Function

The sensor (14512) has two different measuring elements to measure wind speed and wind direction. The housing and the measuring elements are made of a seawater resistant aluminium alloy. The housing, the cup-rotor and the wind vane are anodized, the housing is lacquered gray (RAL 9002) additionally.

The three-armed cup rotor will rotate from the wind. The number of revolutions of the cup rotor is proportional to the wind speed.

The wind direction is measured with a wind vane with to fins.

The wind vane axle and the rotor cup axle are coaxial, running independently of each other on ball bearings.

The sensor can be supplied with an electrical shaft heating.

Measuring element for wind speed

Model G4 with generator: A coupled DC generator (G4) converts the number of revolutions into a direct voltage. This voltage is transmitted to further devices.

Model I with inductive proximity switch: By means of an inductive proximity switch the wind speed is converted into impulses. The frequency of these impulses is proportional to the wind speed.

Measuring element for wind direction

Model F1000: The 1000 ohms linear resistance of the potentiometer corresponds to 0 to 358°. The potentiometer has two or three wattless windings in north direction.

Model N: The wind vane is connected to a precision ring potentiometer. The potentiometer is a triple tapped resistor.

Heating

Model H: All models can be supplied with a electrical shaft heating. The heating is regulated by a built-in bimetallic switch. Then the sensor can be operate in a wide temperature range from -35 to +70 °C.

Putting into operation

Choice of the installation place

For representative wind measuring the sensor should not installed under the lee of large obstacles. The distance between obstacle and sensor should be at least 10 times the height of the obstacle. Furthermore the sensor should at least 5 meter higher than the height of the obstacle.

Assembly

After inserting the plug connector into the socket at the bottom of the sensor shaft, the sensor is mounted on a fitting tube with an outer diameter of 50 mm and an inner diameter at least 40 mm.

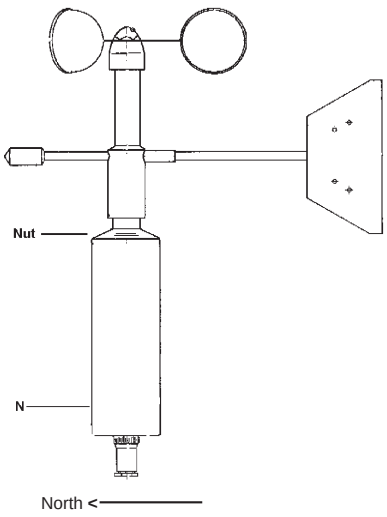
If a traverse is supplied for the sensor (14512) then the fitting tube is a part of the traverse.

Before the screws of the sensor are tightened, the sensor is adjusted to north.

The correct setting of the wind direction indicator and the compass direction: Using a compass a ground feature as far as possible in the north is selected. A mark and an **„N“** are to be found on the rotating head of the wind vane and on the housing of the sensor. These two marks must exactly be in line with each other; this can be achieved by fixing the wind vane with e.g. adhesive tape. Below the rotating part of the wind vane on the shaft there is a notch, into which a steel ruler can be fitted. The housing of the sensor must now be turned on the mounting tube until the ground feature in the north can be seen over the ruler. The tip of the ruler must point to this point in the terrain.

Finally the screws in the shaft are tightened and the adhesive tape is removed.

Note: Because of the dangerous height of the mounting, the mechanic must notice the safety instructions.



Alignment of the sensor

Electrical wiring

The cable is connected to the sensor by means of a splash-proof plug connection in the shaft of the sensor. Before mounting the sensor on the fitting tube, the cable with the plug connector is pass through the tube.

See the wiring diagram for the wiring of the separated models.

Cable specification and connection

Without heating:

Type of cable: LiYCY 8*0,75 mm²

or: 8*AWG 20 CUL sw

After completely wiring the sensor is ready for operation.

Test the function

The perfect function of the sensor can be controlled when the sensor is connected to a data terminal (measuring station resp. indicating station).

For this purpose, the cup rotor is cautiously arrested by hand. The data terminal must then indicate wind speed 0.

When the cup rotor is moved by the wind, the indicated wind speed should be greater than 0. If a negative value is indicated, the wiring is reversed. If no values are indicated, please check the plug connector and the wiring.

