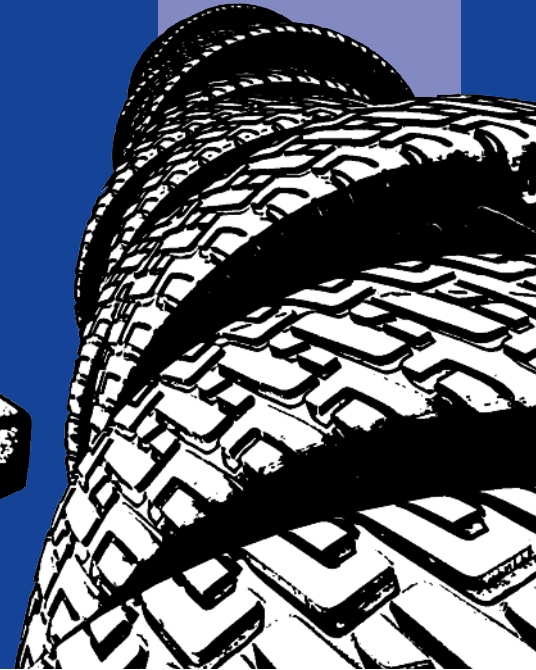
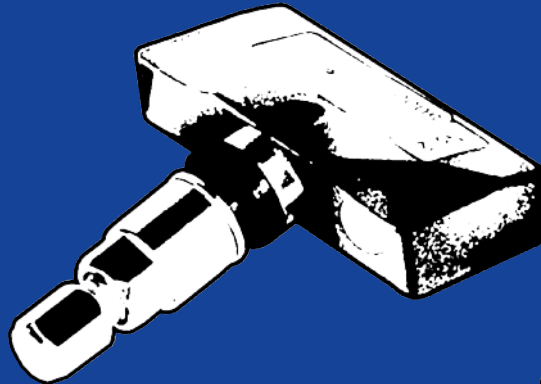


# **BRITPART**

The quality parts for Land Rovers

## **INSTRUCTION MANUAL**



## **TYRE PRESSURE MONITORING SYSTEM**

quality parts from **BRITPART**



### Thank you choosing the Britpart Tyre Pressure Monitoring System.

This system is an advanced monitoring & alert system of tyre conditions. It monitors tyre pressure and temperature and relays the state of each tyre to a display unit. When any abnormalities are detected, the system will display the status of the affected tyre and sound an alarm to ensure you take action to remedy the problem. Keeping your tyres in good condition at the right pressure can extend the life of your tyres and reduce fuel consumption.

Please read this manual carefully before using our product.

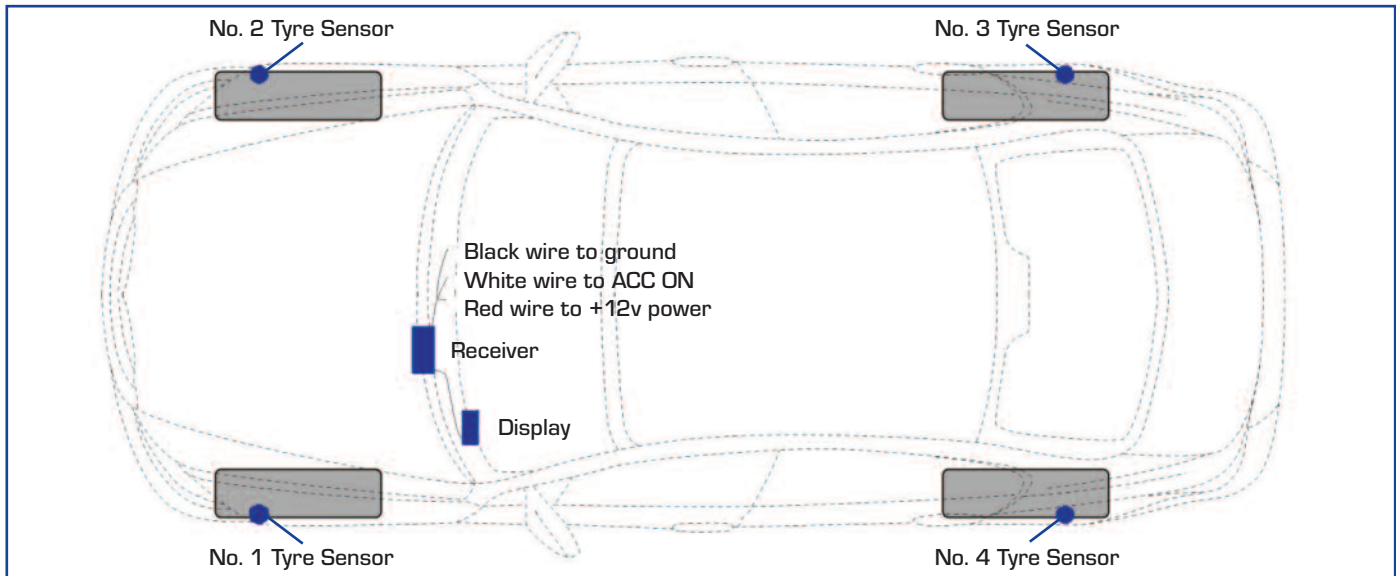
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## Notification

