

Electronic flag panels and GPS tracking at TT Circuit Assen

Your safety is very important to us. TT Circuit Assen uses modern techniques to ensure your safety during the event you participate in. From Race Control, all movements on the circuit are monitored using 40 cameras. All participants are required to use a GPS-transponder so Race Control has a live overview of where each vehicle is. Using digital flag panels, all possible flag signals can be displayed instantly. Using these techniques, we can guarantee your safety and provide assistance in the event of a breakdown or accident. This brochure provides more information on electronic flag signals and GPS tracking.

Electronic flag panels

TT Circuit Assen uses digital flag panels (digiflags) during all events to display the familiar flag signals. Digiflags are placed at 18 positions along the circuit and there is a multifunctional information board at Start/Finish. The digitally displayed signals have the same meaning and value as the physical flag signals given by track marshals. The digiflags may be accompanied by physical flag signals to supplement or support them. The signal displayed first takes precedence. The control of the digital flags can be done either by a track marshal from a marshal post or by Race Control.

Only digiflags will primarily be used during the event you are participating in. Physical flag signals will – if possible – be displayed for support. With this, the track marshals are basically available for assistance and support and the flag signals will be displayed digitally. The meaning and value of the digital flag signals is the same as that of the regular flag signals. It is also possible for signals that are normally only shown at Start/Finish to be shown at all positions or in certain sectors of the track.

START OF SESSION: GREEN FLAG At the start of each session the digiflags will show the green flag during the first lap. This will inform you about the position of the digiflags. When the situation in a section of the track gives cause to do so, the corresponding digiflag might display another flag signal at the start of the session.

As soon as the session starts, the light at the pit exit will turn green and will continue to show green throughout the session. When you are approaching the pit exit to enter the track and there are other vehicles on the circuit, the pit exit lights will flash blue.

END OF SESSION: CHEQUERED FLAG As soon as the scheduled time for the session has elapsed, the chequered flag will be displayed on all digiflags. At the same time, the pit exit light is set to red.

From this moment on it is not allowed to overtake each other anymore and at the first opportunity you have to enter the pit lane. It is no longer allowed to exit the pit lane.

INTERRUPTING OR STOPPING SESSION: RED FLAG If a situation on or along the track causes the session to be interrupted or stopped, all digiflags will show the red flag. The pit exit light also turns red and the start lights on Start/Finish shows red.

You must reduce speed now and be prepared to change direction or come to a standstill. Overtaking each other is no longer allowed and at the first opportunity you must enter the

pit lane. In the pit lane an official will make you wait (in case of interruption) or lead you to the paddock (in case of stopping).

INCIDENT: YELLOW FLAG In the event of an incident, the yellow flag will be displayed on one or two digiflags prior to the incident. A green flag will be displayed on the first digiflag after the incident. From the first yellow digiflag onwards, it is prohibited to overtake each other and you must adjust your speed. After passing the green digiflag, the speed may be increased again and overtaking is allowed.

If the incident is on the track, a double yellow flag will be shown; in that case a yellow and black triangle will be shown alternately on the digiflag. You must therefore be prepared to change direction or significantly reduce speed.

On the digiflag, the most important flag is shown. If necessary – and possible – a physical flag signal can be shown in support to it. For example, the digiflag shows the yellow flag (dangerous situation next to the track, no overtaking) and the track marshal physically shows the yellow/red striped flag (possible reduction of grip).

NEUTRALISATION: CODE 60 If an incident requires the deployment of a Safety Team (rescue vehicle) and/or ambulance, the session will be temporarily neutralised. This allows the track marshals to work safely and does not mean that the session has to be stopped.

All digiflags will show the purple Code 60 flag and the start light on Start/Finish shows yellow flashing. From that moment on, you must reduce your speed to a maximum of 60 km/h without braking strong. Overtaking each other is no longer allowed. The digiflag prior to the incident may show another flag signal, for example yellow or double yellow.

As soon as the incident has ended and all track marshals are behind the safety barriers again, all digiflags will show the green flag at the same time (and the starting light will turn green again). In this case, it is again permitted to increase speed and overtake each other as soon as a green flag is in sight.

VIOLATION, E.G. NOISE: START NUMBER When a competitor has committed a noise offense, or for any other reason has to stop the session immediately, the corresponding start number will be shown on Start/Finish on the information board and/or along the track on the digiflags.