To check the sensor for wind direction the wind vane is set in the directions NORTH-EAST-SOUTH-WEST and fixed in these positions for a while. Accordingly to this directions the following values must be displayed: N or 0° (360°), E or 90°, S or 180°, W or 270°.

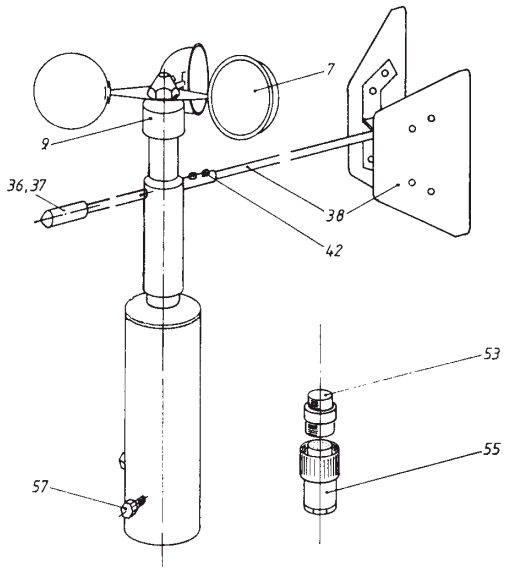
If the display does not correspond to the actual positions of the wind vane, the sensor must be aligned again and the cable connections checked.

Please note the loss of warranty and non-liability by unauthorised manipulation of the system. You need a written permission of LAMBRECHT meteo GmbH for changes of system components. These activities must be operated by a qualified technician.

The warranty does not cover:

1. Mechanical damages caused by external impacts (e. g. icefall, rockfall, vandalism).
2. Impacts or damages caused by over-voltages or electromagnetic fields which are beyond the standards and specifications in the technical data.
3. Damages caused by improper handling, e. g. by wrong tools, incorrect installation, incorrect electrical installation (false polarity) etc.
4. Damages which are caused by using the device beyond the specified operation conditions.

Spare parts drawing



List of spare parts

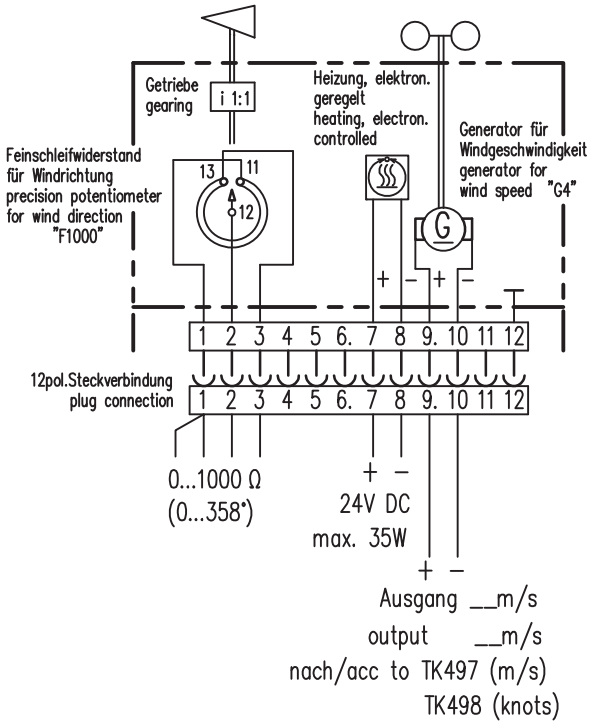
Pos.	Pieces	Designation	Ordering number
7	1	cup rotor R100	32 .14698. 002 010
9	1	protection cap	33 .14820. 089 070
36	1	weight	33 .14511. 051 000
37	1	set screw M5x5 DIN 551	35 .05511. 529 990
38	1	wind vane, complete	32 .14511. 009 000
42	2	screw, cycl. M4x8 DIN 84	35 .00841. 524 901
53	1	plug connector male	65 .53070. 270 000
55	1	plug connector female	65 .53070. 280 000
57	2	screw M8x20 DIN 933	35 .09331. 540 300

