



WONDER SMART CONTROLLER

Singapore Patent No. 10201804068S

Wonder Smart controller is universal controller that designed and developed by Wonder Engineering to address the process challenge and easy maintenance with below functionality:

1. Predictive maintenance for Long Routine Sensors
2. Tank Site Monitoring
3. User-friendly Batch Controller for truck loading



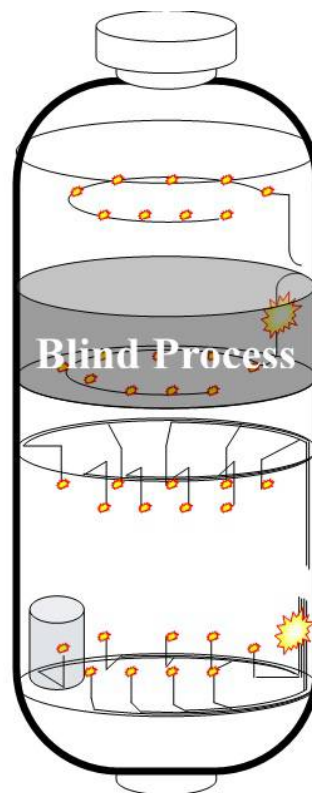
1. Wonder® S30D

– Predictive Maintenance

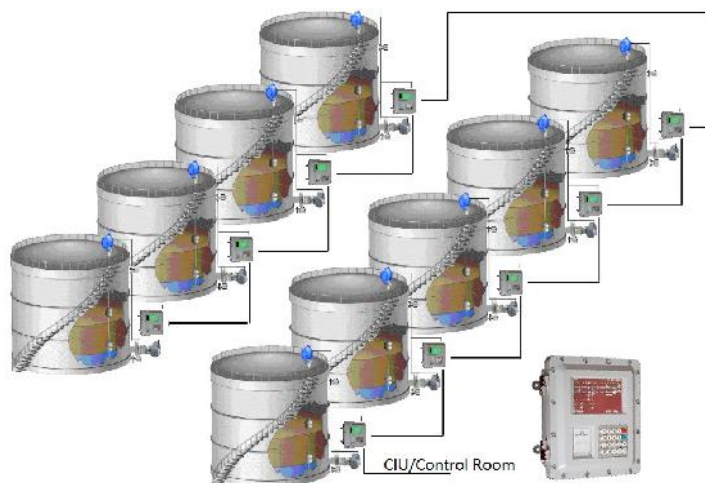
Long routine thermocouple is always the critical temperature instruments in every refining process, like Reactor Multipoint and furnace/heater tube skin thermocouples.

Long lead time, high replacement cost create headache on such critical sensor maintenance. however, there is no any method to provide a predictive information for End User before the sensor physical failure- signal lost in DCS.

Wonder® S30D is proprietary instrument that deigned to provide predictive maintenance on the long routine sensors, with no interferant with the temperature loops. The S30D can continuously read the temperature reading and sensor probe characters locally, provide a status indication and trend on site. instrument/operation personal can simply tape the card on the card reader then extract the sensor status before the turnaround, a report will be generated by the software to provide with the useful information as maintenance reference.



2. Wonder® S30D – Tank Site Indicator



Another function of Wonder® Smart Controller is Tank Site Indicator, which is to replace or improve from the traditional tank side indicator. With the same hardware platform, the module can communication via different protocol to the Tank Gauging system, provide a local indication at the ground level. Different than the typical tank side indicator, Wonder® S30D can local and remote Tank information up to 16 tanks, that is why we name it as Tank Site Indicator.

