FINO3 – Meta data

Institutions / contact persons	
Operator of platform	FuE-Zentrum FH Kiel GmbH
Contact person	Jan Bachmann
Operator of met. measurement	DNV GL
Contact person	Detlef Stein
Operator of data management	BSH
Contact person	Olaf Outzen

Platform	
Name	FINO3
Position Platform [°,min,sec]	N55° 11' 42" E7° 9' 30"
Water depth (Ref.:SKN) [m]	20
Height of platform deck [m ü. SKN]	22
Area of main deck (m*m)	13*13
Heli pad	yes
Foundation	Monopile

Mast	
Geometry	square
Length [m]	81.5
TOP Height [m above LAT]	103.7
Length of the edge bottom [m]	4
Length of the edge top [m]	1
Number of segments	4

FINO WIND

Data acquisition system				
	Manufacturer	Type	Number	Bus system
Logger	IMC	Cronos CS 1208	1	CAN
	Manufacturer	Type	Number	Bus system
Back-up-Logger	Campbell Scientific	CR1000	1	-
electr. supply	Battery and PV			

Mast and boom dimensions									
Number of measuring heights	13								
Number of booms	24								
Orientations [°]	345	345	105, 225, 345	105, 225, 345	105, 225, 345	105, 225, 345	105, 225, 345	105, 225, 345	345
Height above LAT [m]	Level 1	level 2	level 3	Level 4	level 5	level 6	level 7	level 8	level 9
	30	40	50	60	70	80	90	100	107
Boom length [m]	8,4	7,5	6,7	6,2	5,4	4,6	3,9	3,2	3,5
Boom diameter [m]	0,1 x 0,1	0,1 x 0,1	0,1 x 0,1	0,1 x 0,1	0,1 x 0,1	0,1 x 0,1	0,1 x 0,1	0,1 x 0,1	0,1 x 0,1
Width of mast [m]	5,57	5,07	4,57	4,06	3,56	3,06	2,55	2,05	0
Diameter of mast shaft [m]	0,4	0,35	0,3	0,3	0,268	0,219	0,188	0,168	0,5
Structural tubing diameter (diagonal) [mm]	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
Solidity (acc. IEC 61400-12-1)		-	-	0,426	-	-	-	-	-

