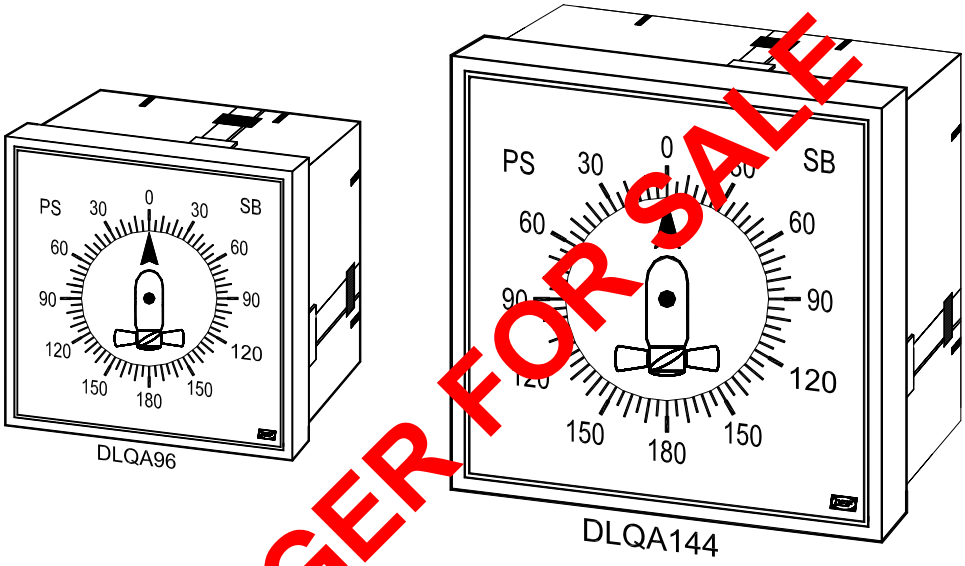
DEIF A/S

Illuminated 360° azimuth indicators

Types DLQA96/144

4921250055C



- *360° indication with disc pointer*
- *Linearized to class 0.5*
- *LED illumination of scale and disc*
- *100% identical illumination of scale and disc*
- *Shock resistant up to 50 g*
- *Enclosure IP52/54 or IP66 (only Q96 size)*
- *Approved according to the European Marine Directive*

Description

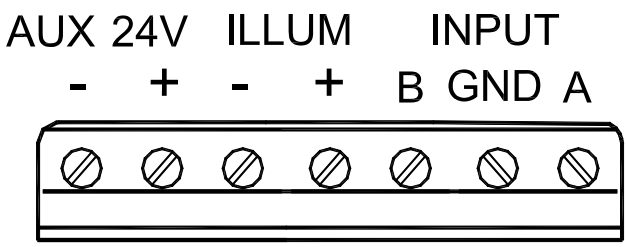
The illuminated X-coil instruments types DLQA96/144 are designed for marine applications. The instruments can be applied as rudder indicator, azimuth indicator, compass indicator or wind direction indicator where a reliable and accurate instrument is prescribed.

Technical specifications

Basic accuracy:	Class 0.5 (-10...15...30...55°C) according to EN 60051 and IEC 51
Adjustments:	None
Instrument sizes:	96 x 96mm and 144 x 144mm according to DIN 43700
Bezel:	Slim bezels according to DIN 43718
Scale:	Figures, lines and font size according to customer design and specification Base material: Scale printed directly on front glass Design only on black scale base!
Pointer:	Rotation disc according to customer specification/design Design only on black pointer base (disc)!
Glass:	Antiglare, thickness 2mm
Mounting angle:	May be mounted at any angle between 0…360° to horizontal without this affecting the linearity according to DIN 16257
Compass safety distance:	To be mounted at least 1m from the compass according to IEC 945 and EN 60945
Analogue inputs:	Single or double (for SIN/COS input)
Measuring ranges:	-10...0...10V Load: 10kΩ 0…1mA Load: 1.0V 4…20mA Load: 1.0V
Response time:	Max. pointer movement: 90°/second, no overshoot
Protection:	IP52 from front, IP20 from back (terminals) according to IEC 529 and EN 60529 (IP54 from front is optional with special gasket) or IP66 option in special DLQW housing, IP20 from back (terminals) according to IEC 529 and EN 60529
Climate:	Class H U E, short term condensing allowed Max. 95% RH: Max. 30 days per year Max. 85% RH: Remaining days Max. 75% RH: Average per year According to DIN 40040
Temperature:	-10…55°C (nominal) -25…60°C (operating) -25…65°C (storage) Temperature coefficient: Max. ±0.5% of full scale within -10…55°C according to IEC 51 and EN 60051
Panel influence:	Linearity not affected by the panel (thickness or material) according to IEC 51 and EN 60051
Shock:	18 x 50 g half sine (11mS) according to IEC 68-2-27. Test: Ea
Vibration:	3…13.2Hz: 2.0mm peak-peak (±1.0mm) according to GL + LR: Test 1 13.2…100Hz: 0.7 g according to DNV: Class A
Safety:	300V – cat. III, pollution degree 2 according to EN 61010-1
Galv. separation:	500V between all groups
Supply voltage:	Power supply: 24V DC -25/+30% (18…24…31.2V DC) Illumination: 12mA/24V DC
Consumption:	<3W (24V/120mA), excl. illumination
EMC:	CE marked for residential, commercial and light industry plus industrial environment according to EN 50081-1/2 and EN 50082-1/2
Class approval:	Marine Equipment Directive 96/98/EC (MED)
Connections:	Separate screw terminals for instrument input, power supply and illumination Max. 2.5mm² multi-stranded or 4.0mm² single-stranded
Materials:	All outer materials are self-extinguishing according to UL94 (V0)

Connection

The DLQA96/144 instruments differ from the other DLQ instruments, as the DLQA96/144 instruments are based on an X-coil system and not on a moving-coil system like the other instruments in the product programme of DEIF A/S. Due to the X-coil technology it is possible to have an instrument with a scale curve of 360°, which is not possible in the conventional moving-coil systems. As the X-coil system requires a special controller integrated in the instrument, the DLQA96/144 instruments are to be connected to an auxiliary supply – unlike conventional instruments.

