

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the LR Type Approval System.

This certificate is issued to:

PRODUCER	DUON SYSTEM Co., Ltd.	
PLACE OF PRODUCTION	#60-31, Gasan-dong, Geumcheon-gu, Seoul, 153-801, Korea	
DESCRIPTION	SMART Pressure/Temperature transmitter	
TYPE	APT3100	Absolute, Differential and Gauge Pressure measurement
	APT3200	Absolute and Gauge Pressure measurement
	ATT2100	Temperature measurement for Thermo Resistance (RTD) and Thermo couple (TC) Note; Sensor is supplied by sensor manufacturer
APPLICATION	Marine, offshore and industrial applications for use in environmental categories ENV5 in the "Bridge and deck Zones" as defined in LR Type Approval System Test Specification No. 1-2002 where the Test Specification is satisfactory for the intended operation.	
DESIGN CODE STANDARD	Operation Manual M3100-E01G, M3200-E01G, M2100-E01G	
RATINGS	Power Supply Output	DC24V DC4~20mA, Digital Communication of base of HART Protocol
Certificate No.	12/10007	
Issue Date	20 January 2012	
Expiry Date	19 January 2017	
Sheet	1 of 3	


S. Nakauma
Yokohama Design Support Office
Lloyd's Register

*Lloyd's Register, registered office:
71 Fenchurch Street, London EC3M 4BS*

"Lloyd's Register, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register Group'. The Lloyd's Register Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract."

RATINGS (cont.)

Accuracy ± 0.075%
 Range See below
 Explosion Protection Exd IIC T6 (if applied)
 Enclosure IP67

Range	Model	Code	Pressure Range (kPa)	Type			
	APT3100	D2	-1.5 to 1.5	Differential			
		D3	-7.5 to 7.5				
		D4	-37.3 to 37.3				
		D5	-186.5 to 196.5				
		D6	-690 to 690				
		D7	-2,068 to 2,068				
		D8	-6,895 to 6,895				
		H3	-7.5 to 7.5		High Line Pressure		
	H4	-37.3 to 37.3					
	H5	-186.5 to 196.5					
	H6	-690 to 690					
	H7	-2,068 to 2,068					
			G2	-1.5 to 1.5	Gauge		
			G3	-7.5 to 7.5			
			G4	-37.3 to 37.3			
			G5	-100 to 186.5			
			G6	-100 to 690			
			G7	-100 to 2,068			
			G8	-100 to 6,895			
			G9	-100 to 20,680			
G0			-100 to 41,317				
APT3200				G3		-100 to 150	Gauge
				G4		-100 to 1,500	
				G5		0 to 5,000	
	G6	0 to 25,000					
	G7	0 to 60,000					
	A4	0 to 200		Absolute			
	A5	0 to 1,000					
A6	0 to 2,000						

Certificate No. 12/10007
 Issue Date 20 January 2012
 Expiry Date 19 January 2017
 Sheet 2 of 3


 S. Nakauma
 Yokohama Design Support Office
 Lloyd's Register

Lloyd's Register, registered office:
 71 Fenchurch Street, London EC3M 4BS

"Lloyd's Register, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register Group'. The Lloyd's Register Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract."

Range (cont.)	Model	Temperature Range (°C)	Type
	ATT2100	200 to 650	RTD
		-200 to 1,820	TC

OTHER CONDITIONS

In case the products are used in the hazardous area, the following conditions shall be applied.

Ambient temperature: -20 to 60°C

Process temperature: below 80°C

Installation of this equipment in areas where an explosive gas atmosphere may be present is subject to the approval of the competent authority (This certificate does not certify the equipment to be of a safe type).

"This Certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register of any modification or changes to the equipment in order to obtain a valid certificate."

The Design Appraisal Document No. 12/10007 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

Certificate No. 12/10007
 Issue Date 20 January 2012
 Expiry Date 19 January 2017
 Sheet 3 of 3


 S. Nakauma
 Yokohama Design Support Office
 Lloyd's Register

*Lloyd's Register, registered office:
 71 Fenchurch Street, London EC3M 4BS*

"Lloyd's Register, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register Group'. The Lloyd's Register Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract."