

# MIPP Target Wheel Safety Document

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## 1 Introduction

The MIPP Experiment (FNAL E907) is located in MC7. It measures particle production on various targets. The MINOS target and liquid hydrogen and nitrogen targets will be used at some time. Initially solid targets of various materials will be used. The solid targets are disks of 2 inch diameter and a thickness of a few millimeters, depending on the target material and adjusted to give a 1% interaction length. Several of these disks can be mounted in the Target Wheel.

## 2 Target Wheel description

The target wheel is a commercial product. It is the 8 position Filter Wheel manufactured by ISI (Integrated Scientific Imaging) Systems. The wheel with the eight 2 inch diameter holes is mounted in a black enclosure together with a motor that rotates the wheel. The motor is remote controlled.

A 6 pin RJ45 cable connects the wheel to a small (approx. 1x2x3 cubic inch) black box. This box has a 12 V, 800 mA power input and parallel port (DB25) connector. The parallel port connects to a hand-held wheel controller that takes 9 V, 500 mA power. The hand-held controller also provides a serial (DB9) interface to the computer.

## 3 Position in the experiment

The target wheel is mounted on the upstream face of the TPC, just inside the JGG magnet (when the TPC is pushed into the magnet). The black box is located at the upstream end of the TPC cart or table. Power to the black box and the DB25 signal lines are run in a combo cable from the rack on the MC7 east side. The hand-held controller and commercial interface box are located in the rack.

In summary, this system uses a small amount of commercial, low voltage electronics that should not pose any safety concern.

## 4 Target materials

<http://ppd.fnal.gov/experiments/e907/Targets/Targets.html> contains the list of target materials MIPP plans to use. The list includes Beryllium, Carbon, Aluminum, Copper, Silver, and Bismuth samples. Proper precautions will be taken when handling the Be samples and no machining of any kind is required.