T-Valve
by MClimate

LoRaWAN

Description

T-Valve is a LoRaWAN water valve used in residential or commercial buildings. 3/4" and 1" versions available.

Product features

- Remote water supply control
- Water temperature
- Environment temperature
- Wired Flood Sensor (optional)
- Housing tampering detection
- Magnetic tampering detection
- Buttons for manual control
- LEDs for valve and device status indication
- Buzzer

Applications

- Smart Buildings
- Smart home
- Residential buildings
- Commercial buildings
- Environment monitoring

Device specifications

Mechanical specifications

WEIGHT	550gr
DIMENSIONS	105x117x90,8mm
ENCLOSURE	PC/ABS; Valve PPE/PS

Valve Specifications

VALVE TYPE	Solenoid valve
FITTINGS SIZES	DN20 or DN25
OPERATING PRESSURE	0.05MPa - 0.08MPa
MEDIA TEMPERATURE	1-75°C
VALVE RESPOND TIME	open ≤ 0.15s; close ≤ 2s

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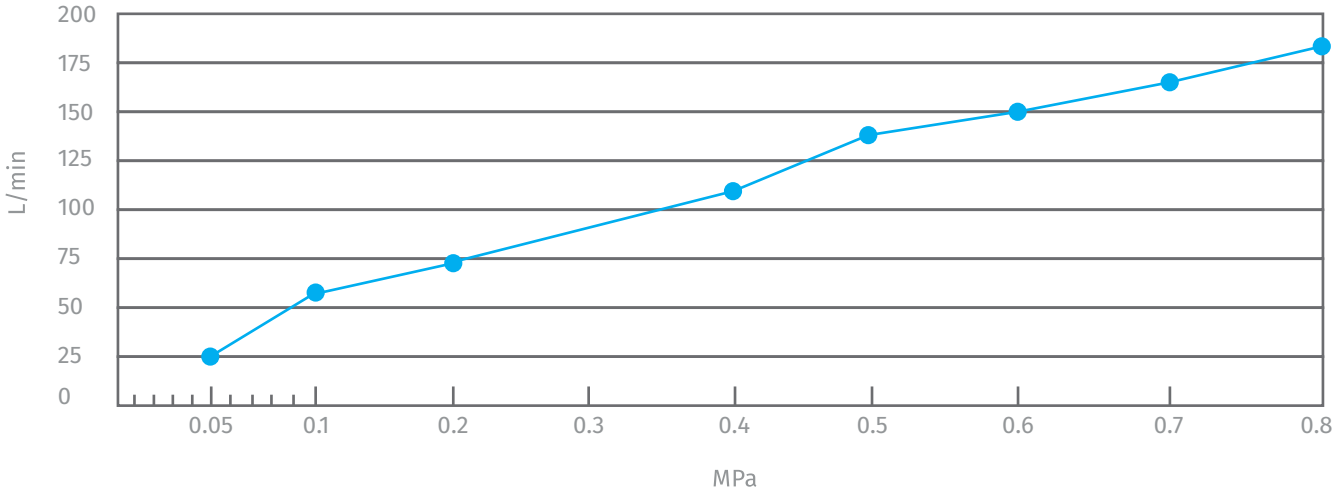
PRESSURE/FLOWRATE RATIO

Pressure (MPa)	0,05	0,1	0,2	0,4	0,5	0,6	0,7	0,8
Flowrate (L/min)	25	55	72	115	135	150	165	180



Performance test

HIGH WATER PRESSURE CLOSING	At water pressure 0,8MPa, solenoid valve can be closed normally		
LOW WATER PRESSURE CLOSING	At water pressure 0,05MPa solenoid valve can be closed manually		
LEAKAGE UPON HIGH WATER	1,2Mpa zero leakage		
LEAKAGE UPON LOW WATER	0,05MPa ≤ 0,1mL/min		
SEALING TEST (STATIC PRESSURE)			
	COLD WATER	High pressure	1,2MPa
		Low pressure	0,02MPa
	HOT WATER	High pressure	0,8MPa
		Low pressure	0,02MPa

Service life

≥ 1,000,000 cycles

Operating conditions

TEMPERATURE	0-60°C
HUMIDITY	35%-90% RH (non-condensing)
PERMISSIBLE LIMITING WATER	≤ 1,2MPa

Storage conditions

STORAGE TEMPERATURE	-5-+80°C (no freezing state)
STORAGE HUMIDITY	25%-95% RH (non-condensing)

Operating conditions

TEMPERATURE	0-60°C
HUMIDITY	35%-90% RH (non-condensing)

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Power supply

BATTERY TYPE	LiSOCl2 ER26500 3.6V 9000mAh
OPERATING VOLTAGE	3.6VDC
EXPECTED BATTERY LIFE	Up to 10 years (depending on configuration and environment)
EXTERNAL POWER SUPPLY	Optional

Radio/Wireless

WIRELESS TECHNOLOGY	LoRaWAN® 1.0.1
WIRELESS SECURITY	LoRaWAN® End-to-End encryption (AES-CTR)
LORAWAN DEVICE TYPE	Class A End-device
SUPPORTED LORAWAN FEATURES	OTAA, ADR, Adaptive Channels setup
SUPPORTED LORAWAN REGIONS	EU863 – 870; Other LoRaWAN regional settings available upon request
LINK BUDGET	130dB
RF TRANSMIT POWER	14dB

Conformity

CE	2014/35/EU Low Voltage Directive	EN 60950-1:2006/ A11:2009 / A1:2010 / A12:2011 / A2:2013
	2014/30/EU EMC Directive	EN 301489-1 V2.1.1; EN 301489-3 V2.1.1
	Radio Equipment Directive (RED)	EN 300220-1 V3.1.1; EN 300220-2 V3.1.1

ROHS

DRINKING WATER CERTIFICATION	ACS	CARSO - L. S. E. H. L. File reference 17 ACC LY 591
	KTW	
	NSF/ANSI/CAN	61-2018, Drinking water system components - Health Effects
	NSF/ANSI	372-2016, Drinking water system component - Lead content
	USA California Health and Safety Code 11687	Reduction of Lead in Drinking Water Act
	USA S.3874 — 111th Congress (2009-2010)	Reduction of Lead in Drinking Water Act

Communication protocol

UPLINK/DOWNLINK AVAILABLE REQUESTS	Open/Close Valve	
	Reduced acccess mode configuration	E.g. open the valve for 10 minutes every 50 minutes
	Temperature water	
	Temperature environment	
	Configure keepalive period	
	Enable/Disable flood sensor	
	Request full device information in next transmission	
	Flood detection status	
	Flood detection wire status (functional or cut/broken)	
	Box tampering status	
	Magnetic tampering status	
	Hardware/Firmware version	
	Battery voltage	
	LEDs control	Confiugurable modes and duration
	Buzzer control	Confiugurable modes and duration

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Sensors

Temperature

RESOLUTION	0,1° C
ACCURACY	±1° C

Wired flood sensor

FEATURES	Two-wire connection Short-circuit detection Missing sensor detection

Magnetic tampering sensor

Plastic enclosure open/close sensor