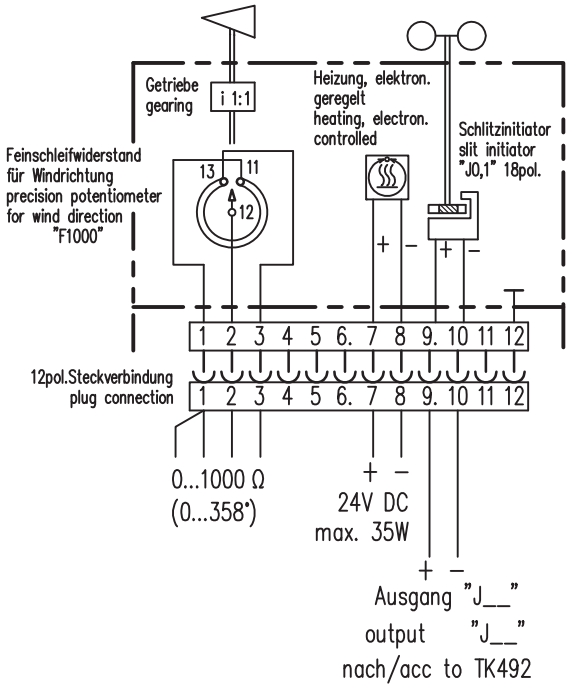
Technical Data

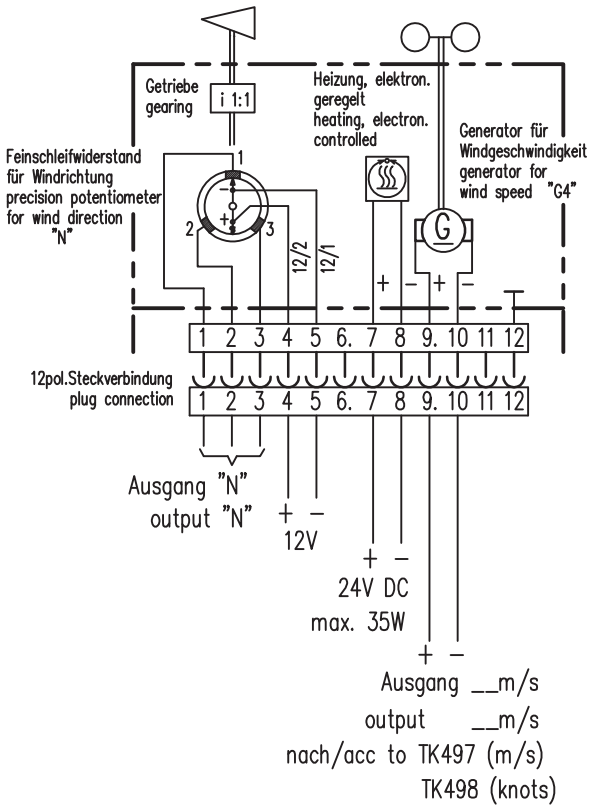
Professional Line — **Series (14512) Combined Wind Sensors**

		Wind direction	**Wind speed**
Measuring element:		double-blade wind vane	3-armed cup rotor
Measuring range:		0...360°	0...35 m/s
Accuracy:		± 1 %	± 2 % FS
Resolution:		0.1°	0.1 m/s
Starting value:		1 m/s referred to a deflection of 90°	0.2 m/s (I-type) | 1 m/s (G4-type)
Range of application:		temperatures -35..+70 °C heated | wind speed 0...60 m/s	
Output:		4 mA at 0...35 m/s | R_a = 3541 Ω	
Supply voltage:		12 V_{DC}/ max. 0.7 W for one indicator | up to 8 indicator units can be connected in parallel | heating 24 V_{DC}/ 1.25 A/ 30 VA | varieties without heating on request	
Line resistance:		max. 50 Ω each core between direction sensor and receiver	
Housing:		aluminium · RAL 9002 (grey-white) · partially grey coated	
Dimensions/ Weight:		cup rotor Ø 278 mm · H 500 mm · for mounting pipe Ø 50 mm · 2.4 kg	
Included in delivery:		1 plug · 12-pole · when a cable is ordered, the plug is mounted to that	
Accessories:		**Indicator units** e. g. (1476 Q144N) · (1477 Q144)	
		Power supply units see „Periphery“	
32.14511.065 020	(14511 U65b)	**Cable** · for F1000-varieties · 8-pole · 4 m · ready-made	
32.14511.065 000	(14511 U65)	**Cable** · for N-varieties · 8-pole · 4 m · ready-made	

