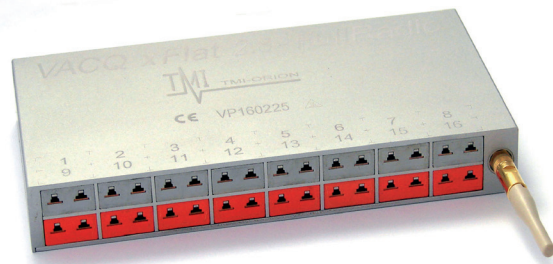


DATA SHEET

TMI-Orion

VACQ xFlat FullRadio



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

The VACQ xFlat FullRadio is an autonomous data logger equipped with 4, 8 or 16 thermocouple connectors. It must be protected by a thermal shield when temperature exceeds +140°C.

VACQ xFlat FullRadio is equipped with a 2.4 GHz radio transceiver as the unique communication interface. In addition to its data logger functionalities, it is designed for remote set up and radio data transmission, in real time or after the process, through a TMI-Orion radio transceiver connected to a PC. The PC is equipped with the Qlever software platform for logger setup and process data collection, management and display.

METROLOGY

Models	Number of thermocouple channels	Battery packs	Operating range	Resolution	Internal reference channel calibration uncertainties*
VACQ xFlat 1.4 FullRadio	4	VXP1	0°C to +140°C	<± 0.1°C	± 0,1°C from 0°C to +140°C
		VXP3			
VACQ xFlat 1.8 FullRadio	8	015S	0°C to +140°C		
		VXP3	0°C to +70°C		
		016_TRELOAD + AC adapter	0°C to +70°C		
VACQ xFlat 2.4 FullRadio	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 FullRadio	16 (2 rows of 8)	015S	0°C to +140°C		
		VXP2	-55°C to +140°C		
		VXP3	0°C to 140°C		
		VXP3HC			
		VXPS + AC adapter	0°C to +70°C		
016_TRELOAD + AC adapter					

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...

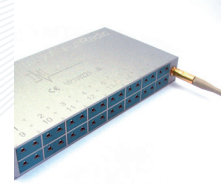


FUNCTIONS

- Radio set up, start and reading of data
- 2.4 GHz bidirectional radio communication
- Radio transceiver set up: transmission duration and rate (1 per hour to 1 per second)
- 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 1.4 FullRadio	With VXP1 and VXP3 battery packs	304L Stainless steel
	VACQ xFlat 1.8 FullRadio	With 015S and 016_TRELOAD battery packs	Anodized aluminum
		With VXP3 battery pack	304L Stainless steel
	VACQ xFlat 2.4 FullRadio	With VXP1, VXP2 and VXP3 battery packs	304L Stainless steel
VACQ xFlat 2.8 FullRadio	With 015S and 016_TRELOAD battery packs	Anodized aluminum	
	With VXP2, VXP3 and VXPS and VXP3HC battery packs	304L Stainless steel	
Dimensions	VACQ xFlat 1.4 FullRadio	L.82 mm x H.11 mm x W.107 mm	
	VACQ xFlat 1.8 FullRadio	With VXP3 battery pack	L.153 mm x H.11 mm x W.80 mm
		With 015S battery pack	L.150 mm x H.20 mm x W.80 mm
	VACQ xFlat 2.4 FullRadio	L.82 mm x H.21 mm x W.107 mm	
VACQ xFlat 2.8 FullRadio	L.150 mm x H.20 mm x W.80 mm		
Number of channels	VACQ xFlat 1.4 FullRadio	4 connected thermocouple elements, 1 internal reference channel, 1 reference channel for cold junction and internal temperature of the box	
	VACQ xFlat 1.8 FullRadio	8 connected thermocouple elements, 1 internal reference channel, 1 reference channel for cold junction and internal temperature of the box	
	VACQ xFlat 2.4 FullRadio	2x4 connected thermocouple elements, 1 internal reference channel, 1 reference channel for cold junction and internal temperature of the box	
	VACQ xFlat 2.8 FullRadio	2x8 connected thermocouple elements, 1 internal reference channel 1 reference channel for cold junction and internal temperature of the box	
Temperature sensor	Thermocouples: type K, type T, type B, type S, other types upon request (J, N, ...)		
Watertightness	Not designed for immersion nor for use in steam autoclaves		
Memory capacity	VACQ xFlat 1.4 FullRadio	43 000 acquisitions per thermocouple channel	
	VACQ xFlat 1.8 FullRadio	26 100 acquisitions per thermocouple channel	
	VACQ xFlat 2.4 FullRadio	26 100 acquisitions per thermocouple channel	
	VACQ xFlat 2.8 FullRadio	13 700 acquisitions per thermocouple channel	



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 Option: Power adaptor supplied with VXPS battery pack (From 0°C to 70°C)	
Connectivity	2.4 GHz bidirectional radio transceiver and embedded 2.4 GHz radio transceiver module	
Connectable antenna model for VACQ xFlat FullRadio(*)	Standard	length 49 mm, medium range - 25 meters

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

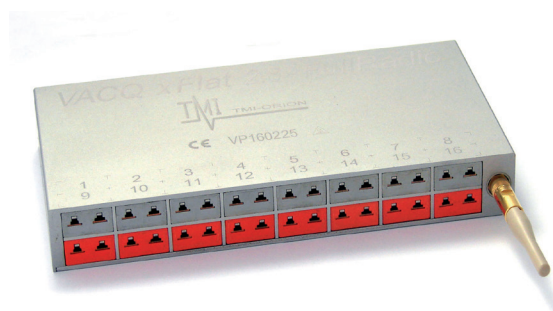
Examples of VACQ xFlat FullRadio models:



VACQ xFlat 2.8 FullRadio with connectors for type K thermocouples.



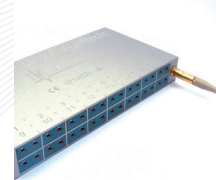
VACQ xFlat 2.8 FullRadio with connectors for type T thermocouples.



VACQ xFlat 2.8 FullRadio with 8 connectors for type B thermocouples and 8 connectors for type S thermocouples.

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 bidirectional radio protocol, based on IEEE 802.15.4 standard / 14 RF channel for the user / Able to manage several pieces of equipment connected in star configuration in the same space.



AUTONOMY

The VACQ xFlat FullRadio is powered by a battery pack; its 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 FullRadio 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 FullRadio,

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 FullRadio. Several antennas are available to optimize radio communications in the operational environment.

DELIVERABLES

The VACQ xFlat FullRadio solution usually includes the following items:

- The VACQ xFlat FullRadio data logger with a battery pack
- The VACQ xFlat FullRadio calibration certificate
- The VACQ xFlat FullRadio 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 our products list.

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