

Novasina TRIPLEX QuantaDat humidity measuring system.

(For upgrading TR200 Triplex on CRR RB211 DLE gas turbines)

Introduction

During the 1990s, most Rolls Royce RB211 DLE turbines used in gas & oil applications were fitted with Novasina TR200 humidity measurement systems for engine air intake monitoring. These were three probes connected to three TR200 transmitters giving a 4-20 mA signal to the engine control system. The readings were given in g/ Kg (grams of water per Kg dry air or 'mixing ratio').

The TR200 system was made entirely obsolete by Novasina in 2005 and therefore a new instrument replaces this, doing exactly the same job only to better tolerances, faster response and simpler to set up and install with intuitive menu.

The Quantadat Triplex system does everything that the previous TR200 Triplex system did, even more. Three Quantadats with probes are supplied ready configured and calibrated, with all the necessary calibration salt capsules.

Novatron remain as the global specialist for the CRR Triplex system for RB211 DLE and are exclusive supplier for Novasina Swiss-made sensors. All technical support and supplies are exclusively from in the Novatron United Kingdom.



QuantaDat transmitter

Modular transmitter used as display and signal output unit. Powered by 24V dc , the integral processor allows the display and output of calculated climatic parameters, including relative humidity and mixing ratio (g/ Kg) . Analogue output signals are available as : 0-20mA, 4-20mA, 0-1V etc.



- Graphical display with LED backlight
- Menu navigation using front keypad with 3 buttons
- Scalable and adjustable analogue outputs
- Simulation of fixed measurement values (override)
- Integrated climatic parameter processor
- Password protection for all settings
- Permanent device function control

Art. no. 2601087

Technical data

Transmitter	QuantaDat 4 channel multi-sensor system	
Power supply	24V +/- 15% AC or DC (galvanic isolated) Maximum ratings / permissible voltage range: DC: 19..39V AC: 19..27.6V	
Power consumption	max. approx. 3W	
Display	Graphical display with LED backlight, resolution 128 x 64 Pixel	
Display resolution	Humidity	0.1% RH
	Temperature	0.1°C / 0.1°F
	Mixing ratio	0.001 g/kg / 0.01 gr/lb
	Water vap. partial pressure	0.01 mbar
	Dew point temperature	0.1°C td / 0.1°F td
	Specific enthalpy	0.1 kJ/kg / 0.1 Btu/lbm
	Absolute humidity	0.01 g/m³ / 0.01 gr/ft³
Analogue outputs (4 outputs)	4 scalable analogue outputs, current 0/4..20mA or voltage 0/2..10V Load (I): min. 0 Ω / max. 500 Ω Load resistance (U): min. 10 kΩ / max. ∞ Ω The analogue outputs are protected against external voltage of ±40V A device with voltage input which is connected to the analogue output must tolerate minimum 15V input voltage.	
Digital outputs	RS-485 (Modbus-RTU under development)	
	2 relay contacts, switching power <=50V/2A/60W (only versions with relay)	
Housing material	ABS - lid blue RAL 5014, bottom grey RAL 7035	
Protection class	IP65	
Soldering material	lead free (RoHS compliant)	
Working temperature	0 to 50°C	
Storage temperature	-10 to 60°C (non-condensing)	
CE-/EMC	Safety: IEC 61010-2-051:2003	
	EMC: IEC 61000-6-2:2005, EN 61000-6-2:2005	
	IEC 61000-6-3:2006, EN 61000-6-3:2007	

Electrical installation

Recommended wiring installation:

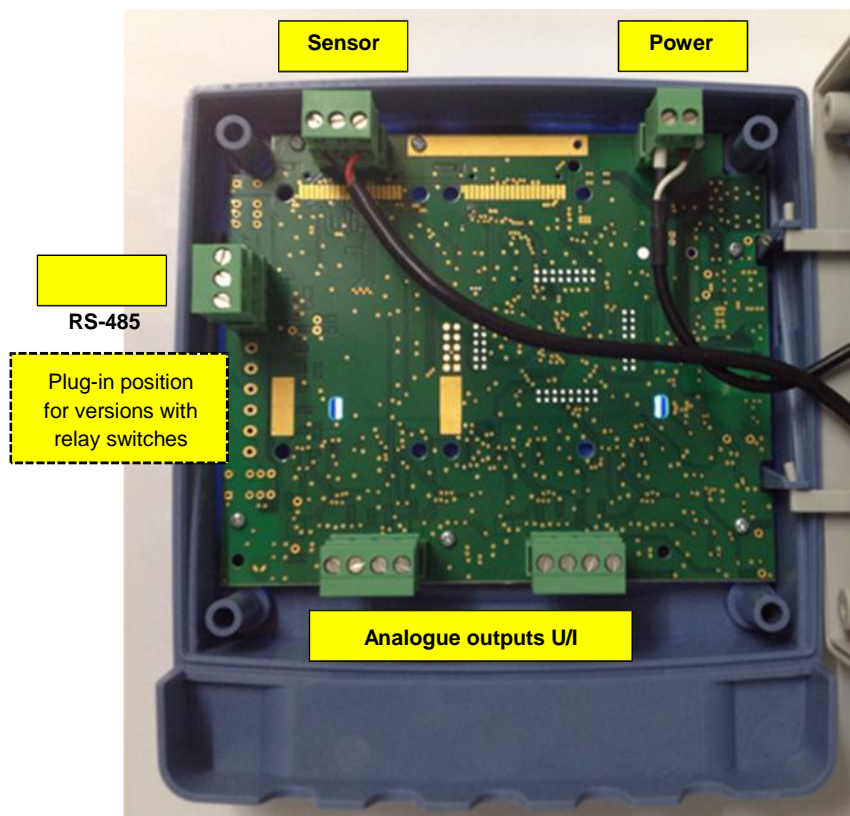
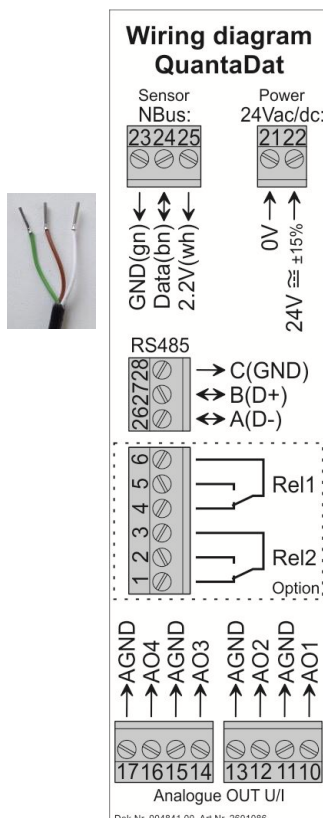
	Cable specification	Comment
Power supply	Single-cable of 0.5...0.75 mm ² (22 ... 18 AWG) with PVC isolation or equivalent 2-fold cord cable.	Clamping range of connecting terminal: 0.2 - 2.5 mm ²
Signal outputs	Single cable of 0.25...0.5 mm ² (24 ... 20 AWG) twisted with screen & PVC isolation or equivalent 2/4/6/8 multi-core cable.	Clamping range of connecting terminal: 0.2 - 2.5 mm ²
RS-485 interface	1 twisted pair + C(GND) connection recommended, screened	acc. to EIA-485
Relay contacts	Cable dimensions dependent on the switching power needed	only for version with relay

Note: cable specifications depend on the installation and have to be defined by the designer or installer.