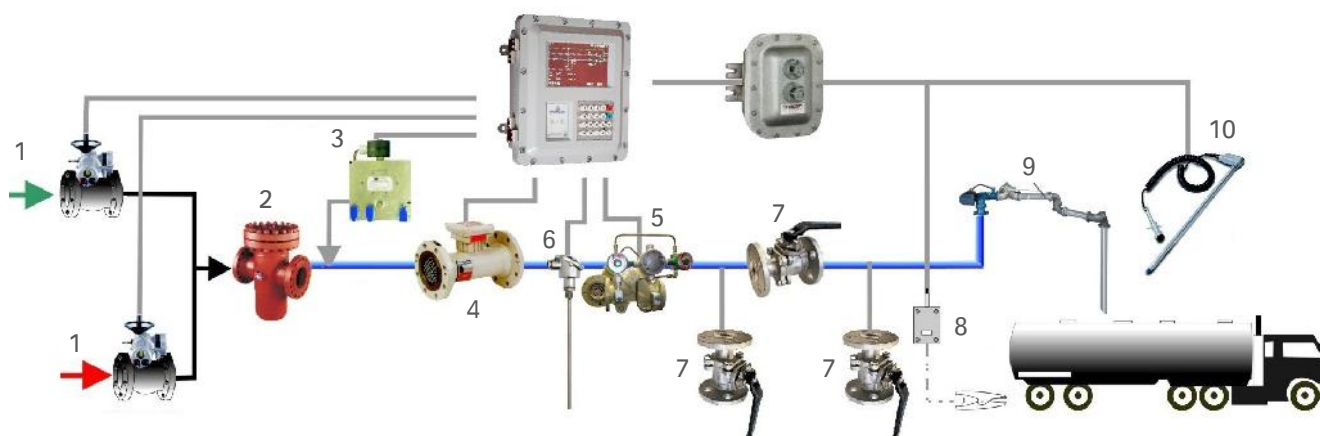
- Local indication plus Remote, up to 16 tanks
- With local trending display that more than temperature and level numeric indication
- Power supply flexibility (24VDC, 110VAC or 230VAC)
- Communication compatible with open protocol like Hart, Modbus, Enraf BPM (FSK2)
- Configurable as user request for local calculation

3. Wonder® S30D – Batch Controller for Truck Loading

Wonder® smart controller accepts process input signals from and provides process control signals to the common instruments and devices used in liquid batch delivery systems or the Tank Storage Units. S30D can be used for single or multi-stream flow and batch control, include various liquid petrochemical products, LPG, LNG etc., up to 8 configurable recipes, allows to predefined loading control operation, for multiple products quantities or blending ratios. It is designed to deliver single component liquids or to blend up to four liquid components in precise ratios, with or without additive injection.

These instruments and devices include:

- Liquid flow meters
- Solenoid-controlled digital flow control valves• Additive Injectors & Densitometer
- Security devices for verifying electrical ground connections and compartment overfills.
- Electric Motor drive pumps.
- Motor Operated On/Off valves and Analog Control Valve
- Tank Gauging System (Compatible with Rosemount, SAAB, Enraf, E+H, MTS etc.)





**REPUBLIC OF SINGAPORE
THE PATENT ACT (CHAPTER 221)
CERTIFICATE ISSUED UNDER SECTION 35**

I HEREBY CERTIFY that under the provisions of the Patent Act, a patent has been granted in respect of an invention having the following particulars:

TITLE : AN APPARATUS ADAPTABLY USABLE IN A
SYSTEM AND A CONFIGURATION METHOD
ASSOCIATED THEREWITH

**APPLICATION NUMBER/
PATENT NUMBER** : 10201804068S

DATE OF FILING : 14 MAY 2018

PRIORITY DATA : -

NAME OF INVENTOR(S) :

**NAME(S) AND ADDRESS(ES)
OF PROPRIETOR(S) OF
PATENT** : WONDER ENGINEERING TECHNOLOGIES
PTE. LTD.
10 BUKIT BATOK CRESCENT #04-05
THE SPIRE
SINGAPORE 658079

