This version is a translation from the official Danish into English. By settlement of any disputes, the Certificate in Danish language shall have priority.

SIKKERHEDSSTYRELSEN

TYPE APPROVAL CERTIFICATE

J.No.: 573-03-00004

Version: 1

Date: 2013-12-17

Valid until: 2015-12-17

Certificate No.: TS 24.65 003

AUTOMATIC WEIGHING INSTRUMENT FOR WEIGHING OF VEHICLES IN MOTION

Manufacturer	Tunaylar Baskül San. ve Tıc. A.Ş.
Issued to	Tunaylar Baskül San. ve Tıc. A.Ş.
	Akcurgaz Mah. 88 Sok. No:7, Esenyurt – İstanbul, Turkey
Kind of instrument	Automatic instrument for weighing road vehicles in motion
Type	LL2/AW
Use	Weighing of road vehicles
Type approval	In accordance with OIML R134:2006

NOTE ! Measurement instruments, that are not identical with the one laid down in this certificate, can only be verified under the condition of a separate approval by an amendment to this certificate.

1 LEGAL MEASURE DATA

In accordance with OIML R134:2006, section 3.8.

Type:	LL2/AW	
Accuracy class, totale weight:	1	2
Accuracy class, single axle load:	C or D	C or D or E
Accuracy class, axle-group load:	B or C or D	C or D or E
Maximum capacity (Max):	≤ 30 000 kg	
Minimum capacity (Min):	≥ 50×d	≥ 10×d
Scale interval (d):	≤ 20 kg	≤ 50 kg
Number of verification scale intervals (n):	500 ≤ n ≤ 3000	50 ≤ n ≤ 1000
Maximum operating speed (v_{max})	9 km/h	
Minimum operating speed (v_{min})	1 km/h	
Maximum transit speed	30 km/h	
Direction of travel:	both	
Maximum number af axles per vehicle (a_{max}):	15	
Scale interval for stationary load (e):	10 kg	
Power supply:	12 VDC	
Temperature range:	-10 to +40 °C	

2 VERIFICATION CONDITIONS

2.1 VERIFICATION

In accordance with OIML R134-1, 2006, section 5.2.

2.2 MARKING

Type plate

The main marking is stamped or printed indelibly on a data plate. Alternatively, the markings may be printed on a plastic sticker. The type plate is fastened on a visible place of the LL2 weighing indicator, or if this unit is built into a cabinet, the type plate may, alternatively, be placed on the cabinet.

The type plate contains the following information:
Name of the manufacturer, type, serial no., certificate no., power supply, accuracy classes, Max, Min, scale interval d, non-automatic scale interval e, v_{max},. v_{min}, maximum transit speed, a_{max},
'Not to be used to weigh liquid products',
'Approved in accordance with OIML R134-1, 2006'

2.3 SEALING

Stickers/lead seals shall be supplied with verification marks.

The weighing instrument shall be sealed with stickers/wire and lead seals at the following locations:

Type plate

The type plate is secured with a verification mark.

LL2 weighing indicator
A sealing sticker or wire with lead seal shall be placed on the rear side of the indicator to secure the enclosure against opening and the cable from the junction box from being disconnected.

Junction box for load cells
The junction box for connection of load cell cables shall be sealed.

2.4 SPECIAL CONDITIONS FOR VERIFICATION

The LL2 weighing indicator and the load cells are type tested as modules of the weighing instrument. The modules are described in certificates (DK0199.69 revision 5). The composition of the modules shall be in accordance with EN 45501, sect. 3.5.4.1. The compatibility shall be calculated and documented in accordance with WELMEC 2 'Compatibility of Modules'. The manufacturer shall include documentation for 'Compatibility of Modules'; a calculation sheet for this purpose can be downloaded from www.delta.dk/weighing. The compatibility is checked at the verification.

The maximum cable length between the weighing terminal and the junction box for load cell cables is 2550 m/mm^2 using 6-wire cable with sense between the junction box and the LL2 weighing indicator.

A printer, on which the weighing results of the automatic weighing are printed, shall be connected to the LL2 weighing indicator unless the weighing results are automatically stored in the internal alibi memory.

The Danish Accreditation and Metrology Fund reserves the right to demand changes in the security sealing.

3 CONSTRUKTION

The weighing instrument is an automatic weighing instrument consisting of:

3.1 APRON

The apron is made from concrete and is 44 m long with the load receptor placed in the centre and 0.75 m widther than the load receptor on each side (totale 1.5 m widther).
The apron may have a transversale slope for drainage purposes, if the slope does not exceed 1 %.
For 8 m in advance and beyond of the load receptor, the apron surface should be within a tolerance of ±3 mm from the level or transversely-sloped plane that includes the load receptor.
The surface of the apron outside the 8 m length of apron nearest to the load receptor should be within the tolerance of ±6 mm level or transversely-sloped plane that includes the load receptor.

Lateral guides are painted or similar on the apron at least 5 m in advance and beyond the load receptor to indicate the width of the load receptor to the driver.

3.2 LOAD RECEPTOR

The load receptor is a steel platform placed in a pit such that the load receptor is in level with the surrounding apron. The pit shall be drained.
The normal size of the load receptor is length: 0.73 – 0.90 m and width: 3.0 m.

3.3 LOAD CELLS

Load cells that match the specifications of the LL2 weighing indicator at the 'Composition of Modules' (see sect. 2.4), can be used.

The following conditions shall be met,

1) A test certificate (EN 45501) or an OIML Certificate of Conformity (R60:2000) respectively issued for the load cell by a Notified Body responsible for type examination under Directive 90/384/EEC.
2) The certificate contains the load cell types and the necessary load cell data required for the manufacturer's declaration of compatibility of modules (WELMEC 2, Issue 5, 2009, section 11), and any particular installation requirements. A load cell marked NH or SH is not allowed to be used.
3) The compatibility of load cells and indicator is established by the manufacturer by means of the compatibility of modules formulars contained in the above WELMEC 2 document or a similar calculation sheet that can be downloaded from www.delta.dk/weighing and shall be presented at the time of initial verification .
4) The load transmission must conform to one of the examples shown in the WELMEC Guide for load cells.

The load cells shall all be of the same type and specification.

3.4 LL2 WEIGHING INDICATOR

The following specification is valid for connection of load cells to LL2 weighing indicator:

Load cell excitation voltage:	5 VDC
Min. verification scale interval	0.8 µV
Load cell impedance	43.75- 1000 Ω
Load cell connection	6-wire
Maximum cable length	2550 m/mm^2
No. of scale intervals	≤ 10000
Fraction p_i	0.5
Temperature range	-10 to +40 °C
Software version	1.93.xx

Extra warm-up time
The LL2 weighing indicator must not be able of entering automatic weighing mode the first 11 minutes after it has been turned on.

3.5 I/O CONNECTIONS

The LL2 weighing indicator has the following protective interfaces:

- Printer interface (RS 232),
- Serial I/O (RS 232 / RS 422 / RS 485),
- Digital input/output.

4 DOCUMENTATION

Application no. 573-03-00004

DELTA test report No. DANAK-1913637, dated 03 December 2013
DELTA test report No. DANAK-1910523, dated 29 May 2009
Type-approval certificate: DK0199.69 revision 5.
DELTA test report No. DANAK-199782, dated 14 October 2005.

Pia Larsen
Sikkerhedsstyrelsen
Nørregade 63, 6700 Esbjerg
Tlf. 33 73 20 00
E-post: sik@sik.dk
www.sik.dk