

## Oxygen monitoring

### Waigaoqiao No 2 power generation station Shanghai China



Endura AZ20 zirconia oxygen monitor – the latest in a long line of high-quality, combustion gas analyzers

**Measurement made easy**

Oxygen monitoring  
Waigaoqiao No 2 power  
generation station  
Shanghai China

## Introduction

The Waigaoqiao Power Station is a large power station in Shanghai, China. It shares the title of the second largest coal power station in the world, and the largest thermal power station in China, with the Guodian Beilun Power Station, at an installed capacity of 5,000 MW. The power stations produce up to 11.4 TWh of energy annually and the 3 phases belong to 3 different power investment groups; Phase I: Shenneng Power, Phase II: China power investment, Phase III: Joint-venture of Shenneng and China Guodian.

## For more information

Further details of ABB Measurement & Analytics products are available for free download from:  
[www.abb.com/measurement](http://www.abb.com/measurement)

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## ABB's Endura AZ20 oxygen monitor

The AZ20 sensor, based on a zirconium oxide cell, is mounted at the tip of the probe that is inserted in the flue duct. The resulting direct, in situ measurement provides accurate and rapid oxygen reading for combustion control optimization and emissions monitoring.

### What are the main benefits with the AZ20 oxygen monitor?

We ask Mr Hua Cao, Technology Manager and Mr Lei Gao, Head of Maintenance of Instrumentation & Control and Mr Tianwei Xia, Maintenance Engineer, all three working at Waigaoqiao No 2 Power Generation Co., Ltd in Pudong New Area, Shanghai, China:

"Here at Waigaoqiao No 2 Power Station, today there are totally twelve (12) AZ20 oxygen monitors from ABB Measurement Products installed in the flue ducts. There are six AZ20 oxygen monitors installed on each unit, and Waigaoqiao No 2 power station has 2 units. Three probes are installed on each side of the power station unit. In order to get the most appropriate value we take the average value from the 3 probes installed on each side."



3 probes installed, viewed from an 80 m high platform

"The AZ20 has an advanced design and is very robust with a long-life probe for process temperatures up to 800 °C."

"AZ20 provides very stable and accurate oxygen measurement and we are very happy with the installation"

"The AZ20 oxygen monitors have been running for 6-12 months and they are working very well. We have not had any problems whatsoever."



3 probes installed on every side of the ducts

"There is no need for maintenance with AZ20 and they are working just fine. There is less maintenance than the previous old analyzers."

"If we have to change the AZ20 then we replace the entire probe. The cell release is easy with the fully site-serviceable probe and there is easy access to internal components."

"We have an annual shutdown of the boiler in April-May for about 4 weeks when we go through checklists and milestones. Then we check everything and also ABB Measurement Products including Pressure transmitters, Positioners and Endura AZ20 zirconia oxygen monitors."

"Our channel partner is fixing cabinets, wiring, calibration gas tubes, etc. Calibration gas tubes go out to the probes and max cable length is 100 m, connecting the transmitter to the probe. The advanced transmitters provide easy configuration, monitoring and intuitive HMI, HART communications and cell performance logging and diagnostics."



“The unique integrated auto-calibration system provides easy compliance for emission monitoring regulation and reduced installation costs.”



Gate entrance to Waigaoqiao No 2 Power Station

With probe lengths up to 4.0 m (13.1 ft) and industry-standard flange configurations, the AZ20 oxygen monitor is suitable for a wide range of applications and extensive installation options



AZ20 Oxygen monitor

## Facts on Waigaoqiao Power Station, Shanghai, China

- Type
  - coal-fired power station
- Location
  - Pudong New Area, Shanghai, China
- Capacity
  - 5,000MW
- Number of Units
  - eight
  - (4 x 300MW, 2 x 900MW, 2 x 1,000MW)
- Construction started
  - Phase I (1992)
  - Phase II (2001),
  - Phase III (2006)
- Completion
  - Phase I (1997)
  - Phase II (2004)
  - Phase III (2008)
- Estimated Investment
  - Phase II: \$1.8bn
  - Phase III: \$1.5bn



Waigaoqiao Power Station, Shanghai, China



AZ20 zirconia transmitters in situ

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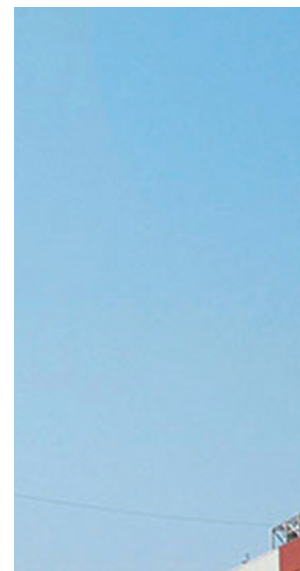
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