Wiring

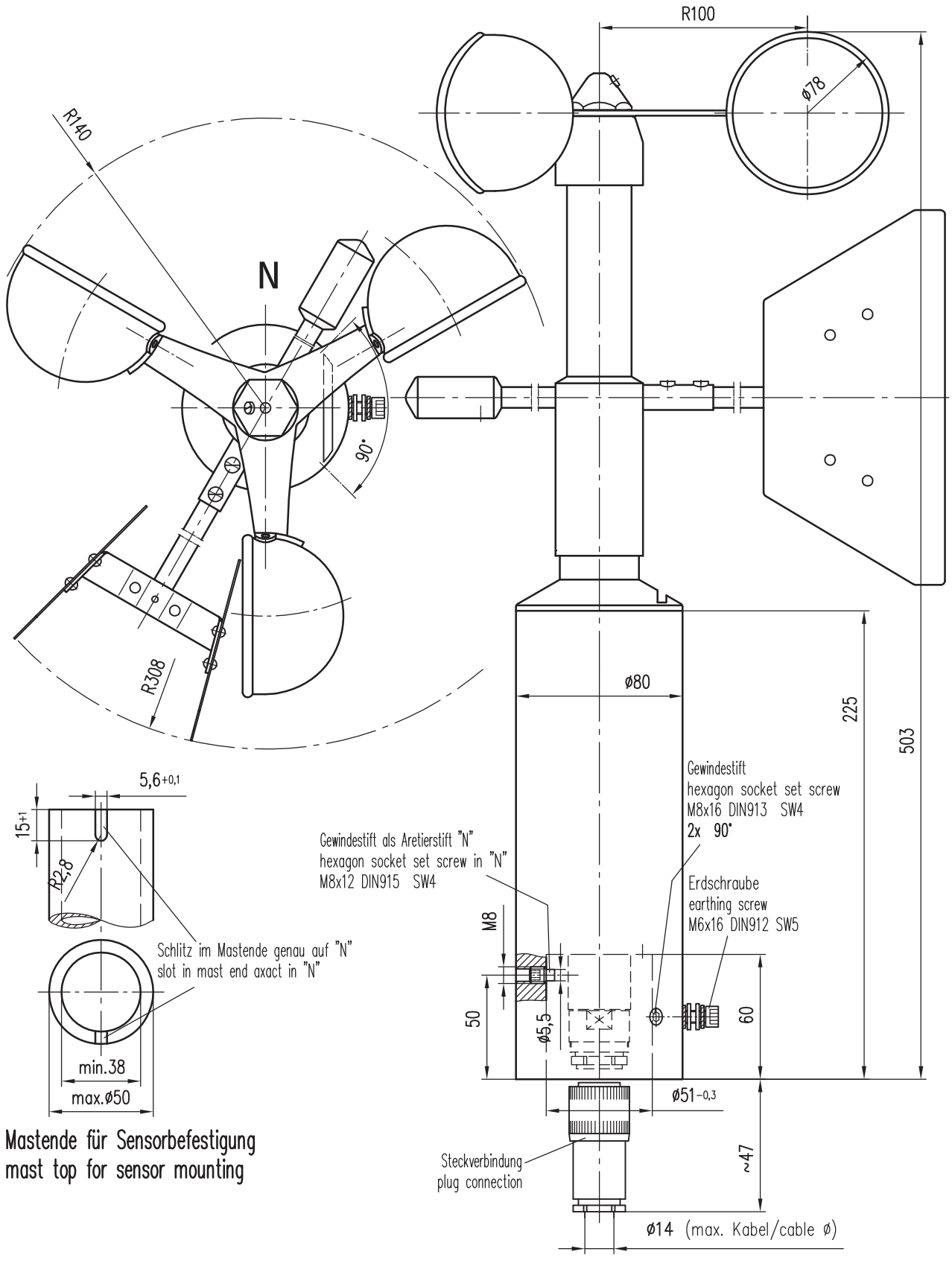

Getriebe
gearing
i 1:1
Heizung, elektron.
geregelt
heating, electron.
controlled
Generator für
Windgeschwindigkeit
generator for
wind speed "G4"
Feinschleifwiderstand
für Windrichtung
precision potentiometer
for wind direction
"F1000"
13
11
12
1 2 3 4 5 6. 7 8 9. 10 11 12
12pol.Steckverbindung
plug connection
0...1000 Ω
(0...358°)
24V DC
max. 35W
Ausgang __m/s
output __m/s
nach/acc to TK497 (m/s)
TK498 (knots)


Getriebe
gearing
i 1:1
Heizung, elektron.
geregelt
heating, electron.
controlled
Schlitzinitiator
slit initiator
"J0,1" 18pol.
Feinschleifwiderstand
für Windrichtung
precision potentiometer
for wind direction
"F1000"
13
11
12
1 2 3 4 5 6. 7 8 9. 10 11 12
12pol.Steckverbindung
plug connection
0...1000 Ω
(0...358°)
24V DC
max. 35W
Ausgang "J__"
output "J__"
nach/acc to TK492


Getriebe
gearing
i 1:1
Heizung, elektron.
geregelt
heating, electron.
controlled
Generator für
Windgeschwindigkeit
generator for
wind speed "G4"
Feinschleifwiderstand
für Windrichtung
precision potentiometer
for wind direction
"N"
1
2
3
12/2
12/1
1 2 3 4 5 6. 7 8 9. 10 11 12
12pol.Steckverbindung
plug connection
Ausgang "N"
output "N"
12V
24V DC
max. 35W
Ausgang __m/s
output __m/s
nach/acc to TK497 (m/s)
TK498 (knots)

Dimensional drawing

all details in mm



Versions	Specification	Id-No.
(14512 G4N) Sensor for wind direction and wind speed	3-armed cup rotor with DC generator G4 as measuring element, wind vane with two fins and precision ring potentiometer as measuring element. Weather resistant housing, anodized and lacquered. Housing for mounting on a fitting tube with 50 mm outer-Ø. Operating temperature range: >0...+70 °C Operating voltage: 12 V_{DC}	00 .14512. 060 300
