XTRA.CDI SHUTDOWN TRANSPONDER

User Manual

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Safety

All De Haardt's products are designed as supplement to make karting safer, but cannot replace safe track procedures. If equipment fails, the normal operating procedure must still be adequate to safely operate the track.
This document has been written with great care. However, the manufacturer cannot be held responsible, either for any errors occurring in this publication or for their consequences.

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1 Get started

This manual helps with correctly installing, configuring and using the Xtra.CDI Shutdown Transponder. Every functionality the Xtra.CDI Shutdown Transponder offers will be explained.

The Xtra.CDI Shutdown Transponder is used to limit the maximum speed of a go-kart with a combustion engine to increase the safety on and around a karting track. The Xtra.CDI Shutdown Transponder is controlled wireless with different De Haardt products.
A brake switch can be connected to the Xtra.CDI Shutdown Transponder to detect when the brake pedal is pressed. Once the brake pedal is pressed, the Xtra.CDI Shutdown Transponder will limit the maximum speed of the engine to prevent the driver from causing harm to the clutch.

> ⚠ WARNING!
> This product is designed to increase the safety of karting, but cannot replace safe track procedures. If equipment fails, normal operating procedure must still be adequate to safely operate the track.

> ⚠ WARNING!
> Continuous use of the Xtra.CDI Shutdown Transponder Mk2 as a speed-limiting device may affect the lifespan of the engine.

1.1 Product overview

The Xtra.CDI Shutdown Transponder consists of the following parts:

- **Xtra.CDI Shutdown Transponder**

Figure 1: Xtra.CDI Shutdown Transponder

1.2 Additional items

Items that are not included, but may be purchased separately:

Article No.	Name	Description
200.481	Xtra.Cable Harness CDI Transponder	Cable harness for connection between transponder and engine 1 meter.
200.471	Xtra.Cable Harness CDI Transponder	Cable harness for connection between transponder and engine 1,3 meter.

Figure 2: Xtra.Cable Harness CDI Transponder

The Xtra.Cable Harness CDI Transponder is not included by default. It needs to be ordered separately.

1.3 Installation

The Xtra.CDI Shutdown Transponder communicates wireless with the Xtra.Remote Control and the Xtra.Black Box. **For an optimal wireless coverage the location is very important and must be chosen carefully!**

1.3.1 Mounting

Transponder is to be fitted on a flat surface with three countersunk M5 bolts and lock-nuts. Surface can be either plastic or metal but preferably plastic. Do not overtighten the bolts as enclosure is not allowed to deform. Optionally, if required the fixation may be improved with double sided adhesive tape.

Mount the transponder as high as possible on the kart, preferably with connectors facing downwards. This ensures optimum radio sensitivity all around.

To prevent radio degeneration, it is advisable to maintain a clearance to metal around the transponder internal antennae. These are marked red in the picture below.

1.3.2 Connector pinout

The Xtra.CDI Shutdown Transponder features a connector to make the connections with the engine. Each connector pin must make the correct connection to ensure the Xtra.CDI Shutdown Transponder functions properly. See Table 1.

Pin number	Connection
Pin 1	Ignition -
Pin 2	Power +
Pin 3	Not connected
Pin 4	Ignition +
Pin 5	Power -
Pin 6	Brake switch

Table 1: Xtra.CDI Shutdown Transponder connections

1.3.3 Engine connections

Connecting an Xtra.CDI Shutdown Transponder to a go-kart engine varies depending on the type of engine. Chapters below describe how the Xtra.CDI Shutdown Transponder must be connected when using the Xtra.Cable Harness CDI Transponder.

The supported and tested engines are described in the sections below. However the Xtra.CDI Shutdown Transponder might work on different engines. Contact our support department when in doubt.

1.3.3.1 Electrical connection for conventional engines

Figure 3 shows how the Xtra.CDI Shutdown Transponder must be connected to a conventional engine. The following Honda engines are supported and tested.