This system applies to 4 wheeled vehicles with meridian tyre (vacuum tyre) and cold tyre pressure (22°C) lower than 2.8 bar (280KPa/40.6psi/2.86 \* 10<sup>4</sup>kgf/m<sup>2</sup>). It should be installed by a qualified professional according to this manual. This system is an electronic device that measures and displays the inside air pressure and temperature of the tyres and gives a warning signal when an abnormality is detected. The system has no controlling function so the driver should rectify and detected problems as soon as possible. The performance of the sensors could be affected by chemical materials. Preset pressure from the manufacturer is 2.40 Bar (240KPa/34.8psi/2.45 \* 10<sup>4</sup>kgf/m<sup>2</sup>). Please set it to your vehicles recommended pressures after the initial installation (see details on page 14). This system is to be used as a monitoring aid only and Britpart will take no responsibility after the kit is installed and the user must ensure tyres are inflated to the vehicle manufacturers recommendations.

## General Installation Diagram



## Working Principle

This system consists of 4 sensors and LCD display. The sensor monitors the tyre inner pressure and temperature then transmits the signal, the display unit will then show the signal and give an alarm if appropriate.

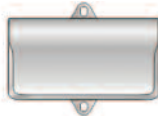
## Components

Code	Name of Component	Quantity
1	Display	1
2	Receiver	1
3	Tyre Sensor	4
4	Display Bracket - 1	2
5	Display Bracket - 2	1
6	3M Sticker	2
7	Instruction Manual	1

1



2



3



4



5



6



7

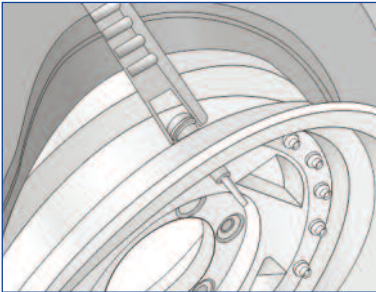


## Technical Specifications

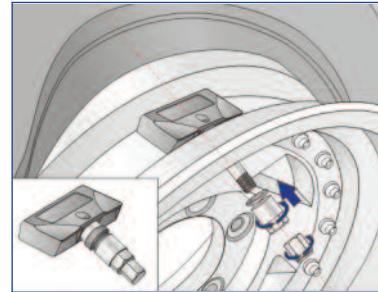
Tyre Sensor		
Working Voltage Range	DC 2.1 – 3.6v - High-powered battery inside	
Working Current	0.6uA - Standby / 9mA - Transmission status	
Working Temperature Range	-40 - 125°C	
Transmitting Frequency	433.92MHz	
Transmitting Power	>5dBm	
Modulating Method	FSK	
Measurable Pressure	0 - 3.5bar (0 - 350KPa / 0 - 50.8psi / 0 - 3.58 * 10 <sup>4</sup> kgf/m <sup>2</sup> )	
Measurable Temperature	-40 - +120°C	
Battery Life	5 years +	
Size	76 x 56 x 22mm	
Weight	<38g - no valve weight	
	Display	Receiver
Working Voltage Range	Receiver Supply 5v DC	9 - 15v DC
Receiving Sensitivity	N/A	<100dBm
Receiving Frequency	N/A	433.92MHz
Size	83 x 41 x 18mm	75 x 55 x 17mm
Weight	70g	35g
Working Current	Standby - <30mA / Alarm - <80mA	
Working Temperature Range	-30 - +80°C	

### Sensor Installation

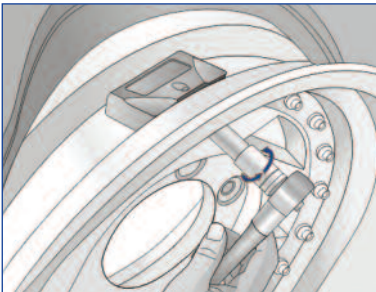
- > Discharge the wheel, press the tyre around the valve by tool to fix the sensor.
- > Remove the original air valve.
- > Install the sensor - the hole for air must not be jammed.
- > Fix the sensors to the corresponding wheel -  
**No. 1 is front left wheel; No. 2 is front right wheel; No. 3 is rear right wheel and No. 4 is rear left wheel**
- > Install the tyre and charge it with air to normal pressure, then turn it to balance it.
- > Install the wheel.



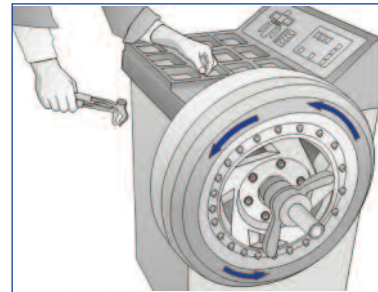
Remove the original air valve.



Fix the sensor.



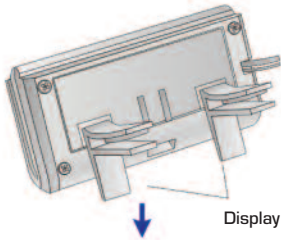
Tighten the screw in the sensor according to clockwise direction by screwplate.



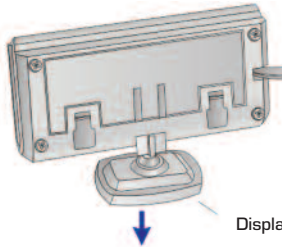
Charge the tyre to standard pressure then balance the wheel.

## Display and Receiver Installation

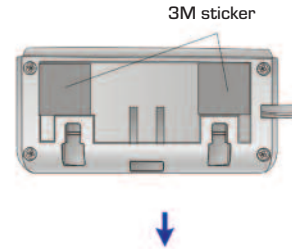
> Fix the display on a suitable position with the bracket or 3M sticker:



Display bracket - 1



Display bracket - 2

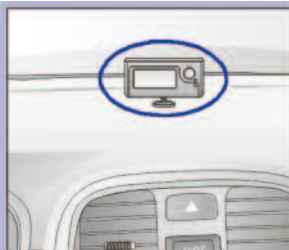


3M sticker



Recommended

Install the display on the heater vent. Clip the bracket appropriately if it is too long.



Recommended

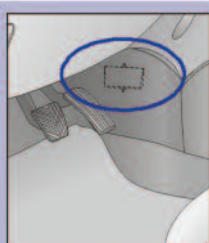
Install the display in an easy to see place.



