TDS12285 — Rain detector-meter

The TDS12285 rain detector-meter can be used for rain detection for the control of blinds, windows, etc. to protect them from the rain (mode 1). It can also be used for indication of rain fall (mode 2). On AURUS-TFT or GUI+, graphs can be generated for real time indication, per hour, per day, per week and per month.
9-24V (AC or DC) power is needed and the output is defined by an internal change over (CO) contact. The contact switches immediately when rain is detected (standard setting = 'very sensitive'). The contact can be connected to any control system. In case of integration with TDS, the contact can be connected to a digital input of the TDS system (MICROS+,TDS12117,..). The TDS12285 also contains an internal light sensor for full automated outdoor shade control: when set in this mode, the outdoor (sun)shade will be controlled when rain is detected or the sensed light is below 2000 Lux. In this case a motor output (TDS13525 or TDS13526) is needed to control the shade motor. The use of an additional wind sensor can be advised in such cases.

APPLICATION

Rain detection - metering (in combination with internal light sensor).

CHARACTERISTICS

Modes:

1a) Rain detection (default) – simple output contact (rain / no rain)
1b) Rain detection + light sensor (2000 Lux fixed) – simple output contact (rain / no rain)
2) Rain metering (=Tipping Bucket) – impulse output to TDS

Maintenance

TELETASK recommend annual treatment of the rain detector lens with a rain repellant. This prevents a condition where the TDS12285 reads high values because water droplets stuck on the detector get blown by the wind, causing high readings. With a rain repellant, larger droplets run off.

SETTINGS

DIP switches

Default factory setting dip switch 1 -> 8 = 00101000 (rain detection – very sensitive). See tables below for an overview of the modes and settings.

MODE 1

Rain detection
APPLICATION It's raining.

Rain detection mode turns on the output contact to indicate that it is raining. Use this mode to control equipment that should be controlled, enabled, open, closed, and so forth depending on whether or not it is raining. The output turns on when a given rate of rainfall is detected, and turns off after it has dropped below a threshold.

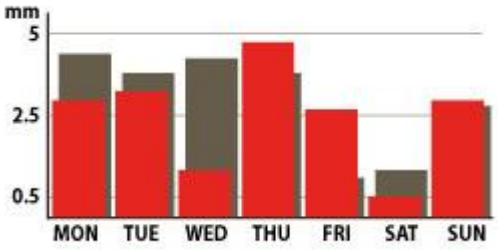
Behaviour	Switch							
	1	2	3	4	5	6	7	8
Very sensitive – first detected raindrop	0	0	X	X	1	0	0	0
Sensitive – turn on with very light rainfall (0.25mm per hour)	1	0						
Medium Sensitivity – turn on with medium rain (0.6mm per hour)	0	1						
Low Sensitivity– turn on in heavy rainfall (2.5mm per hour)	1	1						
Output off when rain stops	X	X	0	X				
Output Monostable Extended by 15 minutes			1					

No Dark-Detect – Normal operation	X	X	X	0				
Dark Detect				1				

Each of the sensitivity levels (set by switches 1 and 2) provides different trip and release points. There is much hysteresis built in, but real rain fall rates typically fluctuate, even in what you may perceive as a "steady rain", so expect the output to turn on and off. The output will remain on for between about 30 seconds and 5 minutes after the last detected rain drop, depending on sensitivity setting and actual conditions.
To prevent some piece of equipment from turning constantly on and off (or opening / closing, etc.) you can enable the Monostable extend (Switch 3). That will hold the output on for 15 minutes after the rain has ceased.
Dark Detect-- if enabled, the output will also turn on when the ambient light drops below about 2000 lux. This feature may be used to retract a sun-shade when it is dark.

MODE 2

Rain metering (Tipping Bucket)
APPLICATION e.g.: bar graph display on AURUS-TFT.



In tipping bucket mode, the TDS12285 effectively emulates a tipping bucket of the specified size. For example, if the DIP switches are set to a tipping bucket mode with a bucket size of 0.01mm, then the output will pulse ON for 50mS each time 0.01mm of water accumulates, just as a tipping bucket would. This can be externally totalized, and used to measure rainfall rates (Ex. MICROS, PICOS, TDS12117, …).

For you information:

Soft rain	= 2mm/h
Day of light rain	= 4mm/day (=0,16mm/h)
Gust of rain	= 5mm/min (=300mm/h)
Heavy thunderstorm	= 50mm/h
1mm rainfall	= 1litre per m²

Imperial bucket sizes are available as well.