DATE OF GRANT : 28 April 2020

DATED THIS 28th DAY OF APRIL 2020



Daren Tang Heng Shim
Registrar of Patents
Singapore

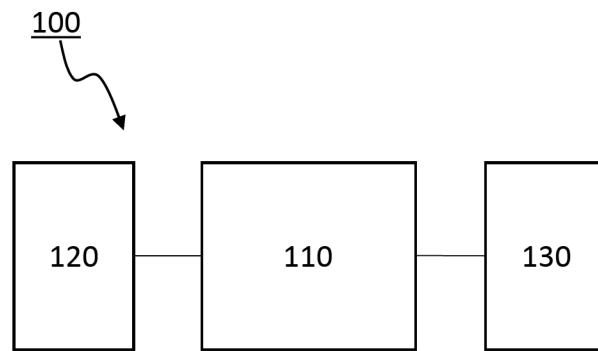


Fig.1

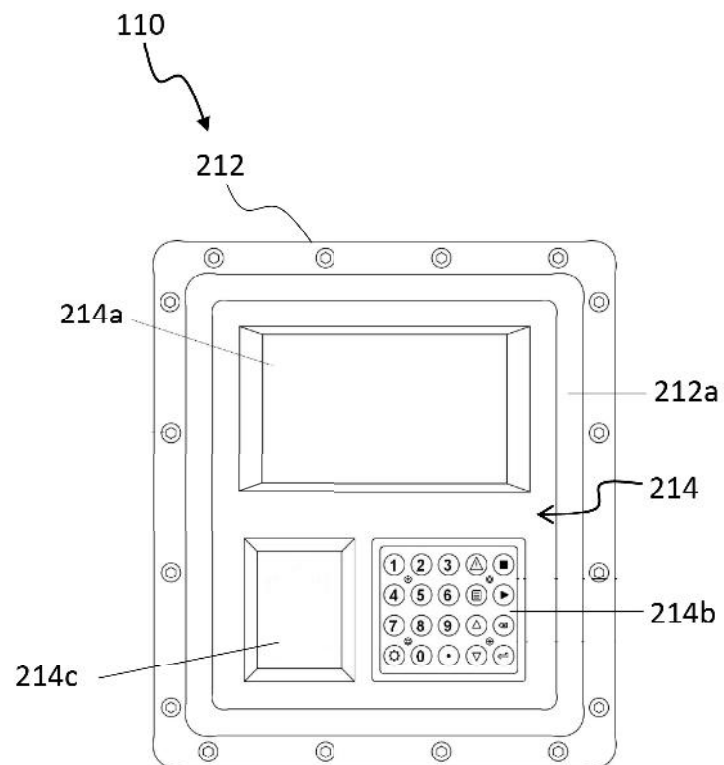


Fig.2a

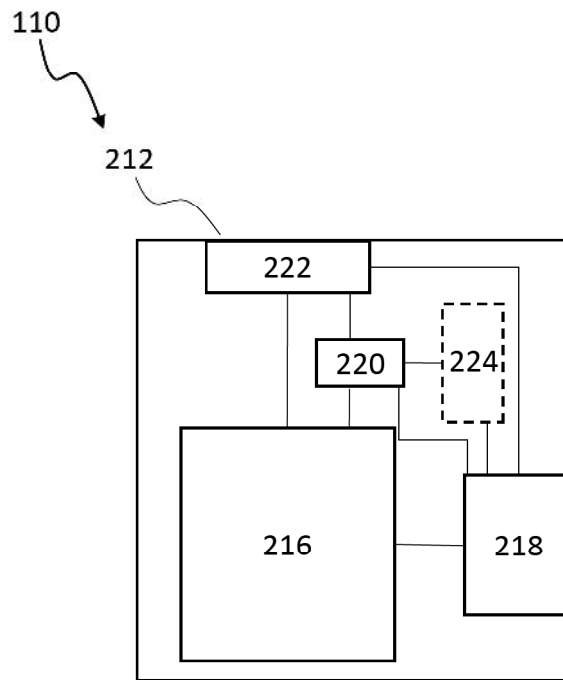


Fig. 2b

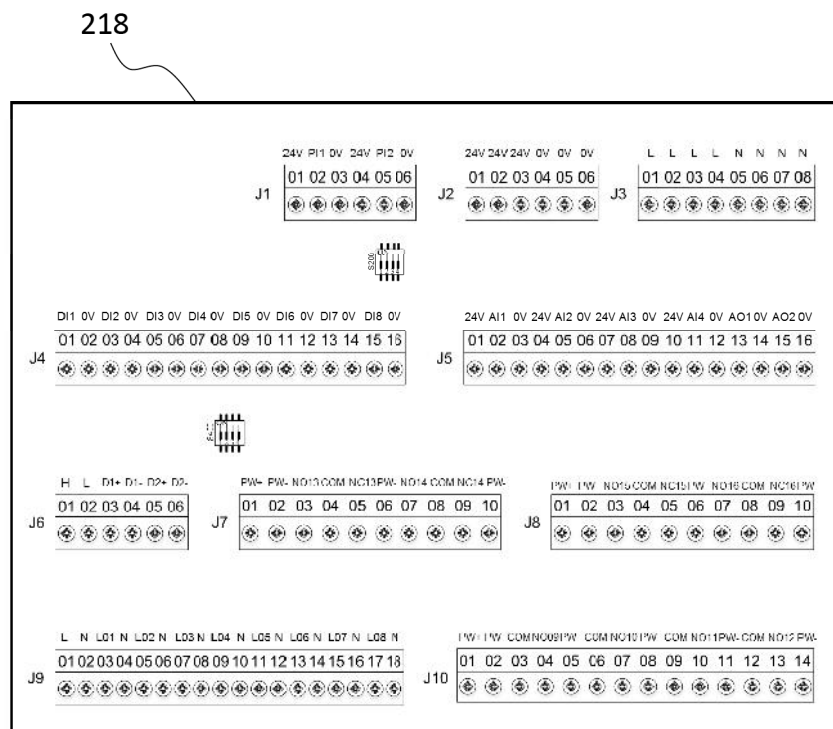


Fig. 3a

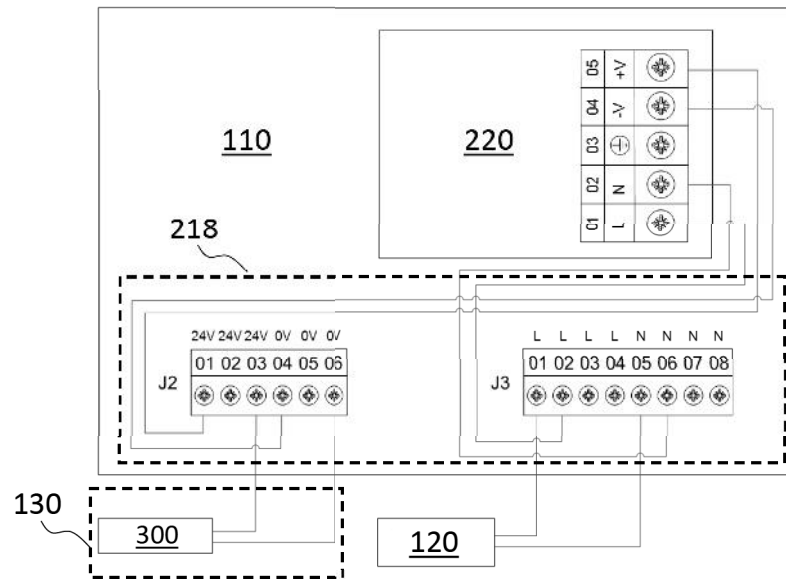


Fig.3b

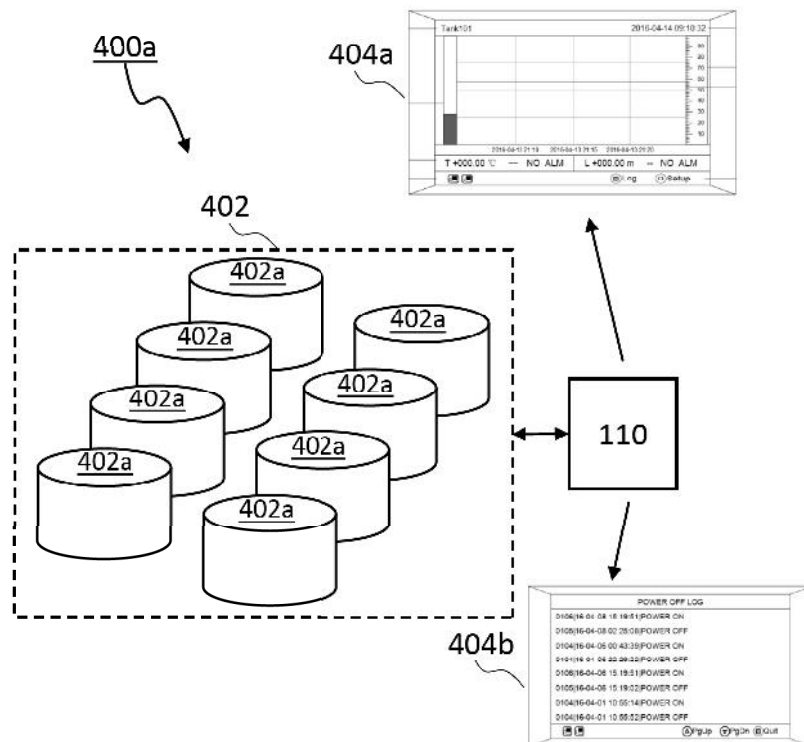


Fig.4a

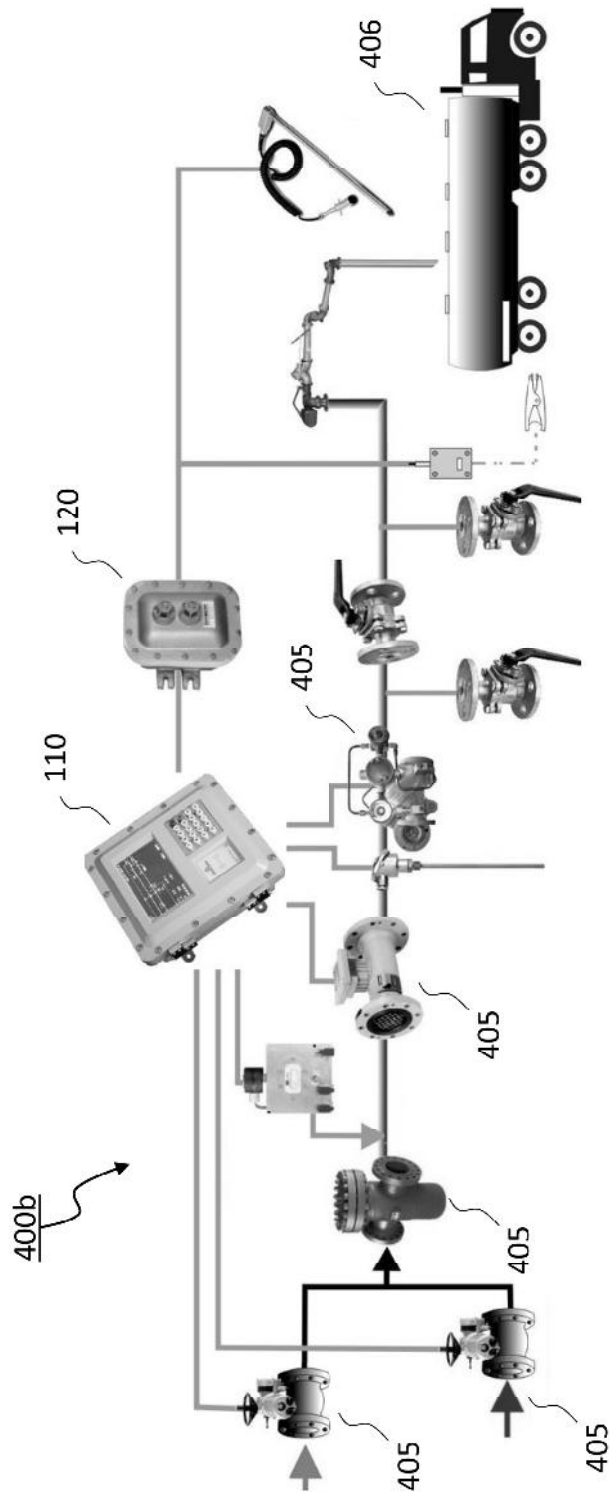


Fig.4b

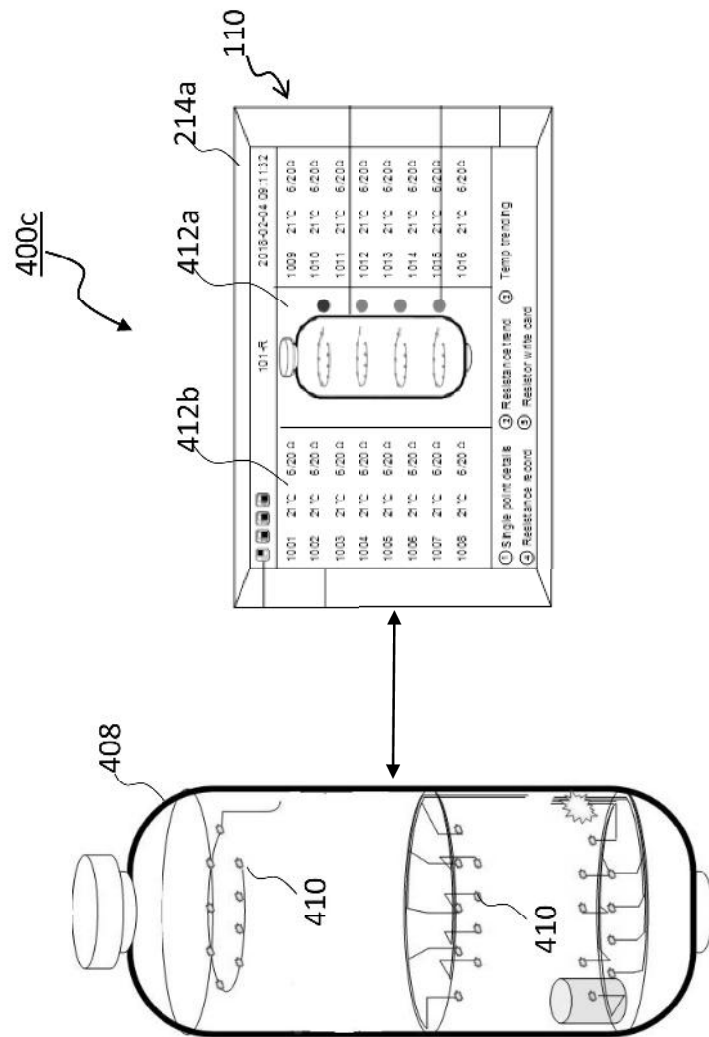


Fig.4c

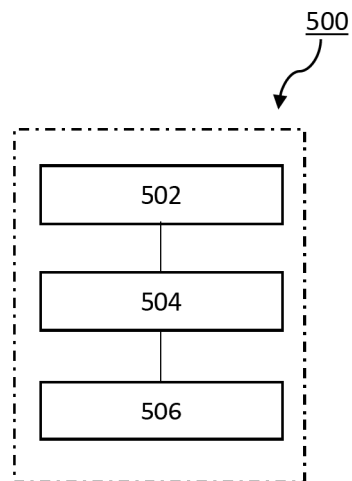


Fig.5



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx NEP 18.0015X

Issue No: 0

Certificate history:

Issue No. 0 (2018-11-29)

Status: Current

Page 1 of 3

Date of Issue: 2018-11-29

Applicant: Wonder Engineering Technologies Pte Ltd.
10 Bukit Batok Crescent #04-05, Singapore 658079
Singapore

Equipment: Wonder® Smart Controller, Model S30D

Optional accessory:

