PROTECTION COVER
Lebold Didatic GMBH
Tangential B-probe (51660)

Reference Manual

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FIGURE 1: RENDERING OF 3D CAD DESIGN OF THE LEBOLD DIDATIC GMBH TANGENTIAL B-PROBE (51660) COVER.

Contents

1. Introduction

The Lebold Didatic GMBH Tangential B-probe (51660) with the Teslameter (516 62) is used to measure magnetic flux density. The probe tip is made out of a PCB board and is very fragile, with the Hall effect sensor integrated circuit device at the tip (see Figure 2, black rectangle). A cover was designed to protect the PCB part pf the probe.

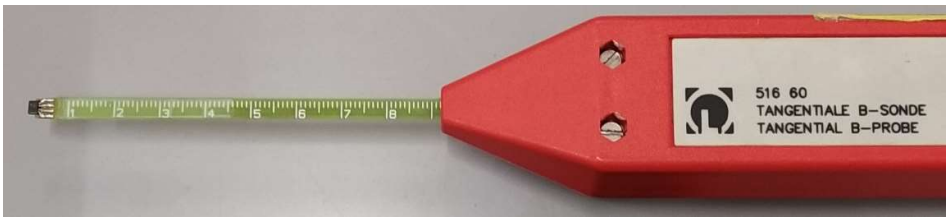

FIGURE 2: LEBOLD DIDATIC GMBH TANGENTIAL B-PROBE (51660).

2. Cover Design

The cover was designed to be 3D printed by Fused Deposition Modelling (FDM). The design was adjusted to have a tight fit with the probe body. Clips on both sides of the cover help to fix it to the probe. The probe tip protection zone has a 10º angle to facilitate the introduction of the tip into the cover without damaging it. The cover was designed with a thickness of 0.8 mm, corresponding to twice the diameter of a typical extruder of an FDM 3D printer. The clips have 1.6 mm extra thickness to grab the probe. Fins reinforce the cover at its weakest point. Figure 3 provides the rendering of the exterior of the cover.

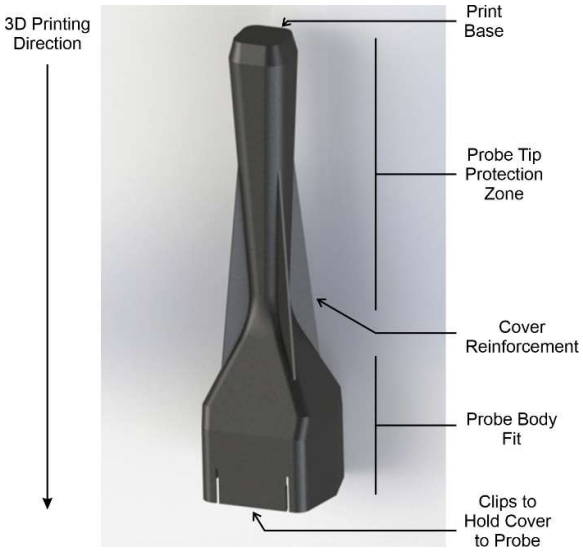

FIGURE 3: RENDERING OF 3D CAD DESIGN OF THE LEBOLD DIDATIC GMBH TANGENTIAL B-PROBE (51660) COVER.

3. G-Code File

The G-code file for the 3D printer was created using the Ultimaker Cura 5.2.1 software. Table 1 provides the setting used to generate the G-Code. The cover was printed with filament Anycubic PLA black colour.

TABLE 1: SETTING USED TO GENERATE THE G-CODE.

Quality	Layer Height	0.2 mm
Quality	Initial Layer Height	0.24 mm
Quality	Outer Wall Line Width	0.4 mm
Quality	Inner Wall Line Width	0.4 mm
Material	Printing Temperature	200 °C
Material	Build Plate Temperature	50 °C
Material	Build Plate Temperature Initial Layer	60 °C
Speed	Print Speed	70 mm/s
Speed	Outer Wall Speed	30 mm/s
Speed	Inner Wall Speed	40 mm/s
Speed	Top / Bottom Speed	50 mm/s
Speed	Initial Layer Speed	40 mm/s
Speed	Z Hop Speed	8 mm/s
Support	Generate Support	No
Build Plate Adhesion	Build Plate Adhesion Type	Brim

4. Photos

FIGURE 4: 3D PRINTED COVER.

FIGURE 5: 3D PRINTED COVER.

FIGURE 6: 3D PRINTED COVER (TOP) AND LEBOLD DIDATIC GMBH TANGENTIAL B-PROBE 51660 (BOTTOM) SIDE BY SIDE.

FIGURE 7: 3D PRINTED COVER APPLIED TO A LEBOLD DIDATIC GMBH TANGENTIAL B-PROBE 51660.

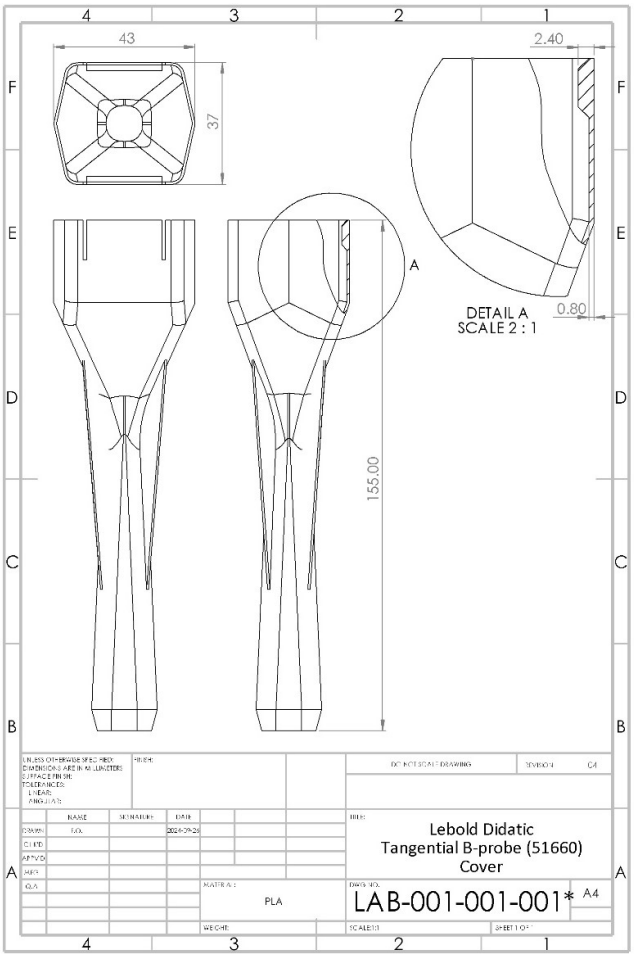

FIGURE 8: 2D TECHNICAL DRAWING OF THE COVER.