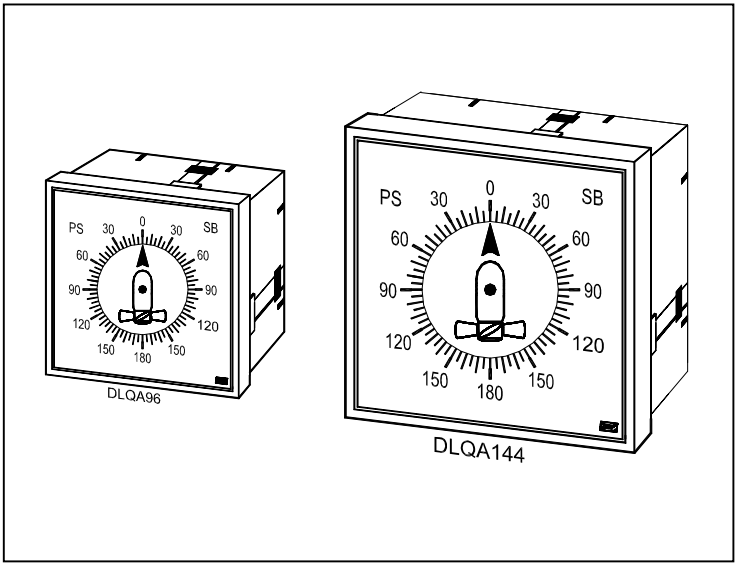
Installation instructions

DLQA96/144

Marine bridge instrumentation

4189350016B (UK)



- *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*

CE

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DEIF A/S

1. Description

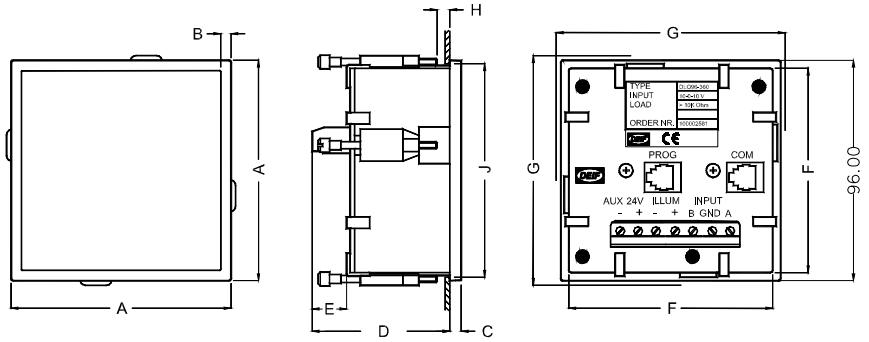
The illuminated X-coil instruments types DLQA96/144 are designed for marine applications. The instruments can be applied as rudder indicator, azimuth indicator, compass indicator or wind direction indicator where a reliable and accurate instrument is prescribed.

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.

2. Mounting instructions

DLQA96/144 is designed for installation in bridge consoles or switchboards.

All dimensions in mm



Type	A	B	C	D	E	F	G	H (max.)	J	Weight (kg)
DLQA96	96 x 96	4.5	5.5	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	5.3	4.2	68.3	19	90 x 90	103	12	92 x 92 +0.8	0.250

The instrument is mounted by means of the 2 fixing elements. For instruments with IP54 or IP66 protection, use all 4 fixing elements and the rubber gasket (included in the packing).

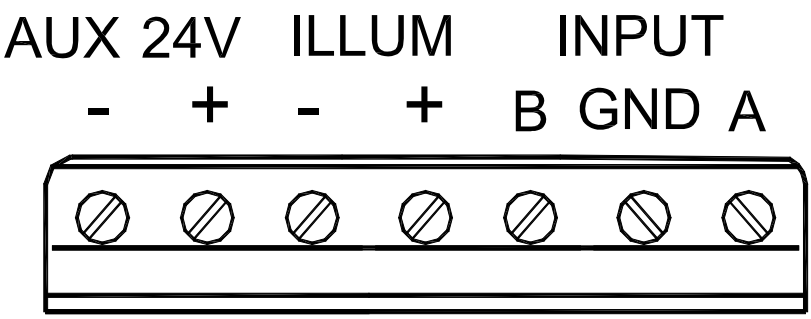
3. Connection

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. The plugs marked PROG and COM are for factory use only.

DLQA96/144 is protected against ESD (static electricity). Therefore, when connecting the instrument, no special protection from ESD is needed.

When the instrument is mounted in the console/switchboard, the terminal on the rear side is connected to the cable.

The instrument is configured either for “single input” or for “double input” – here it is configured for connection to a SIN/COS converter.



Auxiliary supply: **AUX 24V -/+**
Illumination: **ILLUM -/+**
Input: **INPUT B/GND/A (see the table for single/double input)**

4. Adjustment and control

As the instrument is linearized to a max. indication error of 0.5% corresponding to a max. deviation of ±1.8° over the entire scale curve of 360°, it is not provided with an adjustment device. For control of deflection (indication) as a function of input the table below can be applied.

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

Double input (SIN/COS):

Measuring range	Input A SIN	Input B COS	Disc position in degrees	Clock position of disc
4...20mA	12.0mA	20.0mA	0/360	12
	20.0mA	12.0mA	90	3
	12.0mA	4.0mA	180	6
	4.0mA	12.0mA	270	9
0...1mA	0.5mA	1.0mA	0/360	12
	1.0mA	0.5mA	90	3
	0.5mA	0.0mA	180	6
	0.0mA	0.5mA	270	9
-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

5. 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 is 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)

6. Illumination

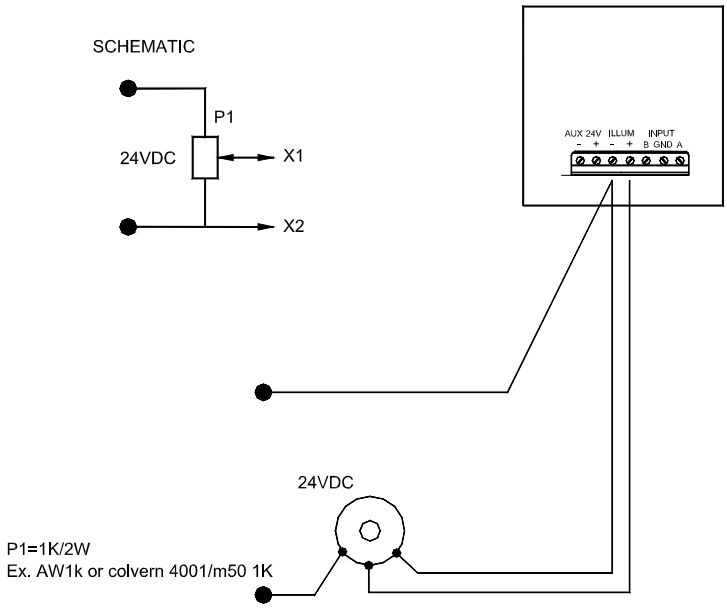
Illumination input: 24V DC. Adjustment range: 10...30V. Galvanically separated from other circuits

Colour: Red and green light (LED based) combined giving a white/yellow colour

Current consump.: DLQA96/144: 12mA/24V DC

Galv. separation: 500V – 50Hz – 1 min. between groups (3 groups)

If protection against voltage transients (surge pulse) for the auxiliary supply AUX 24V -/+ and input for ILLUM -/+ is required, these inputs are to be protected externally. The protection must be positioned no more than 10 m from the DLQA96/144 instrument and must meet the requirements of the class and the legislation.



External dimmer

Errors and changes excepted