

# Hopewind Pitch Solutions

PMC Pitch Control System | PMD100 Integrated Pitch Drive

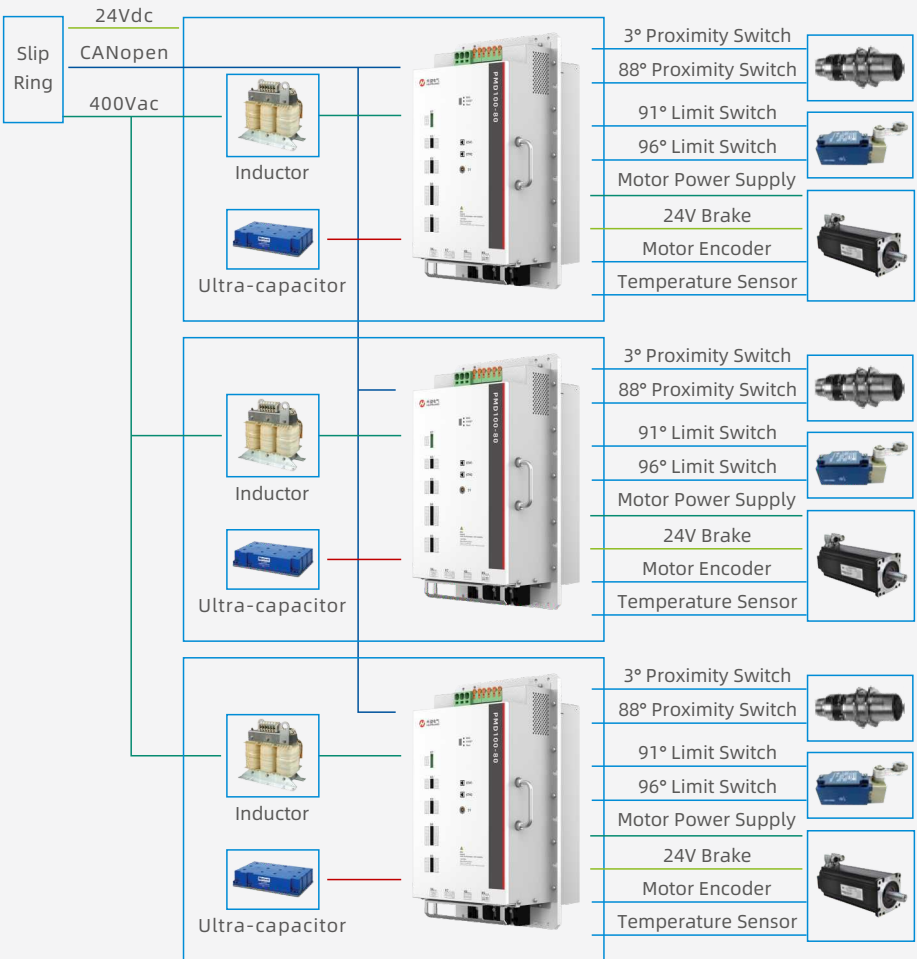
Pitch Control System Retrofit Solution



**HOPEWIND**

# PMC Pitch Control System

PMC Pitch System, consisting of PMD100 Pitch Servo Drive, customized permanent magnet synchronous motor, ultra capacitor or Li-ion batteries, has the characteristics of simple structure, high safety and reliability, and convenient maintenance.



## Permanent Magnet Synchronous Motor



### Features

- High precision, Fast response, High reliability, Low heating
- Small size, Light weight, Easy maintenance

## Technical Specifications

Parameters		Value
Working Environment	Operation Temperature	-30°C~+55°C@hub temperature
	Storage Temperature	-40°C~+70°C
	Relative Humidity	≤95%
	Altitude	≤4000m, derating over 2000m
	Vibration Environment	5Hz~150Hz, acceleration of 10m/s <sup>2</sup>
	Corrosion-proof Level	C3 / C4
	Degree of Protection	IP54
Input AC Power	Input Voltage	400Vac, 3L+N+PE
	Range	-20%~+35%
	Input Frequency	45Hz~66Hz
	Harmonics	<5%
Charging Time (from 0V to 450V)		<5min
Charging Time (after a full-load feathering)		<2min
Three Blades Angle Synchronization Deviation		≤1°
Position Control Accuracy		Max. 0.01°
0.01° Step Response Time		≤100ms
Applicable Wind Turbine		1MW~20MW

# PMD100 Integrated Pitch Drive

PMD100 is an integrated pitch drive developed for pitch systems for the wind power industry, offering a wide range of interfaces and functions. Based on the built-in PLC and wind pitch application libraries, it can be quickly developed to meet different application requirements. Hopewind provides 50A and 80A series drives, which can be applied to 1-20MW wind turbine generators (WTGs).