Type of Protection: Ex d

Marking:

Ex db IIB T6 Gb

IP66

Ta range: -20°C < Ta < +55°C

Approved for issue on behalf of the IECEx

Certification Body:

Xu Jianping

Position:

Managing Director

Signature:

(for printed version)

Date:

29 Nov., 2018

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

Shanghai Inspection and Testing Institute of Instruments and
Automatic Systems Co., Ltd. (SITIIAS) / National Supervision and
Inspection Center for Explosion Protection and Safety of
Instrumentation (NEPSI)
103 Cao Bao Road
Shanghai 200233
China



SITIIAS
Worldwide Access



IECEx Certificate of Conformity

Certificate No: IECEx NEP 18.0015X Issue No: 0
Date of Issue: 2018-11-29 Page 2 of 3
Manufacturer: Wonder Engineering Technologies Pte Ltd.
10 Bukit Batok Crescent #04-05, Singapore 658079
Singapore

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"

This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[CN/NEP/ExTR18.0016/00](#)

Quality Assessment Report:

[CN/NEP/QAR18.0010/00](#)



IECEx Certificate of Conformity

Certificate No: IECEx NEP 18.0015X

Issue No: 0

Date of Issue: 2018-11-29

Page 3 of 3

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

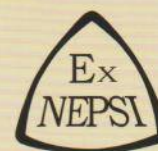
Wonder® Smart Controller typed S30D is a universal controller with functionalities as batch Controller for fuel or petrochemical liquid product loading, Predictive Maintenance for Long Routing Sensors Tank-Site Monitoring etc. It is suitable for use in hazardous areas with gas atmospheres (Group IIB) which require equipment of EPLs Gb or Gc.

This controller consists of a shell body and cover made of die casting aluminium alloy, two glass windows (the large one is designed as LCD display and the small one is used for customized features to suit for different process application), one keyboard with magnetic buttons, control & IO boards. 5 cable entries in thread form NPT $\frac{1}{2}$ are supplied for connecting to cable glands or blanking elements certified separately.

The enclosure is rated IP66.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. Repairs of the flameproof joints may only be made by the manufacturer or on behalf of the manufacturer and on his own responsibility. Repair in compliance with the values in IEC 60079-1 is not accepted.
2. The cable entries have to be connected by means of suitable cable glands or blanking elements with type of protection of Ex d IIB Gb IP66. The cable entry device shall be approved in accordance with IEC60079-0:2011 and IEC60079-1:2014, and which are covered by a separate conformity certificate.
3. The property class of the fasteners which are relevant to the flameproof joint should be at least A2-70.



EXPLOSION PROTECTION

CERTIFICATE OF CONFORMITY

Cert NO.GYJ18.1489X

This is to certify that the product

Wonder Smart Controller

manufactured by Wonder Engineering Technologies Pte Ltd.

