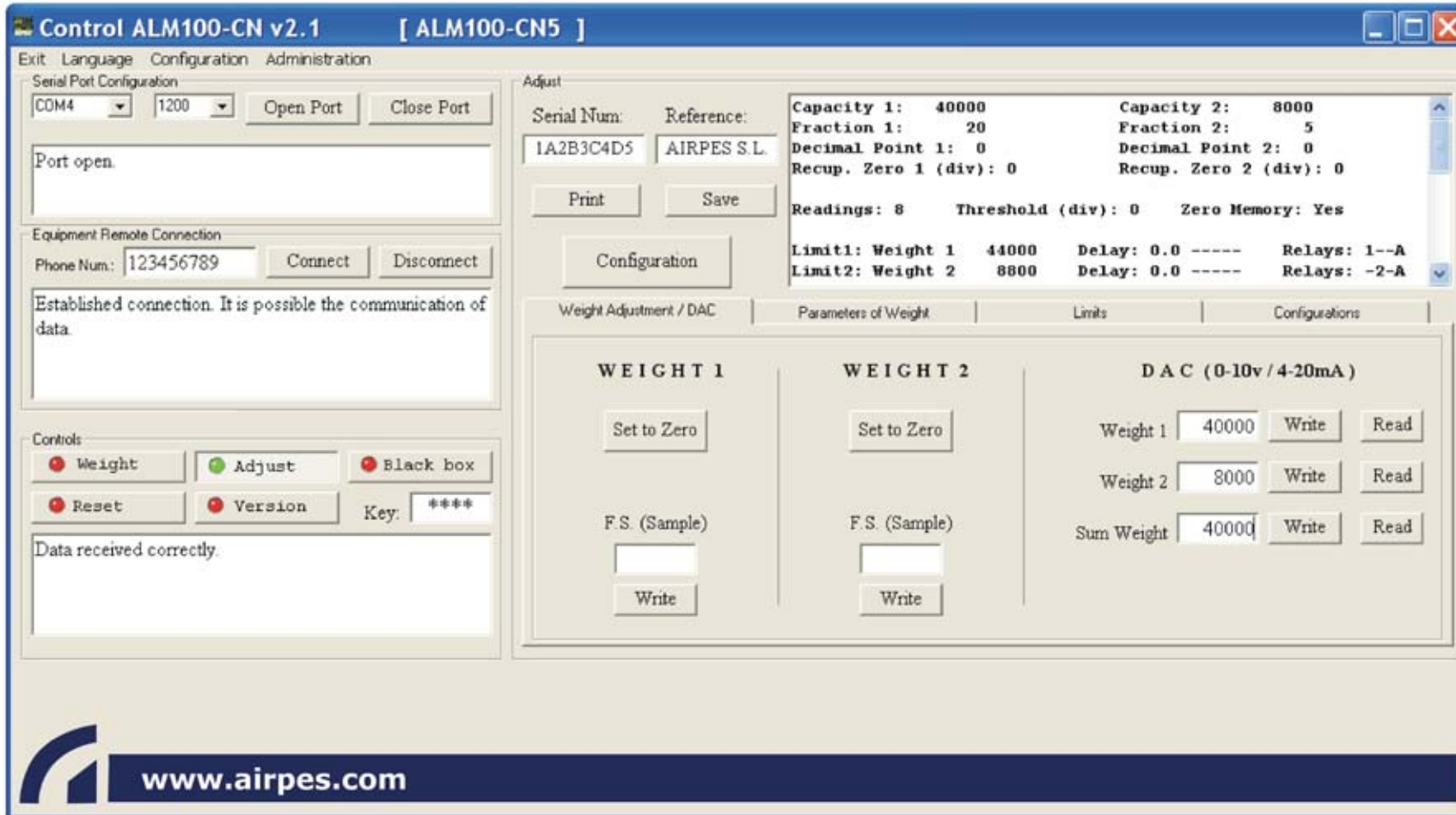
PROGRAMMING OF THE **SAFE WORKING PERIOD (SWP)**



PROGRAMMING AND CONFIGURATION OF THE PARAMETERS OF THE ALM100N LIMITER



PARAMETERS OF WEIGHT PROGRAMMED IN THE ALM100N LIMITER



POSSIBILITY OF **MAKING AND ADJUSTMENT** (ZERO AND FULL SCALE) OF THE WEIGHT OR WEIGHTS

Control ALM100-CN v2.1 [ALM100-CN5]

Exit Language Configuration Administration

Serial Port Configuration
COM4 1200 Open Port Close Port
Port open.

Equipment Remote Connection
Phone Num: 123456789 Connect Disconnect
Established connection. It is possible the communication of data.

Controls
Weight Adjust Black box
Reset Version Key: ****
Data received correctly.

Adjust
Serial Num: 1A2B3C4D5 Reference: AIRPES S.L.
Print Save
Configuration

Capacity 1: 40000 Capacity 2: 8000
Fraction 1: 20 Fraction 2: 5
Decimal Point 1: 0 Decimal Point 2: 0
Recup. Zero 1 (div): 0 Recup. Zero 2 (div): 0
Readings: 8 Threshold (div): 0 Zero Memory: Yes
Limit1: Weight 1 44000 Delay: 0.0 ----- Relays: 1--A
Limit2: Weight 2 8800 Delay: 0.0 ----- Relays: -2-A

Weight Adjustment / DAC Parameters of Weight Limits Configurations

	Set	Value	Delay (s)	Set	Relays	Write	Read
Limit 1	Weight 1	44000	0.0 -----	1	1 - - A	Write	Read
Limit 2	Weight 2	8800	0.0 -----	-	- 2 - - A	Write	Read
Limit 3	Sum	44000	0.0 -----	1	2 3 A	Write	Read
Limit 4	Weight 2	2000	1.0 Down	-	2 3 A	Write	Read
Limit 5	Sum	20000	2.0 Up	-	- 3 A	Write	Read
Limit 6	Sum	-200	0.5 Down	1	2 - - A	Write	Read

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VALUES OF THE LIMITS PROGRAMMED IN THE ALM100N LIMITER FOR THE OVERLOAD CONTROL AND OTHER POINTS



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AIRPES

INTEGRAL SYSTEMS OF HANDLING AND WEIHGING S.L.

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GPS: 41° 32' 29" North

2° 8' 11" East

Height 200m