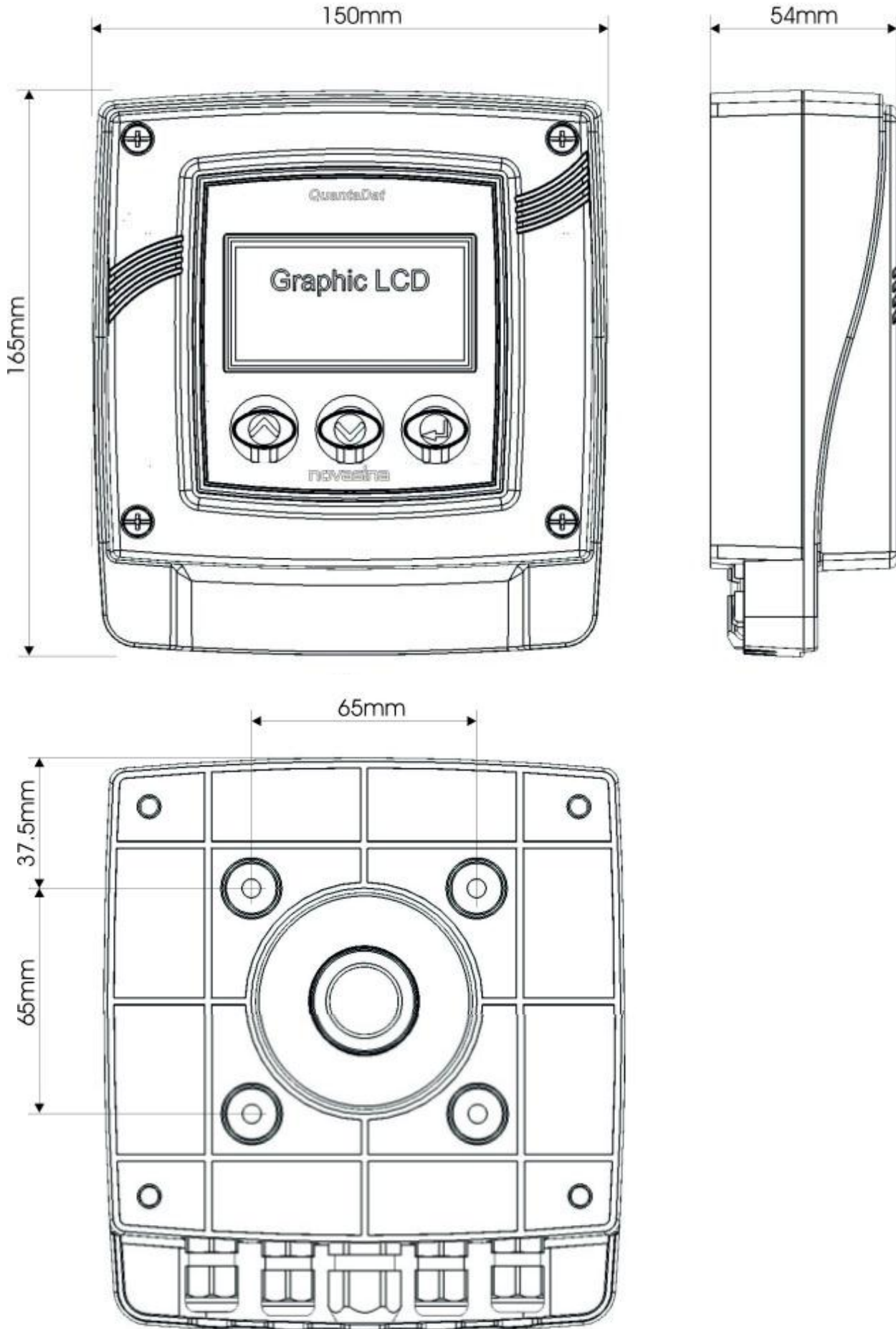
EMC: if environmental conditions vary from the standards (see page 2) it is recommended to take the following measures:

- Wires emitting interference must be separated from measurement and analysis units
- Parallel guidance of measurement- and electrical power-cables should be avoided
- Measurement cables must be screened to ground earth
- Cables not screened should be in twisted pairs and should be kept as short as possible

Wiring diagram:



Dimensions



Probes for QuantaDat

Humidity- Temperature probe nSens-HT-ENS

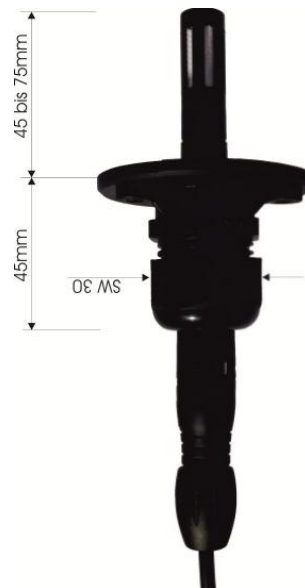
Digital nSens-HT (Humidity/Temperature) probe with resistive-electrolytic humidity sensor and NTC temperature sensor. The calibration points are stored directly on the probe. The verification / calibration is done with the calibration software nSoft-CAL. The plug-in probe can be replaced quickly and easily.