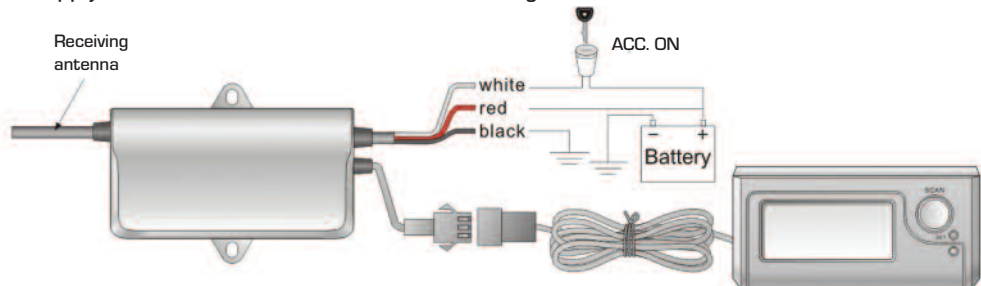
Recommended

Install the display in front of the dashboard.

> Connect the red wire to +12 power supply, white wire to the ACC. ON, black wire to ground.



Hide and fix the receiver in drivers footwell.



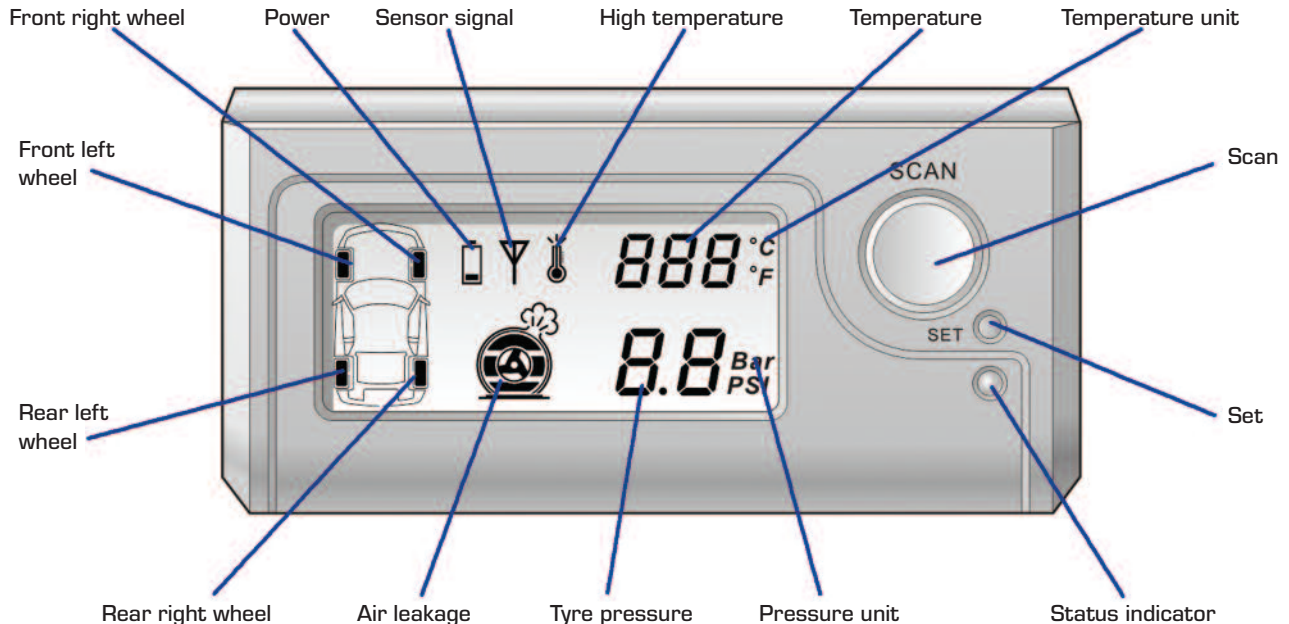
### System Operation

The system enters into working status after installation. With ACC ON the system starts self-test then displays the inside pressure and temperature of each tyre for 2 seconds. If all tyres are in good condition, the display will go off automatically, the status indicator (LED) turns green. Otherwise the buzzer will sound 3 times with the indicator in orange or red and the display will show the relevant information, the buzzer will sound 3 times every 3 minutes until the problem is rectified.

