



modified 22/03/17



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# Symbols used in the text



These paragraphs contain tips and practical advice for working with the 2D system



In the paragraphs highlighted with this symbol, you will find additional information and it is very important that you follow the instructions given.



Documentation reference

A user manual reference number is provided so the user can seek further assistance



# 1 The Tire Rack Supervise System

The 2D Tire Rack Supervise System (TRSS) is an extension to the 2D Tire Monitoring System (TMS). With the Tire Rack Supervise System it is possible to keep track of the temperature and air pressure of a number of tires sitting in a rack in the paddock. The whole system consists of the following components (see picture below):

- The rack with the tires. Each tire is equipped with a sender. Each sender has a TMS-code which identifies the tire towards the system.
- A receiver unit. The receiver unit receives the air pressure and tire temperature data and transmits them to the telemetry server (TRSS-Server).
- The TRSS-Server is the gateway between the receiver unit and the TRSS-Clients. It distributes the data to one or more TRSS-Client(s).
- The TRSS-Client presents the information to the user.



TRSS-System running on a single computer

It is also possible to distribute the components of the system onto different computers connected by a local area network like shown in the picture below. There may be more than one TRSS-client connected to the TRSS-server at the same time.

With this it is possible to have one client on one computer to show all tires for "rider A" and a second client with the tire information for "rider B" on another (or the same) computer.







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#### System setup 2

Setting up the system consist of the following steps:

- 1. Install the Race 2017 software<sup>1</sup> or newer<sup>2</sup>. There is no need to license the software for the TRSS function.
- 2. Configure the receiver unit to be able to receive the information from the tires.
- 3. Configure the TRSS-Server to be able to transmit the information to the clients.
- 4. Start the TRSS-Server and configure the TRSS-Client

#### 2.1 Configuration of the receiver-unit

The task of the receiver unit is to receive information from your tires and send that information to the TRSS-server. To be able to identify the correct tires it has to have the IDs of the Wheel Unit Sensors (WUS).

To recognize the Wheel Unit Sensors (WUS) of your system you have to enter its ID into the TMS-code table. You can find the ID of the printed label on the sensor (last 4 characters).

"old" sensor



"new" sensor



Connect your receiver to the PC which will be the TRSS-Server and start "Set up the TRSS" (WinARace toolbar ⇒

To enter the WUS IDs click on the wheel icon. You can find it in the ServIt toolbar if you select your receiver unit in the system tree:



<sup>1</sup> **22** Refer to the manual "Software installation guide". It can be downloaded from:

 $\frac{\text{http://2d-datarecording.com/en/downloads/manuals/}{\text{arecording.com/en/downloads/setups/}} \Rightarrow \text{Race 2017 (or newer)}$ 



You can sort your WUS IDs in four columns and each column is meant for one type of tire - dry front, dry rear, wet front and wet rear:

		1222	1.255.25 2.252.2522	
entifier		Nr.	Identifier	
	Add			Add
	Remove			Remov
nt	Clear		dry rear	Clear
e	Move		tire	Move
	Add			Add
[	Add	-		Add
et	Remove		wet	Remov
nt	Clear		rear	Clear
e [	Move		tire	Move
ervise System				
1				
	ry ont re entifier et ont re ervise System	Add Remove Clear Move entifier Add Remove Clear Move Clear Move Clear Move	Add Remove Clear Move Wheel_4 Remove Clear Clear Clear Move Clear Clear Move Clear Clear Move Clear Clear Clear Clear Move Clear Cle	Add Remove Clear Move wheel_4 Wheel_4 Nr. Identifier Wet rear tire Wet rear tire

Enter your WUS IDs as printed (last four characters as marked in the picture above) in the corresponding column and save this table.

Please enable "Use setting of the selected tire sensor module as TRSS setting". By this the actual setting will be automatically used to configure the TRSS-Server.

Confirm your changes with **<OK>** and **<Apply>**.

### 2.2 Configuration of the TRSS-Server

To configure the TRSS-Server you connect your receiver to the PC and start "Set up the TRSS". Select Options, Settings  $\Rightarrow$  tab "Telemetry". Enter the correct COM port (you can find the correct COM port in

the left corner at the bottom of the configuration window: Full LogIn on COMB). The setting of your module will be automatically inserted, if you've enabled "Use setting of the selected tire sensor module as TRSS setting". Confirm your changes with **<OK>**.



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			Commu	unication-Se	ttings			×
Options	Communication Serial/USB	Communication TCP	Addresses	Decompressor	Software Dashboard	Timings	Telemetry	
		- Server-TCP/IP-Setting Port for setting Port for data	38  20  20	0001	Ringbuffer Use ringbuffer Protocol errors	✓		
		Transmission control Increment when data r Control counter OK thr	eceived eshold	16 V				
		- Communication Switch to COM port Telemetry COM port	115200	<b>№</b>				
		Speedbuttons Show telemetry speedt	buttons					
		Default setting Setting to use if not rea C:\RACEDATA\LDDF	ad Files\12H1BF	F4EDA0.LDD				
							Į	<b>√</b> <u>0</u> K
							[	X Cancel

## 2.3 Start the TRSS-Server and configure the TRSS-Client

To start the TRSS-Server and TRSS-Client select "Start TRSS" in the WinARace toolbar:

If you get a "Windows Security Alert" click on <**Allow access**>.