- Intelligent probe with internal calibration point storage
- High measurement accuracy
- Linear response over full working range
- Factory calibration including certificate
- Verification/calibration with nSoft-CAL software

Art. no. 2601087

Technical data

Sensor type	nSens-HT-ENS Resistive-electrolytic humidity measurement NTC temperature measurement		
Measurement ranges	Humidity	0 ... 100% RH	
	Temperature	-20 ... +80°C	
Measurement accuracy incl. reproducibility and hysteresis	Humidity*	15 ... 30°C 0 ... 50°C -20 ... +80°C	typically +/- 0.5% RH typically +/- 1.0% RH typically +/- 2.5% RH
	Temperature	0 ... +70°C -20 ... +80°C	typically +/- 0.1K typically +/- 0.2K
Number of calibration points	Humidity	13 points over full measurement range	
	Temperature	2 points over full measurement range	
Housing material	PVDF black		
Mechanical sensor protection	Standard filter with "Poroplast" insert		
Working temperature	-20 to +80°C		
Storage temperature	-10 to +60°C (non-condensing)		



Cable for nSens-HT / nSens-T
(Please specify cable length
required for probe. A 5 M
cable is supplied as standard
, unless otherwise specified)



nSens cable 3*0.25mm²

- Robust
- Halogen free
- With fast plug-in plug for nSens

nSens cable 30 meters - Art. no. 2601078
nSens cable 10 meters - Art. no. 2601079
nSens cable 5 meters - Art. no. 2601080

Technical data

	Composition	Characteristics
Temperature range -40°C to +90°C Working peak voltage (not for high voltage installations) >0,14 mm ² = 500 V Testing voltage >0,14 mm ² = 1200 V Isolation resistance min. 2 GOhm x km Min. bending radius ca. 7,5x cable-ø	<ul style="list-style-type: none"> • Cu-cord blank, fine wiring according DIN VDE 0812 at 0,34 mm² cable composition 7x0,25 mm • PE-isolation mantle, mixing type L/MD according DIN VDE 0819-103 / DIN EN 50290-2-23 • Cord identification according DIN 47100 without colour replication • Wires with optimal length of twist stranded in layers • Sheath material cross-linked Polyolefin, black • nSens plugs soldered • Wire termination 	<ul style="list-style-type: none"> • Ozone-resistant according to EN 50396 • Weather- and UV-resistant according to HD605/A1 • Halogen free according to EN 50267-2-1, EN 60684-2 • Acid- and leach-resistant according to EN 60811-2-1 • Flame retardant according to VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1 • Very robust and abrasion-resistant mantle according to DIN EN 53516 • Short-circuit-proof to +200°C with double isolation, short-circuit temperature 200°C/ 5s • Hydrolysis- and ammonia-resistant

CE = the product is compliant to the EC low voltage directives 2006/95/EC.

Dimensions / Plug



Wire termination / Core colours



Mounting kit (nSens probe fixing)

Art. no. 2601083

consisting of wall mounting clip & duct mounting flange:

Wall mounting clip



Dimensions



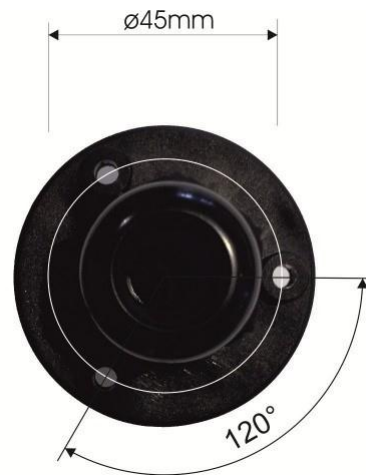
Technical data

Nominal diameter	15 mm
Diameter clamping range	14.3... 16.8 mm
Material	Polyamide P12 - colour black RAL 9011
Working temperature	-20 to +80°C
Storage temperature	-10 to +60°C (non-condensing)

Duct mounting flange



Dimensions



Technical data

Diameter clamping range	9 ... 14 mm
Seal burst strength	up to 3 bar
Wrench size screw connection	30 mm
Material	PP Verton 25% GF black
Working temperature	-20 to +80°C
Storage temperature	-10 to +60°C (non-condensing)

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