If your start number is shown on the information board and/or an digiflag, you must enter the pit lane at the next opportunity. In the pit lane you have to report to an official.

Digital flag signals

GREEN FLAG	track clear, end of dangerous situation/neutralisation <i>overtaking is allowed (again); is shown during first lap to indicate the position of the digiflags</i>
YELLOW FLAG	incident/dangerous situation next to the track <i>clearly reduce speed and overtaking is prohibited up to the point where the green flag is shown</i>
DOUBLE YELLOW	incident/direct danger on the track <i>clearly reduce speed, be prepared to change direction or stop and overtaking is prohibited up to the point where the green flag is shown</i>
YELLOW/RED STRIPED FLAG	possible reduction of grip in the following sector (e.g. due to oil, water or gravel)
WHITE FLAG WITH DIAGONAL RED CROSS	(start to) rain in following sector <i>used only during (track days for) motorbikes</i>
BLUE FLAG	you will be overtaken or will soon be overtaken by a faster participant <i>stay on your own line</i>

RED FLAG	session interrupted (or stopped) <i>clearly reduce speed, overtaking is prohibited and continue to pit lane and wait here for further instructions</i>
PURPLE FLAG/CODE 60	neutralisation (speed restriction) <i>reduce speed to a maximum of 60 km/h and overtaking prohibited</i>
CHEQUERED FLAG	end of session <i>overtaking prohibited and enter pit lane at first opportunity</i>
NOISE DB	noise violation: stop in pit lane <i>start number shown: obligatory to enter pit lane at first opportunity and report to official</i>
TECHNICAL FLAG	technical defect: leave track immediately <i>start number shown: obligatory to leave the track as soon as possible and stop in a safe place</i>
BLACK FLAG	stop in pit lane <i>start number shown: obligatory to enter pit lane at first opportunity</i>
ARROW	follow the direction of the arrow: use the short cut <i>use the short cut at the first opportunity</i>

GPS-tracking

TT Circuit Assen uses GPS tracking during all events to monitor the movements of all participating vehicles. GPS transmitters are used to monitor the live position of all participants. If a vehicle stalls or is involved in an incident, Race Control immediately receives information on the start number and position of the participant(s) involved. Using this information, emergency services can be directed directly from Race Control.

GPS tracking is also used for noise measurement. If the permitted (individual) noise limit is exceeded at the noise measurement point, the GPS tracking is used to determine which participant is responsible.

The GPS transmitters will not be used for timekeeping. If the event you are participating in includes timekeeping, you will receive a separate transponder for this purpose.

GPS-TRANSPONDER ON ANY VEHICLE Before you can enter the track for the first session, your vehicle must be fitted with a GPS-transponder, the Mylaps X2 RaceLink GPS. This GPS-transponder has the same dimensions as the well-known Mylaps transponder used for timekeeping. The GPS-transponders are the property of the TT Circuit Assen and will be loaned to you for the duration of the event via the event organiser.

Before the start of the first session, you must attach the GPS-transponder to or on your vehicle. During the day, you are responsible for keeping the GPS-transponder attached to the vehicle. If your vehicle is equipped with a Mylaps transpon-

der holder, this can be used to attach the GPS-transponder. In case of a motorbike, the GPS transmitter can also be attached to the back of the buddy seat with a temporary transponder holder. At the start of the first session, before you can enter the track, track officials at the Techno Centre will check whether the transponder is attached correctly and properly.

At the end of your final session, the GPS-transponder will be removed from your vehicle by a circuit official when entering the pit lane. Due to the limited battery life, the GPS-transponder must be charged daily. Therefore, the transponder can only be issued in the morning and must be taken back at the end of each day, regardless of the duration of the event. If you participate in a multi-day event, you must have a GPS-transponder reattached to your vehicle on the following day(s) before the start of the first session.

If you are involved in an incident and are unable to continue the event on that day, you will be expected to return the GPS-transponder to the Techno Centre. If you are unable to do so, the track officials involved in recovering your vehicle will take the GPS-transponder.

Should you leave the event early and have not yet returned the GPS-transponder, a red traffic light at the paddock exit will remind you to still return the GPS-transponder to the Techno Centre.

Do you discover during the event that you have lost the GPS-transponder and is no longer attached to your vehicle, please report it immediately to the circuit officials at the Techno Centre or at Riders Info.