In the Tele Tire Monitor window you can modify various settings:

Settings for rer	note telemet	ry				Colors					
IP-address of	of telemetry	server	127.0.0.1			Channel Va	lues	Backg	round / State		
Port for setting			20001			Value OK		Not received			
			20000			Too low		Active		1	
Port for data			100	v	Hz	Too high	1	Battery	low		
Keireshrate					Value pointe	ers	Not pre	esent			
Value represen	tation										
Values visible		✓				Rim sheet	2				
Show value p	ointers	◄	Large pointers			Backgrour	nd				
Dry Tires						Wet Tires					
Front			Rear			Front		Rear			
Pressure			Pressure			Pressure		Pres	ssure		
Min.	1,90	Bar	Min.	1,90	Bar	Min.	1,90 Ba	ir Mir	1,90	Bar	
Max.	2,10	Bar	Max.	2,10	Bar	Max.	2,10 Ba	r Ma	x. 2,10	Bar	
Tempera	ture		Temperat	ire		Tempera	iture	Tem	Temperature		
Min.	68	°C	Min.	68		Min.	65 °C	Mir	1. 65		
Max.	82	°C	Max.	82		Max.	75 °C	Ma	x. 75		
	diamet.			dimension.		, isaa	Less 1 2	110	and Loss		

In menu "File" you have the option to save or load saved settings.

File		
	Load session Save session	
	Exit	Alt+X

#### IP address of your telemetry server

If the TRSS-Server is running on the PC you are working on you can enable the box "local". If the server is on a different machine you can find its IP address on the window which opens by starting the telemetry server:

20	2D Remote Telemetry	Server IP: 1	92.168.1.194		- 🗆 🗙
19:06:00 Using rin 19:06:00 Started li 19:06:00 Started li	jbufferl stening for setting request! stening for data request!			-	•
	Client Dashboard	Client Scope			0 sec
			Stop Server		? ms



#### Do not close this window!

If you close this window, the telemetry server does not work. Only minimize it, if it is blocking your view.

#### **Refresh rate**

Select the refresh rate from the drop-down list. It is recommended to use a low refresh rate because temperature and air pressure do not change very fast. And a low rate keeps the communication load on your computer and network down.



### Value representation

Select the way to indicate the values:



### Limits for pressure

Enter the minimum and maximum pressure value for the wet and dry, front and rear tires. If the channel value is between these values, it will be indicated as "OK".

#### Limits for temperature

Enter the minimum and maximum temperature value for the wet and dry, front and rear tires. If the channel value is between these values, it will be indicated as "OK".

### Colors for faster recognizing the channel values

You can program different colors for the tire fields:

- If the values for this tire are not received
- If it is active
- If the battery voltage of the WUS is low

In addition you can program different colors for the channel values. That will help you to recognize any problems by having a short look at it:

- If the channel value OK
- If the channel value is too low
- If the channel value is too high

To change the colors simply click on them – a dialog to select the color will open:



To get a display with the actual tire data click on <**Connect to server**>.



In the beginning the following window is empty. You can easily add the tires of the tables, images or clocks (analog, digital or countdown) by right-mouse click and then selecting them:



When you select the tire, you can use the standard tire naming (for example "DF 1") or you can rename the tire. To rename the tire please enter a name in the field "Display name". You can also modify the names font, font size, color, etc. Additionally you can select if you want to show the WUS' ID (enable/disable "Tire ID visible"). You can move an object by left-clicking and dragging the field. If you double-click on a tire object, you can edit its settings.

66				2D Teleme	etry Tire	Monitor - De	efault			- 0	×
Start Stop	Add tire	Clear sheet	Exit								
DF 1		Extra Soft	000C	<u>RIM 23</u>	0016	CS 31	00 1B	Medíum.	2 0024	WF 3	
1,92	bar	2,09	bar	2,30	bar	2,29	bar	2,29	bar	2,45	bar
68	°C	69	°C	71	°C	72	°C	74	°C	76	°C
Ride	er /	A									
DR 1	001E	501		DR3	0013	WR 1	0006	Soft 2		WR 3	002B
2,09	bar	2,09	bar	2,24	bar	1,96	bar	2,18	bar	2,45	bar
73	°C	75	°C	71	°C	68	°C	70	°C	76	°C

You only have to create this layout once. Next time the telemetry tire monitor is started with the last setting.

When you close the window you're asked if you want to save the layout changes (if anything changed):

	Confir	m	×
Save cha	nges?		
	Ves	No	Cancel



# 3 Additional information on the Wheel Unit Sensors

### 3.1 Status channel

The information of the status channel (#STAT\_) is bit-coded:

Bit	Value	Description
0	1	
1	2	
2	4	Battery low!
3	8	
4	16	
5	32	
6	64	
7	128	