(14512 HG4N) Sensor for wind direction and wind speed, with shaft heating	similar (14512 G4N), but with electrical shaft heating (regulated electronically) Operating temperature range: -35...+70 °C Operating voltage: 24 V_{DC}, 30 VA	00 .14512. 260 300
(14512 G4F1000) Sensor for wind direction and wind speed	3-armed cup rotor with DC generator G4 as measuring element, wind vane with two fins and linear resistance F1000 as measuring element. Weather resistant housing, anodized and lacquered. Housing for mounting on a fitting tube with 50 mm outer-Ø. Operating temperature range: >0...+70 °C Operating voltage: 12 V_{DC}	00 .14512. 060 030
(14512 HG4F1000) Sensor for wind direction and wind speed, with shaft heating	similar (14512 G4F1000), but with electrical shaft heating (regulated electronically) Operating temperature range: -35...+70 °C Operating voltage: 24 V_{DC}, 30 VA	00 .14512. 260 030
(14512 IF1000) Sensor for wind direction and wind speed	3-armed cup rotor with inductive proximity switch acc. DIN 19 234 as measuring element, wind vane with two fins and linear resistance F1000 as measuring element. Weather resistant housing , anodized and lacquered. Housing for mounting on a fitting tube with 50 mm outer-Ø. Operating temperature range: >0...+70 °C Operating voltage: 12 V_{DC}	00 .14512. 070 030
(14512 HI F1000) Sensor for wind direction and wind speed, with shaft heating	similar (14512 I F1000)I, but with electrical shaft heating (regulated electronically) Operating temperature range: -35...+70 °C Operating voltage: 24 V_{DC}, 30 VA	00 .14512. 270 030

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