Conventional engines
GX120
GX160
GX200

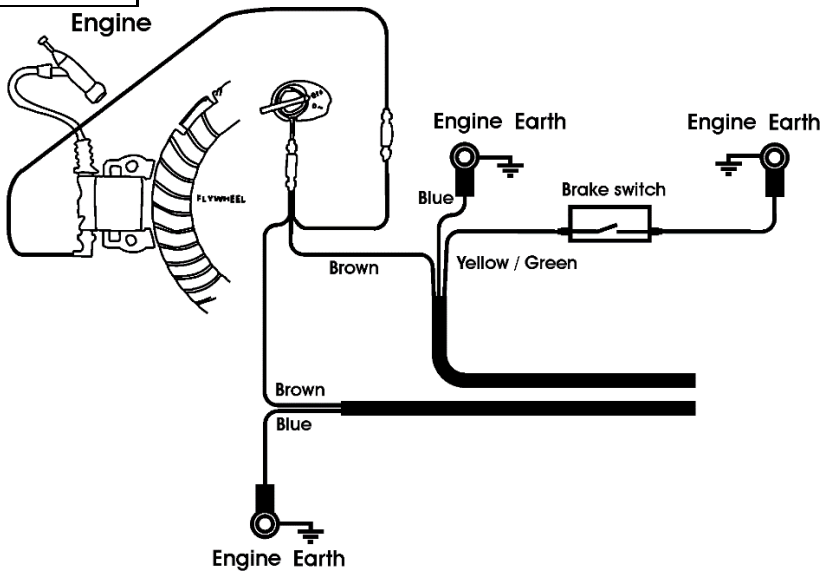

Figure 3: Connecting conventional engine

1.3.3.2 Electrical connection for CDI engine

When the Xtra.CDI Shutdown Transponder is connected to a CDI engine the connections can vary depending on the kind of power supply. This being: a battery or a power coil.
Figure 4 shows how an engine with a battery is connected and Figure 5 shows how an engine with a power/charge coil is connected.
The following Honda CDI engines are supported and tested.

