

DATA SHEET

TMI-Orion

VACQ xFlat Radio



Real time temperature measurement at various points for thermal process control.

The VACQ xFlat Radio is an autonomous data logger equipped with 3, 7, 8 or 16 thermocouple connectors. It must to be protected by a thermal shield when the temperature exceeds +140°C.

The Radio function allows real time visualization and/or recording of data.

METROLOGY

Models	Number of thermocouple channels	Battery packs	Operating range	Resolution	Internal reference channel calibration uncertainties*
VACQ xFlat 1.3 Radio	3	VXP1	0°C to +140°C	<±0.1 °C	± 0.2°C from 0°C to +140°C
		VXP3			
VACQ xFlat 1.7 Radio	7	VXP3	0°C to +140°C		
VACQ xFlat 2.4 Radio	8 (2 rows of 4)	VXP1	0°C to +140°C		
		VXP2	-55°C to +140°C		
		VXP3	0°C to +140°C		
VACQ xFlat 2.8 Radio	16 (2 rows of 8)	015S	-55°C to +140°C		
		AC adapter	0°C to +60°C		

Each logger can be calibrated and adjusted at the temperature points corresponding to the user's needs.

**The specified uncertainties correspond to two standard deviations. The uncertainties are calculated taking into account the various significant error sources, including the calibration probes, the equipment, the environmental conditions, the influence of the logger, repeatability, etc...*

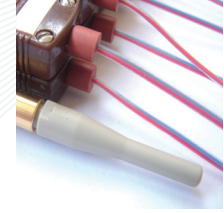


FUNCTIONS

- 2.4 GHz radio communication
- Start set up: immediate or delayed
- Real time or after the process radio data transmission
- Time stamped measurement data
- Battery level alert with Qlever software

TECHNICAL SPECIFICATIONS

Material of the logger body	VACQ xFlat 1.3 Radio, VACQ xFlat 1.7 Radio and VACQ xFlat 2.4 Radio: 304L Stainless steel VACQ xFlat 2.8 Radio: anodised aluminum		
Dimensions	VACQ xFlat 1.3 Radio	L.82 mm x H.11 mm x W.107 mm	
	VACQ xFlat 1.7 Radio	L.153 mm x H.11 mm x W.80 mm	
	VACQ xFlat 2.4 Radio	L.82 mm x H.21 mm x W.107 mm	
	VACQ xFlat 2.8 Radio	L.150 mm x H.20 mm x W.80 mm	
Number of channels	VACQ xFlat 1.3 Radio	3 connected thermocouple elements, 1 internal reference channel, 1 reference channel for cold junction and internal temperature of the box	
	VACQ xFlat 1.7 Radio	7 connected thermocouple elements, 1 internal reference channel, 1 reference channel for cold junction and internal temperature of the box	
	VACQ xFlat 2.4 Radio	2x4 connected thermocouple elements, 1 internal reference channel, 1 reference channel for cold junction and internal temperature of the box	
	VACQ xFlat 2.8 Radio	2x8 connected thermocouple elements, 3 internal reference channels	
Thermocouple connectors	VACQ xFlat 1.3 Radio, VACQ xFlat 1.7 Radio, VACQ xFlat 2.4 Radio	K or T (other types upon request)	
	VACQ xFlat 2.8 Radio	Universal, K or T	
Temperature sensor	VACQ xFlat 1.3 Radio, VACQ xFlat 1.7 Radio, VACQ xFlat 2.4 Radio	With type K connectors	Type K thermocouples
		With type T connectors	Type T thermocouples
	VACQ xFlat 2.8 Radio	With universal connectors	Types K, T, N, J, B, E, S, R thermocouples
		With type K connectors	Type K thermocouples
		With type T connectors	Type T thermocouples
	Memory capacity	VACQ xFlat 1.3 Radio	43 000 acquisitions per thermocouple channel
VACQ xFlat 1.7 Radio		26 100 acquisitions per thermocouple channel	
VACQ xFlat 2.4 Radio		26 100 acquisitions per thermocouple channel	
VACQ xFlat 2.8 Radio		13 700 acquisitions per thermocouple channel	
Watertightness	This logger is not watertight		