Sensor Overview													
Device	Measurand	Manufacturer	Sensor Type	Accuracy	Units	Position	Orientation [°]	Method of orientation	Boom height above LAT [m]	Measuring height above LAT [m]	Measuring height above MSL [m]	Horizontal distance to outer edge of mast [m]	Vertical dist. above boom [m]
Cup anemometer	Wind speed	Vector	A100L2	± 2%	m/s	boom	345°	-	105,40	107,15	106,55	3,5	1,75
Cup anemometer	Wind speed	Vector	A100L2	± 2%	m/s	boom	345°	-	99,40	101,15	100,55	3,2	1,75
Wind vane	Wind direction	Friedrichs	41211000	-	°	boom	105°	Along boom to the mast	99,15	101,15	100,55	3,2	2
Ultrasonic anemometer	Wind direction	RM Young	Mod 81000	± 2%	°	boom	225°	Along boom to the mast	99,65	101,15	100,55	3,2	1,5
Ultrasonic anemometer	Wind speed	RM Young	Mod 81000	± 1 %	m/s	boom	225°	-	99,65	101,15	100,55	3,2	1,5
Thermometer	Air temperature	Thies	1.10005.54.241	± 0,2 K	°C	boom	180°	-	-	95,9	95,3	3,9	-
Hygrometer	Relative humidity of air	Thies	1.10005.54.241	± 2 %	%	boom	180°	-	-	95,9	95,3	3,9	-
Barometer	Air pressure	Vaisala	PTB100	± 2 hPa @ -20…+45°C	hPa	control box A	-	-	-	95,2	94,6	3,9	-
Precipitation sensor	Precipitation	Thies	5.4103.10.000	-	1/0	boom	45°	-	-	95,9	95,3	3,9	-
Cup anemometer	Wind speed	Vector	A100L2	± 2 %	m/s	boom	345°	-	89,40	91,15	90,55	3,9	1,75
Cup anemometer	Wind speed	Vector	A100L2	± 2 %	m/s	boom	225°	-	89,65	91,15	90,55	3,9	1,5
Cup anemometer	Wind speed	Vector	A100L2	± 2 %	m/s	boom	105°	-	89,15	91,15	90,55	3,9	2
Wind vane	Wind direction	Friedrichs	41211000	-	°	boom	105°	Along boom to the mast	79,15	81,15	80,55	4,6	2
Cup anemometer	Wind speed	Vector	A100L2	± 2 %	m/s	boom	345°	-	79,40	81,15	80,55	4,6	1,75
Cup anemometer	Wind speed	Vector	A100L2	± 2 %	m/s	boom	225°	-	79,65	81,15	80,55	4,6	1,5
Cup anemometer	Wind speed	Vector	A100L2	± 2 %	m/s	boom	345°	-	69,40	71,15	70,55	5,4	1,75
Cup anemometer	Wind speed	Vector	A100L2	± 2 %	m/s	boom	105°	-	69,15	71,15	70,55	5,4	2
Cup anemometer	Wind speed	Vector	A100L2	± 2 %	m/s	boom	225°	-	69,65	71,15	70,55	5,4	1,5
Cup anemometer	Wind speed	Vector	A100L2	± 2 %	m/s	boom	345°	-	59,40	61,15	60,55	6,2	1,75
Wind vane	Wind direction	Friedrichs	41211000	-	°	boom	105°	Along boom to the mast	59,15	61,15	60,55	6,2	2
Ultrasonic anemometer	Wind direction	RM Young	Mod 81000	± 2%	°	boom	225°	Along boom to the mast	59,65	61,15	60,55	6,2	1,5
Ultrasonic anemometer	Wind speed	RM Young	Mod 81000	± 1 %	m/s	boom	225°	-	59,65	61,15	60,55	6,2	1,5
Hygrometer	Relative humidity of air	Thies	1.10005.54.241	± 2 %	%	boom	180°	-	-	55,9	55,3	6,7	-
Thermometer	Air temperature	Thies	1.10005.54.241	± 0,2 K	°C	boom	180°	-	-	55,9	55,3	6,7	-
Cup anemometer	Wind speed	Vector	A100L2	± 2 %	m/s	boom	105°	-	49,15	51,15	50,55	6,7	2
Cup anemometer	Wind speed	Vector	A100L2	± 2 %	m/s	boom	345°	-	49,40	51,15	50,55	6,7	1,75
Cup anemometer	Wind speed	Vector	A100L2	± 2 %	m/s	boom	225°	-	49,65	51,15	50,55	6,7	1,5
Cup anemometer	Wind speed	Vector	A100L2	± 2 %	m/s	boom	345°	-	39,40	41,15	40,55	7,5	1,75
Cup anemometer	Wind speed	Vector	A100L2	± 2 %	m/s	boom	345°	-	29,40	31,15	30,55	8,4	1,75
Wind vane	Wind direction	Vector	W200P	± 3 °	°	boom	180°	Along boom to the mast	-	29,5	28,9	8,4	-
Thermometer	Air temperature	Thies	1.10005.54.241	± 2 %	°C	boom	180°	-	-	29,5	28,9	8,4	-

Sensor Overview													
Device	Measurand	Manufacturer	Sensor Type	Accuracy	Units	Position	Orientation [°]	Method of orientation	Boom height above LAT [m]	Measuring height above LAT [m]	Measuring height above MSL [m]	Horizontal distance to outer edge of mast [m]	Vertical dist. above boom [m]
Hygrometer	Relative humidity of air	Thies	1.10005.54.241	± 0,2 K	%	boom	180°	-	-	29,5	28,9	8,4	-
Pyranometer	Global irradiance	Thies	7.1415.01.001	-	W/m²	boom	180°	-	-	29,5	28,9	8,4	-
Barometer	Air pressure	Vaisala	PTB100	2 hPa @ -20…+45°C	hPa	control box D	-	-	-	23,9	23,3	-	-
Precipitation sensor	Precipitation (status)	Thies	5.4103.10.000	-	1/0	Container roof	-	-	-	24,9	24,3	-	-
Precipitation sensor	Precipitation	Thies	5.4032.35.007	3%	mm	Container roof	-	-	-	-	-	-	-
Barometer	Air pressure	Vaisala	PTB100	2 hPa @ -20…+45°C	hPa	Rack	-	-	-	-	-	-	-

Record of relevant building activities and other events	
Date	**Event**
10.04.2014	Erection of first WEC out of in total 80 turbines at OWP Dan Tysk
01.07.2014	40 WEC erected at OWP Dan Tysk
27.08.2014	All 80 WEC erected at OWP Dan Tysk

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