Conventional engines
GX200
GX270
GX390

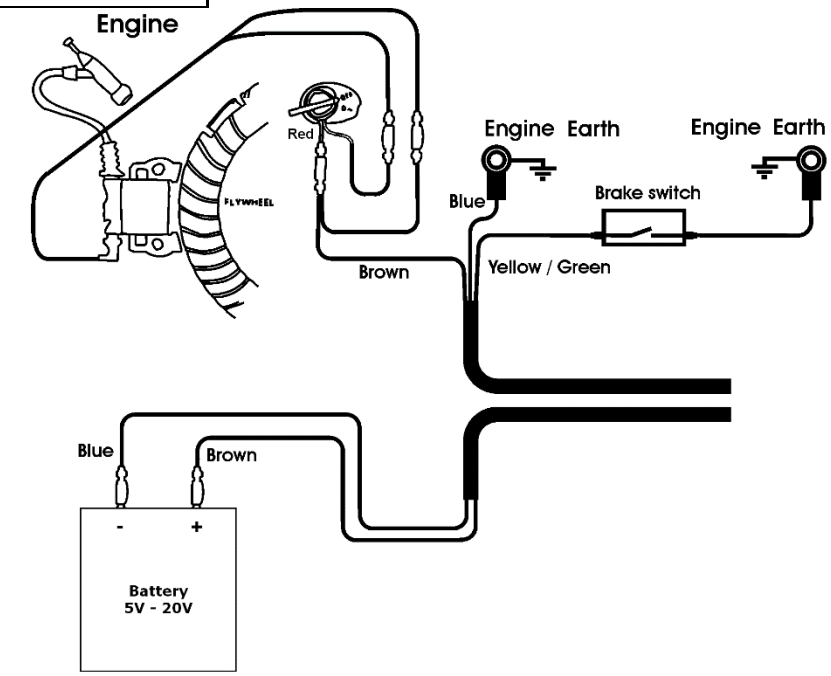

Figure 4: Connecting CDI engine with battery

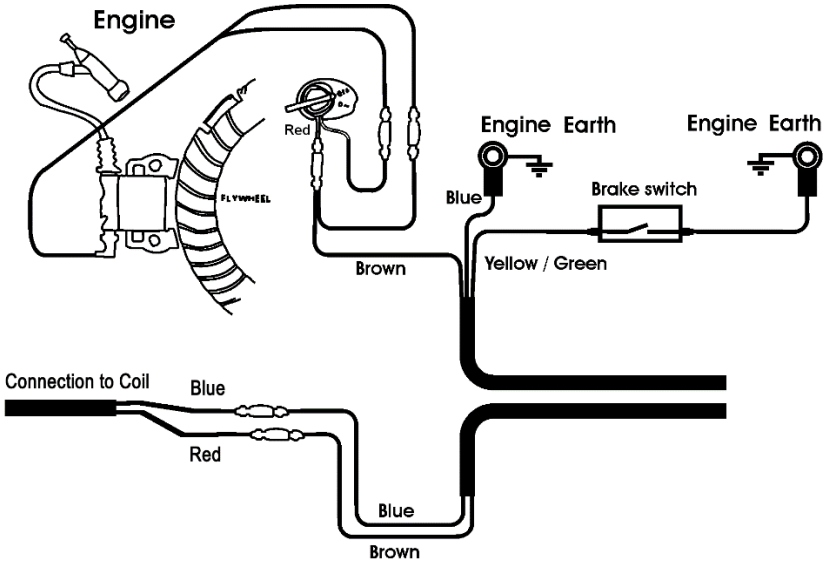

Figure 5: Connecting CDI engine with coil

1.3.4 Network port

Other De Haardt devices can be connected to the network port of the Xtra.CDI Shutdown Transponder.

Figure 6: Xtra.CDI Shutdown Transponder network port

> **WARNING!**
> Always put the protection cap on the Xtra.CDI Shutdown Transponder's network port when this port is not used! Be sure that the protection cap is fully covering all outside metal parts of the network port connector.
> It is not allowed to connect devices to this network port which are not approved by De Haardt!

2 Configuration

To use the Xtra.CDI Shutdown Transponder with its full potential, it needs to be configured to the needs of the end user. Configuring the Xtra.CDI Shutdown Transponder is done using the Xtra.Remote Control. See the manual of the Xtra.Remote Control for instructions on configuring the Xtra.CDI Shutdown Transponder. The various settings are described below.

2.1 Kart number (Default: last two digits of the serial number)

The kart number is used to address individual go-karts. For example: The Xtra.CDI Shutdown Transponder is mounted on a go-kart with the number 5 written on it. Setting the kart number to 5 enables the Xtra.CDI Shutdown Transponder to be addressed through the remote with number 5.

2.2 Group (Default: all groups enabled)

Assigning multiple Xtra.CDI Transponders to a group enables the Xtra.Remote Control to control a certain amount of go-karts. For example: two different types of go-karts drive on the same track. One with kids and another with adults. Assigning the adult go-karts to a different group than the kids go-karts enables the user to limit the speed of just the adult go-karts or just the speed of the kids go-karts.

2.3 Track (Default: all tracks enabled)

When a karting venue has multiple tracks, the Xtra.CDI Shutdown Transponder can be assigned a track. This prevents the Xtra.CDI Shutdown Transponder from reacting to messages designated to go-karts of a different track.

2.4 Max speed limit (Default: unlimited)

A maximum speed limit can be configured in the Xtra.CDI Shutdown Transponder. Setting this limit means the transponder can **never** exceed this speed limit.

2.5 Brake limit (Default: 2100 RPM)

The Xtra.CDI Shutdown Transponder can be connected to a brake switch. When the brake pedal is pressed, the Xtra.CDI Shutdown Transponder will then limit the engine to this configured RPM.

3 Technical specifications

This chapter describes the technical specifications of the Xtra.CDI Shutdown Transponder.

3.1 Specification overview

Description	Min	Typical	Max	Unit
Operational temperature	-10		55	°C
Operation voltage*	5	12	400	V
Input current**	5	20	60	mA
Radio Range safety band***		100		m
Radio frequency 1	433.050		434.790	MHz
Radio output power			10	mW
IP code		IP57		

*Max DC input voltage is 20V. A higher voltage is possible only with input pulses.

**Ambient temperature 20°C, Input current depends on the state of the product.

*** The environment is of great influence on the achieved range.

4 Support

For support, one can contact the support department of De Haardt by email: support@de-haardt.com