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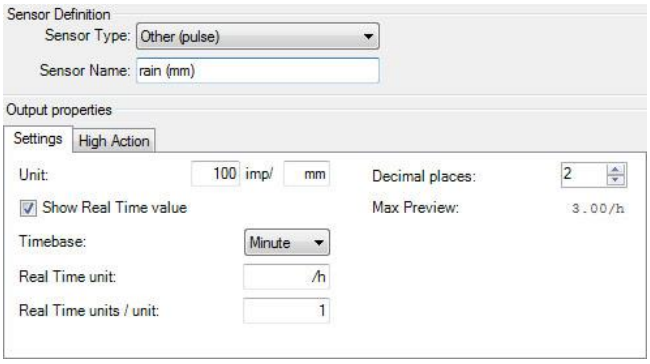
Behaviour		Switch							
		1	2	3	4	5	6	7	8
mm	Bucket Size = 0.2mm (small rainfall will not be detected)	0	0	1	0	0	0	0	0
mm	Bucket Size = 0.01mm (recommended)	1	0	1					
mm	Bucket Size = 0.001mm (heavy rainfall we be less accurate)	0	1	1					
inch	Bucket Size = 0.01inch (small rainfall will not be detected)	0	0	0					
inch	Bucket Size = 0.001inch (recommended)	1	0	0					
inch	Bucket Size = 0.0001inch (heavy rainfall we be less accurate)	0	1	0					

Configure in PROSOFT in combination with TDS12117 to show graphs.
See setting below as example (Bucket Size = 0.01mm).
First enable button: 'Use as pulse counter sensor'



INSTALLATION

Mounting

Mount the rain detector where it gets a clear measurement of precipitation– away from overhangs, etc.
The mounting arm is designed to fit over a 19mm wide bracket. Two 6mm holes are placed 19mm apart.
The rain detector can also be mounted on top of a tube (cut off the mounting arm and glue on the tube with water-resistant silicon or similar).

CONNECTIONS

Inputs

9 – 24 VDC/AC (DC reverse polarity allowed).

Outputs

1 Change-Over contact (Normal Open and Normal Closed contact).
Max. load 1A, 24 VDC.

! Remark: If you use 'rain detection mode' (mode 1), TELETASK strongly recommends Normal Closed contact for safety reasons. This has the advantage in case of cable rupture, the protection function will be activated.

! Important remark: TELETASK does not claim this rain detector is perfect. Optical raindrop sensing has lots of advantages but also its limits.

! Remark: Use cable rated for outdoor (high-UV) use.

POWER CONSUMPTION

20 mA nominal (no outputs on, not raining).
55 mA with output on (with heater on at 24VDC).

DIMENSIONS

70 W x 75 H x 120 D (mm)

NET | GROSS WEIGHT

0,125 kg |0,200 kg

PACKAGING CONTENT

1x TDS12285 detector
1x Installation manual

STORAGE

Temperature

-20°C to +65°C

Relative humidity

15% to 85%

IP PROTECTION RATE

IP65

OPERATING RANGE

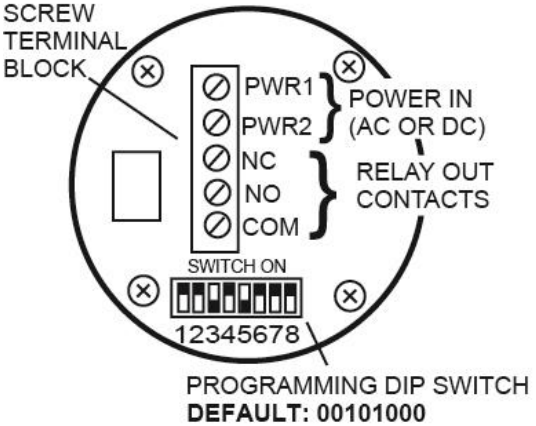
Temperature

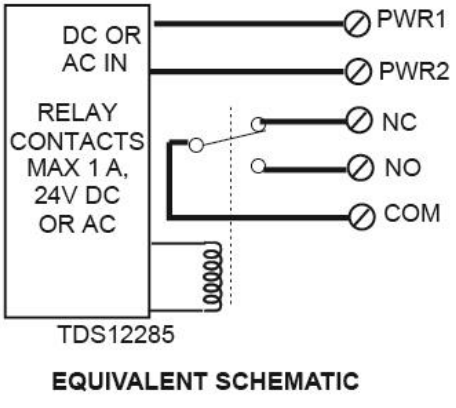
-40°C to +60°C max. (rain detection 0°C to + 60°C)

LIMITED WARRANTY

2 years

SCHEMATIC DRAWING





EQUIVALENT SCHEMATIC

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