Press SCAN to read the data of each tyre.


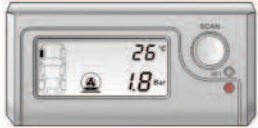



Press SET 3 seconds to convert the temperature units - °C to °F

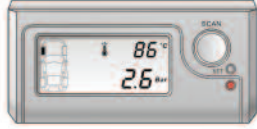
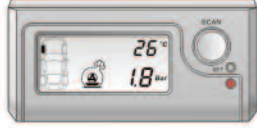


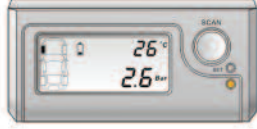
When the ACC ON cut off the power supply, the system is still in monitoring state but will not alarm



## System Alarm

Example - when reference pressure is 2.4 bar:

15% lower than reference pressure	
20% lower than reference pressure	
20% higher than reference pressure	
25% higher than reference pressure	
Temperature higher than 70°C	

Temperature higher than 80°C	
Air leaking	
No signal	
Faulty sensor	
Low battery - sensor	

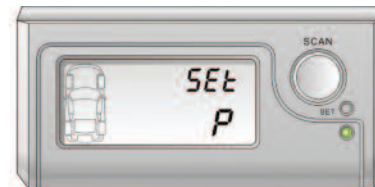
### Interface Setting



(a) Temperature setting



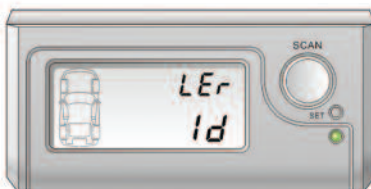
(b) Pressure unit setting



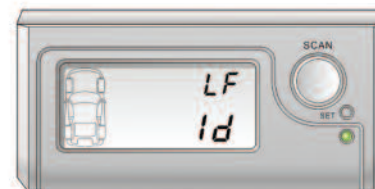
(c) Reference pressure setting



(d) ID exchange



(e) Learn new ID



(d) Learn ID by LF



(g) Quit setup mode

#### Enter into setup mode:

> Switch to ACC ON, press SET until you hear the sound of 'Bi' to enter setup mode. Press SCAN to choose amongst the interfaces of (a) to (g), press SET again to enter into the setup mode.

#### Quit setup mode:

> Press SCAN and select the interface (g). Then press SET to quit setup mode.

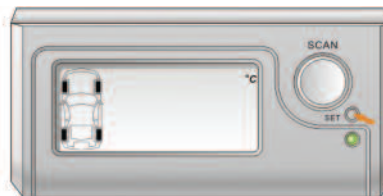
The system will quit setup mode automatically when the power supply is shut off.

## Temperature Unit Setting

Please follow the steps below for unit change



(a) Enter setup mode and select the interface of Temperature Unit Setting.



(b) Press SET to enter the Temperature Unit Setting, the present temperature unit will be displayed.



(c) Press SCAN, you can shift between °C and °F.



(d) Press SET to confirm the temperature unit. The system will quit setup mode of temperature unit in case of no operation in 10 seconds, the original setting will be kept unchanged. The system will enter into next setup interface automatically after setting or automatic quitting.

## Pressure Unit Setting

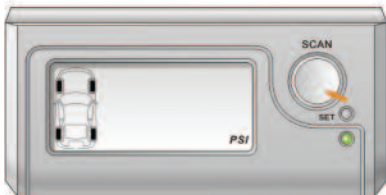
Please follow the steps below for unit change



(a) Enter setup mode and select the interface of Pressure Unit Setting.



(b) Press SET to enter the Pressure Unit Setting, the present pressure unit will be displayed.



(c) Press SCAN, you can shift between Bar and PSI.



(d) Press SET to confirm the setting of new pressure unit. The system will quit the pressure unit setting mode in case of no operation in 10 seconds, the original pressure unit setting will not be changed. The system will enter into next setup interface automatically after setting or automatic quitting.