## Product Series

Type	Rated Output Current (A)	Peak Output Current (A)	Motor power (kW)
PMD100-50	50	130	22
PMD100-80	80	280	42

## Product Features



### High Integration

The PMD100-based pitch system reduces components and wiring by 30%, minimizing points of failure and the fault rate.



### Flexible and Easy to Use

The control platform is open and secure, and the built-in PLC and wind turbine pitch application libraries facilitate rapid secondary development to meet the requirements of different applications.



### Strong Environmental Adaptability

With a wide operating temperature range, -40 to 60°C, this system is suitable for high- and low-temperature environments, high altitude, and areas subject to salt spray. Its strong grid adaptability allows the system to meet the requirements for HVRT and LVRT.



### High Safety and Reliability

The safe feathering strategy featuring both hardware and software redundancy and the built-in hub speed detection and protection unit ensure the safety of the WTGs.

## Technical Specifications

Type	PMD100-50	PMD100-80
Rated Input Voltage	400Vac	400Vac
Input Voltage Range	320Vac~540Vac	320Vac~540Vac
Rated Output Voltage	50Aac	80Aac
Peak Output Current	130Aac (3s)	280Aac (3s)
Linear Busbar Operating Voltage	150V~800V	150V~800V
Charging Output Voltage	0V~500V	0V~500V
Charging Output Current	0A~5A	0A~8A
Low Voltage Holding Brake Output	24V / 4A	24V / 6A
High Voltage Holding Brake Output	150V~300V / 0.7A	150V~300V / 0.7A
24V Power Supply Output	3A	6A
Working Temperature	-30°C~+60°C	-40°C~+60°C
Altitude	≤3000m	≤4000m
Protection Grade	Inside: IP20 / C3 Outside: IP54 / C4	Inside: IP20 / C3-H Outside: IP54 / C5-M

## Interface Type

Type	PMD100-50	PMD100-80
Motor Encoders	1(Resolver / TTL)	1(Resolver)
Paddle Encoders	1(SSl)	1(SSl)
Bus Communication Interface	1(CANopen)	1(CANopen)
Safety DI	1	2
Safety Relay	1	2
DI / DO / AI	20 / 10 / 3	20 / 12 / 3
Pt100 Detection	4	4
Motor Temperature Detection	1(KTY / PTC / PT1000)	1(KTY / PTC / PT1000)
Commission Interface	EtherNet	EtherNet

# Retrofit Solution

For older WTGs, we provide solutions such as complete pitch system replacement, component replacement, and grid-related transformation. By upgrading the pitch systems in older wind farms, we continuously improve WTGs performance and enhance the economic performance of the wind farm. Hopewind's PMC pitch control system has the advantages of a simple structure, high safety and reliability, and easy maintenance. From 2019 to 2023, Hopewind has helped upgrade the pitch systems of more than 800 WTGs.

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## Successful Cases

**Aerial Grassland Wind Farm in Wei county, Zhangjiakou, Hebei Province**



**Zhuozi Wind Farm in Ulanqab, Inner Mongolia**



**Taiyangshan Wind Farm in Wuzhong, Ningxia**



**Lihanliang Wind Farm in Wuchuan County, Inner Mongolia**



**Kangbao Wind Farm in Zhangjiakou, Hebei**



**Tongxin Wind Farm in Wuzhong Ningxia**



# Pitch Remote Monitoring System

In the transformation and upgrade of older model pitch systems, Hopewind is particularly aware of the original Scada system's shortcomings in analyzing the pitch fault information. Therefore, we provide a solution for comprehensive remote monitoring of all pitch systems in the wind farm, which supports integrated pitch management across multiple WTGs.

## Product Benefits



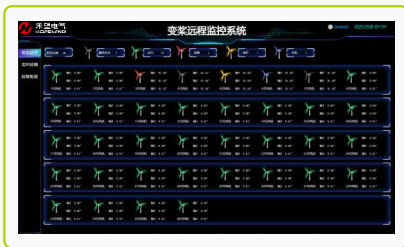
### Independent Construction

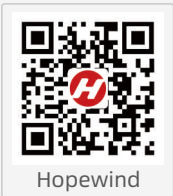
The PMD100 adopts wireless transmission of pitch data, avoiding replacing slip rings, and thus is broadly applicable. Building upon the original communication structure of the WTGs, integrated pitch system monitoring and management for the whole wind farm can be carried out in the central control room.



### Fault Recording

In addition to features such as real-time fault alarming, historical fault query, and fault recording, the system supports one-click export of fault data for one or more WTGs.





Hopewind

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