(Address:10 Bukit Batok Crescent #04-05, Singapore 658079, Singapore)

which model is S30D

Ex marking Ex dIIB T6 Gb

product standard /

drawing number S30D-01

has been inspected and certified by NEPSI, and that it conforms to GB 3836.1-2010,GB 3836.2-2010

This Approval shall remain in force until 2023.11.26

Remarks

- 1.Conditions for safe use are specified in the instructions.
- 2.Symbol "X" placed after the certification number denotes specific conditions of use: For information on the dimensions of the flameproof joints contact the manufacturer.
- 3.Safe parameters: 220V/50Hz.
- 4.The property class of the fasteners which are relevant to the flameproof joint should be at least A2-70.
- 5.Degree of protection of enclosure: IP66.

Director

**National Supervision and Inspection Centre for
Explosion Protection and Safety of Instrumentation**

Issued Date 2018.11.27



This Certificate is valid for products compatible with the documents and samples approved by NEPSI.



防爆合格证

证号: GYJ18.1489X

由 Wonder Engineering Technologies Pte Ltd. 制造的产品:
(地址: 10 Bukit Batok Crescent #04-05, Singapore 658079, Singapore)
名称 Wonder 批量控制仪
型号规格 S30D
防爆标志 Ex d II B T6 Gb
产品标准 /
图样编号 S30D-01

经图样及技术文件的审查和样品检验, 确认上述产品
符合 GB 3836.1-2010、GB 3836.2-2010 标准,
特颁发此证。

本证书有效期: 2018年11月27日至2023年11月26日

备注 1. 安全使用注意事项见使用说明书。
2. 证书编号后缀“X”表明产品具有安全使用特殊条件: 涉及隔爆接合面的维修须联系产品制造商。
3. 安全电气参数: 220V/50Hz。
4. 隔爆接合面用紧固件性能等级为A2-70。
5. 产品外壳防护等级IP66。

站长



国家级仪器仪表防爆安全监督检验站
颁发日期二〇一八年十一月二十七日

本证书仅对与认可文件和样品一致的产品有效。

地址: 上海市漕宝路103号
邮编: 200233

网址: www.nepsi.org.cn
Email: info@nepsi.org.cn

电话: +86 21 64368180
传真: +86 21 64844580



Reference List of Wonder® Smart Controller

S/N	Functionality	End User/Site	Scope	Qty	Remark
1	LNG Loading/unloading	LNG ISO-TANK and Bunker Vessel/Barges Loading Facility at Jurong port	LNG Loading/Unloading -Batch controller, TAS [Termination Automation System] for 6 loading bay	6 units	Contract Awarded in 2019
2	LNG Loading/unloading	Pengerang LNG (II) SDN BHD [Petronas Malaysia]	LNG Loading/Unloading Skid assembly - Batch controller, TAS [Termination Automation System] for 2 loading bay with four loading arm] of 1st phase	4 units	Contract Awarded in 2019
3	LNG Loading/unloading	Bintulu T75 LNG Terminal, 100w tons/yr, 56k Container/yr	LNG Loading/Unloading -Skid assembly - Batch controller, TAS [Termination Automation System] - LNG Loading/Unloading - Tiger clean energy ltd	12 units	FAT Completed in Nov, 2019
4	Loading/unloading	Petro China Guangxi Qin Zhou - Loading/unloaing	Batch controller, TAS [Termination Automation System] - LNG Loading/Unloading	40 units	Contract Awarded in 2019
5	Tank site monitoring	Singapore Refining Company	Supply, Field Installation & Commissioning	10 units	Nov, 2018
6	Tank site monitoring	Singapore Refining Company	Supply, Field Installation & Commissioning	10 units	Nov, 2017
7	Tank site monitoring	Singapore Refining Company	Supply, Field Installation & Commissioning	10 units	Aug, 2017
8	Tank site monitoring	Singapore Refining Company	Supply, Field Installation & Commissioning	4 units	Jul, 2017
9	Tank site monitoring	Singapore Refining Company	Supply, Field Installation & Commissioning	5 units	Jun, 2017
10	Tank site monitoring	Singapore Refining Company	Supply, Field Installation & Commissioning	1 unit	May, 2017
11	Tank site monitoring	Singapore Refining Company	Supply, Field Installation & Commissioning	1 unit	Nov, 2016

NOTICE: The information contained herein is CONFIDENTIAL; duplication and/or disclosure to anyone other than the intended recipient of this information is not permitted without the consent of Wonder Engineering Technologies Pte Ltd