## Set Reference Pressure - the preset pressure – 2.4 Bar

To reset reference pressure for different types of cars, follow the steps below.

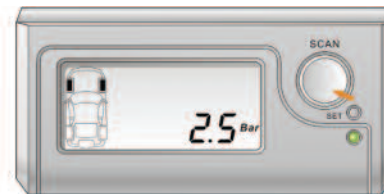
1 standard air pressure - 1bar = 1000Kpa = 14.5psi =  $1.02 * 10^4\text{kgf/m}^2$ .



(a) Enter setup mode and select the interface of Set Reference Pressure



(b) Press SET to enter the interface of the setup mode of Reference Pressure, the system shows the present reference pressure.



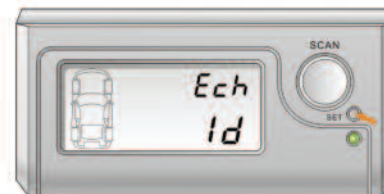
(c) Press SCAN, the pressure will increase by 0.1bar or 1psi and will cycle among 0.5–2.8bar or 7–41psi



(d) Press SET after confirming the new reference pressure.



(e) The system will enter into the reference pressure setting of back tyres automatically after setting front tyres pressure and show the current reference pressure. Set the new reference pressure step (c) and (d).



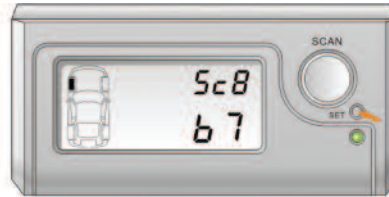
(f) The system will quit reference pressure setting mode automatically in case of no operation in 10 seconds. The original reference pressure will keep unchanged. The system will enter into next interface after setting or automatic quitting.

## ID Exchange

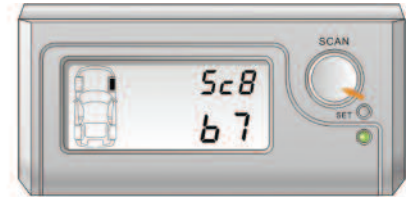
After some period of time in use, the tyres should be exchanged to prolong their lives. The ID positions of the sensors should be exchanged accordingly. For example the front right wheel changes with the back right wheel.



(a) Enter setup mode and select the interface of ID exchange.



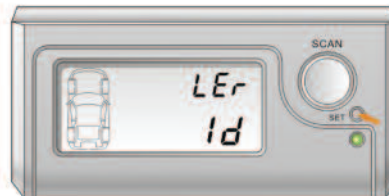
(b) Press SET to enter the ID Exchange mode. It will show the position of the front left wheel and its ID.



(c) Press SCAN, select the front right wheel then press SET to confirm.



(d) Press SCAN select the back right wheel (indicator of selected tyre will be kept unchanged).



(e) Press SET to finish the ID Exchange. The system will quit ID exchange mode automatically in case of no operation in 10 seconds, the ID will not be exchanged. The system will enter into next setup interface after setting or automatic quitting.

Repeat the steps to exchange other ID.

## Learn New ID

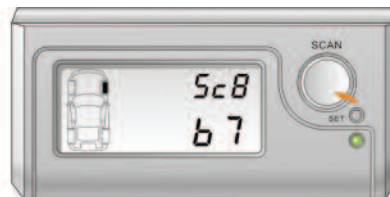
When a sensor is replaced, follow the steps below to learn new ID. For example learn new ID for front right wheel.



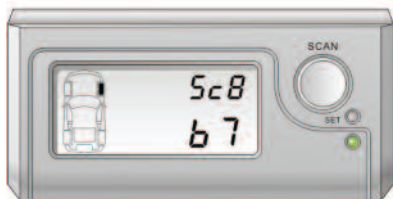
(a) Enter setup mode and select the interface of Learn New ID'.