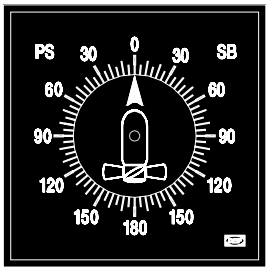


Auxiliary supply: AUX 24V -/+

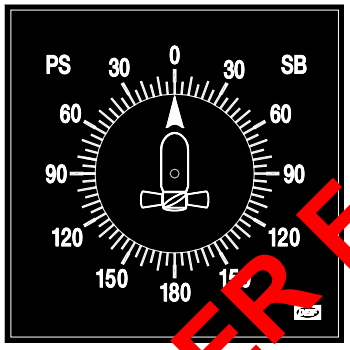
Illumination: ILLUM -/+

Input: INPUT B/GND/A (see the table for single/double input)

Examples with black scale base:



DLQA96



DLQA14

Coloured division lines and figures are transilluminated	Only division lines, figures and the broad section below the division lines are transilluminated The following colours are available: Red, green, yellow, white
Note: To ensure vision, calibration lines in the following points are needed: 0-60-120-180-240-300°	

Measuring ranges

Notice that the instrument can be configured for either “single input” or “double input” (sin/cos).

Single input:

Measuring range	Input A	Input B	Disc position in degrees	Clock position of disc
4...20mA (Disc moves CW with positive input)	4.00mA	Not connected	0	12
	8.00mA		90	3
	12.00mA		180	6
	16.00mA		270	9
	20.00mA		360	12
0...1mA (Disc moves CW with positive input)	0.00mA	Not connected	0	12
	0.25mA		90	3
	0.50mA		180	6
	0.75mA		270	9
	1.00mA		360	12
-10...0...10V (Disc moves CW with positive input)	-10.00V	Not connected	0	12
	-5.00V		90	3
	0.00V		180	6
	+5.00V		270	9
	+10.00V		360	12

Measuring ranges, cont.

Double input (SIN/COS):

Measuring range	Input A SIN	Input B COS	Disc position in degrees	Clock position of disc
-10...0...10V	0.0V	+10.0V	0/360	12
	+10.0V	0.0V	90	3
	0.0V	-10.0V	180	6
	-10.0V	0.0V	270	9

The combination SIN/COS and current input is not available as standard. The reason is that only one indicator can be connected per transmitter. Contact DEIF for further information.

As the instruments are linearized to a max. indication error of 0.5% corresponding to a max. deviation of ±1.8° over the entire scale curve of 360°, they are not provided with an adjustment device.

Illumination

Illumination: 24V DC. Adjustment range: 10...30V DC

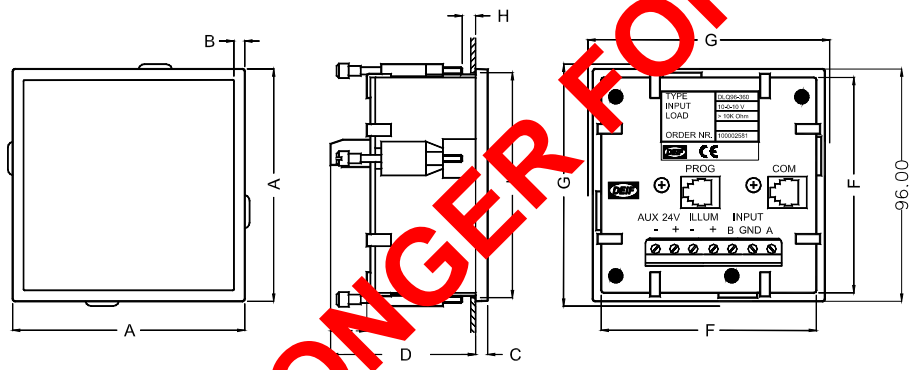
The light intensity can be altered by means of a common dimmer for all instruments. Dimming of an instrument can be done by means of a 1kΩ potentiometer arranged as a voltage divider.

Connection: Screw terminals for instrument input and illumination
Maximum 2.5mm^2 (multi-stranded) or 4.0mm^2 (single-stranded)

If required by the class, suitable protection against voltage transients (surge pulses) must be built into the power supply (e.g. light dimmer unit) to the instrument illumination input.

Dimensions

All dimensions in mm



Type	A	B	C	D	E	F	G	H (max.)	J	Weight (kg)
DLQA96	96 x 96	4.5	8.0	66.0	19	90 x 90	103	12	92 x 92 +0.8	0.230
DLQA144	144 x 144	4.5	8.0	69.0	19	136 x 136	150	12	137 x 137 +1.0	0.385
DLQAW96	102 x 102	5.5	4.2	68.3	19	90 x 90	103	12	92 x 92 +0.8	0.250

Note: The above drawing is a DLQA96, the other types may vary in details

Order specifications

	Type	Scale	DISC	Measuring range
Example:	DLQA96	180...0…180°	POD symbol	4…20mA, single

When ordering new scales, always forward detailed drawing

Due to our continuous development we reserve the right to supply equipment which may vary from the described.

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