Wonder® S30D Smart Controller Installed base in China

S/N	Customer name	Project	Location
1	Tangshan Zhongrun Coal Chemical Co., Ltd.	Methanol loading system (5 Tank loading stacks)	Hebei
2	Shaanxi Shenmu Chemical Industry Co., Ltd.	Loading safety interlocking project (15 Tank loading stacks for train)	Shaanxi
3	PetroChina Liaohe Oilfield Company	Methanol gasoline loading system (8 Tank loading stacks for Reconcile)	Liaoning
4	PetroChina Jiangsu LNG Co., Ltd.	LNG Skid Mounted system(20 Tank loading stacks and system integration)	Jiangsu
5	Jiangsu Huifeng Petrochemical Co., Ltd.	The third phase of the chemical loading system (8 Tank loading stacks)	Jiangsu
6	Shenmu Fuyou Energy Technology Co., Ltd.	Light oil loading system transformation	Shaanxi
7	Shanxi Gas Industry Group Co., Ltd.	Shanxi Yuanping Coalbed Methane LNG Project(6 Tank loading stacks)	Shanxi
8	Shanxi Gas Industry Group Co., Ltd.	Phase II LNG Project(2 Tank loading stacks)	Shanxi
9	PetroChina Shandong Branch Jinan tank farms	Light oil loading (8 bottom loading stacks, dual-cartridge system and fusion))	Shandong
10	PetroChina Dalian LNG Co., Ltd.	LNG Skid Mounted (14 Tank loading stacks and system integration)	Liaoning
11	Inner Mongolia Jushi Energy Co., Ltd.	Skid Mounted normal temperature loading system (12 Tank loading stacks, 2 unloading stacks (concentrated sulfuric acid, synthetic wax, white oil, n-pentane, methanol, propylene, etc.)	Inner Mongolia
12	Tangshan Zhongrun Coal Chemical Co., Ltd.	Chemical Loading and unloading control system(22sets)	Hebei
13	Qingdao Nuocheng Chemical Safety Technology Co., Ltd.	Edible oil loading test bench(1 loading stacks)	Shandong
14	Ordos City Paisi Energy Co., Ltd.	LNG loading system (6 loading stacks)	Inner Mongolia
15	Shenmu Fuyou Energy Technology Co., Ltd.	Bottom loading transformation (3 loading stacks)	Shaanxi
16	Huanghu Town LNG Gasification Station	LNG loading system (4 loading stacks)	Zhejiang
17	Henan Jinma Energy Co., Ltd.	LNG loading system (4 loading stacks)	Henan
18	Qitaihe Longpeng Coal Development Co., Ltd.	Skid Mounted normal temperature loading system(16 loading stacks)	Heilongjiang
19	Jiangyin LNG Distribution Center LNG Reserve Station	LNG loading system (12 loading stacks)	Jiangsu
20	Hangzhou Zhongtai Cryogenic Technology Co., Ltd.	Zhengtai Yida Project LNG loading system(16 loading stacks)	Zhejiang
21	Hangzhou Zhongtai Cryogenic Technology Co., Ltd.	Shanxi Ningyang project LNG loading system(3 loading stacks)	Shanxi
22	Harbin Cryogenic Gas Liquefaction Equipment Co., Ltd.	Shanxi LuAn Feituo LNG Project (2 loading stacks)	Shanxi
23	Yitong Natural Gas Co., Ltd.	LNG Plant expansion project(3 loading stacks)	Shanxi
24	Tangshan Natural Gas Co., Ltd.	Tangshan Natural Gas Nanbao Peaking Reserve Station(2 loading stacks) Queuing call system (mobile phone application)	Hebei



Wonder® S30D Smart Controller Installed base in China

25	Guangdong Huafeng Natural Gas Co., Ltd.	Chaozhou MinYue Economic Cooperation Zone LNG Storage and Distribution Station Project	Guangdong
26	CNOOC Zhejiang LNG Co., Ltd.	LNG skid mount loading system (22 loading stacks), 41 crane system integration (including queue number, vehicle number identification, vehicle qualification management, personnel qualification management, mobile phone number, etc.)	Zhejiang
27	CNOOC Hainan LNG Co., Ltd.	LNG skid mount loading system (10 loading stacks), 15 loading system integration (including queue number, vehicle number identification, vehicle qualification management, personnel qualification management, mobile phone get number, etc.)	Hainan
28	CNOOC Zhuhai LNG Co., Ltd.	LNG skid mount loading system (10 loading stacks), 15 loading system integration (including queue number, vehicle number identification, vehicle qualification management, personnel qualification management, mobile phone get number, etc.)	Guangdong
29	CNOOC Tianjin LNG Co., Ltd.	LNG skid mount loading system (11 loading stacks), 31 loading system integration (including queue number, vehicle number identification, vehicle qualification management, personnel qualification management, mobile phone get number, etc.)	Tianjin