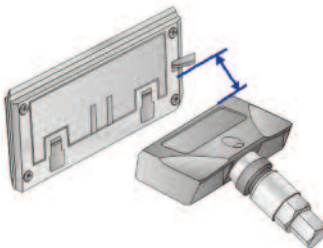
(b) Press SET to enter the Learn New ID mode. It will show position of front wheel and its ID



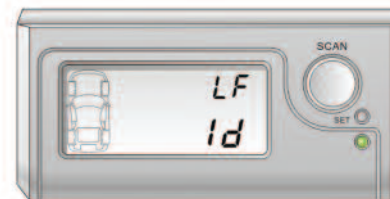
(c) Press SCAN, select the front right wheel then press SET to confirm.



(d) Waiting for transmitting and receiving.



(e) Keep the sensor into the range of 10cm from the display.



(f) The original ID will be replaced when the system receives a new one, the setting is finished. The system will quit Learn New ID mode automatically in case of no operation in 1 minute, the ID will not be exchanged. The system will enter into next setup interface after setting or automatic quitting.

Repeat the steps to learn other ID.

## Learn ID by Low Frequency

This function is only supported by the ID Reading Controller by our company. Otherwise, ID learning by low frequency will not be realised.



(a) Enter setup mode and select the interface of LF Learn ID.



(b) Press SET to enter the LF Learn ID mode, the system will indicate the position of all the wheels, waiting for the data from the Reading Controller.



(c) Use the Reading Controller to read out ID of all wheels needed to be installed or updated and then send out the data.



(d) The original ID will be replaced when the system received all the new data, the setting is finished. Press SCAN to quit the setting mode and keep the original setting unchanged. The system will enter into next setup interface after setting or automatic quitting.

### Conversion table of pressure units

	(N/m <sup>2</sup> )Pa	kgf/m <sup>2</sup>	kgf/cm <sup>2</sup>	bar	atm	mmH <sub>2</sub> O	mmHg	(lb/in <sup>2</sup> ) psi
(N/m <sup>2</sup> )Pa	1	0.101972	10.1972 * 10 <sup>-6</sup>	1 * 10 <sup>-5</sup>	0.986923 * 10 <sup>-5</sup>	0.101972	750062 * 10 <sup>-3</sup>	145.038 * 10 <sup>-6</sup>
kgf/m <sup>2</sup>	9.80665	1	1 * 10 <sup>-4</sup>	9.80665 * 10 <sup>-5</sup>	9.67841 * 10 <sup>-5</sup>	1 * 10 <sup>-8</sup>	0.0735559	0.00142233
kgf/cm <sup>2</sup>	98.0665 * 10 <sup>3</sup>	1 * 10 <sup>4</sup>	1	0.980665	0.967841	10 * 10 <sup>3</sup>	735.559	14.2233
bar	1 * 10 <sup>5</sup>	10197.2	1.01972	1	0.986923	10.1972 * 10 <sup>3</sup>	750.061	14.5038
atm	1.01325 * 10 <sup>5</sup>	10332.3	1.03323	1.01325	1	10.3323 * 10 <sup>3</sup>	760	14.6959
mmH <sub>2</sub> O	0.101972	1 * 10 <sup>-8</sup>	1 * 10 <sup>-4</sup>	9.80665 * 10 <sup>-5</sup>	9.67841 * 10 <sup>-5</sup>	1	73.5559 * 10 <sup>-3</sup>	1.42233 * 10 <sup>-3</sup>
mmHg	133.322	13.5951	0.00135951	0.00133322	0.00131579	13.5951	1	0.0193368
(lb/in <sup>2</sup> ) psi	6.89476 * 10 <sup>3</sup>	703.072	0.0703072	0.0689476	0.0680462	703.072	51.7151	1

### Conversion table of temperature units - °F = °C \* 9/5 + 32

°C	°F		°C	°F		°C	°F		°C	°F		°C	°F
-50	-58		-10	14		30	86		70	158		110	230
-40	-40		0	32		40	104		80	176		120	248
-30	-22		10	50		50	122		90	194		130	268
-20	-4		20	68		60	140		100	212		140	284





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