TECHNICAL SPECIFICATIONS

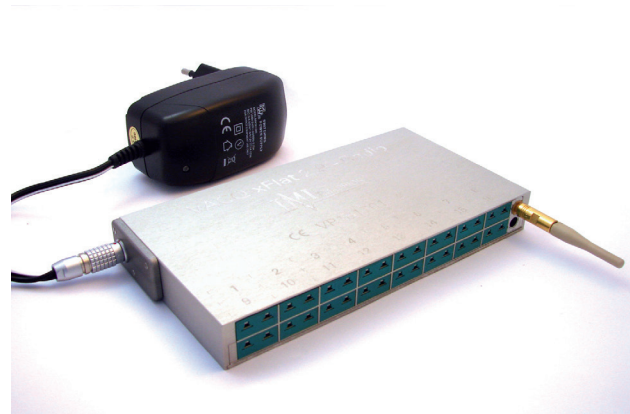
Acquisition rate	Programmable: minimum 1 second, maximum 59 minutes and 59 seconds	
Program duration	Programmable: days, hours, minutes	
Recording	Programmable start: by date, hour, minute	
Power	User replaceable battery pack The VACQ xFlat 2.8 Radio has an interchangeable power supply: AC adapter (+ backup battery pack) / 015S battery pack	
Connectivity	2.4 GHz radio transceiver / USB wired interface to the PC	
Connectable antenna model for VACQ xFlat Radio (*)	Standard	length 49 mm, medium range - line of sight: 25 meters
	Remote	see our web site for accessories and options

(*) A preliminary test is recommended to validate the hertzian transmission in the user's application.

Examples of VACQ xFlat Radio models.



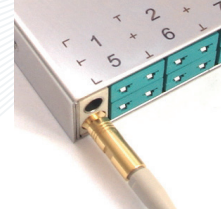
VACQ xFlat 2.4 Radio with connectors for type K thermocouples.



VACQ xFlat 2.8 Radio with connectors for type K and AC adapter.

RADIO-FREQUENCY COMMUNICATION

- 2.4 GHz ISM band (frequency range 2.405 GHz to 2.475 GHz) / Can be used without license / Universal band for industrial, scientific and medical devices with low radio transmission power / Maximum radiated power +5 dBm (3,2 mW).
- Radio transmission range depends on the environment.
- TMI-Orion 2.4 GHz radio protocol, based on IEEE 802.15.4 standard / 14 RF channels for the user / Able to manage several pieces of equipment connected in star configuration in the same space.



AUTONOMY

The VACQ xFlat Radio is powered by a battery pack, except for VACQ xFlat 2.8 Radio which can also be powered by an AC adapter. When the battery packs are used, the autonomy depends on environment and operational conditions of the application (extreme temperatures, radio range, electromagnetic disturbances, data acquisition and transmission rate).

As a result of the variety of environments and operational conditions, TMI-Orion does not guaranty the battery lifetime and recommends that the user determine the battery lifetime according to his own process conditions and experience.

SOFTWARE AND RELATED PRODUCTS

VACQ xFlat Radio is used with Qlever software platform and a TMI-Orion radio transceiver.

Qlever software platform: data acquisition, management and visualization of data from TMI-Orion data loggers. Qlever is installed on a PC and operates under Windows® Vista/7/8/10. Depending on the use of VACQ xFlat Radio, data transmission and visualization is done in real time or after the process.

TMI-Orion radio transceiver: this transmitting device connects to the PC in order to ensure radio link with the VACQ xFlat Radio. Several antennas are available to optimize radio communications in the operational environment.

VACQ xFlat family of products also includes:

- VACQ xFlat FullRadio for remote real time wireless set up and reading of data.
- VACQ xFlat (wired)

DELIVERABLES

The VACQ xFlat Radio solution usually includes the following items:

- The VACQ xFlat Radio data logger with a battery pack
- The VACQ xFlat Radio calibration certificate

- The VACQ xFlat Radio configuration and calibration file
- A TMI-Orion radio transceiver (to be ordered separately)
- Qlever software platform (to be ordered separately)
- A transport case (optional – to be ordered separately)

SERVICES

Maintenance: TMI-Orion recommends annual preventative maintenance and calibration service for functional checking, calibration and adjustment.

Accessories: The battery packs, engineered by TMI-Orion, are replaceable by the user and are referenced in the documents available on our web site.

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