

Manufacturing Instructions

Machine Control Unit

Model Type : V2.0



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TRADEMARKS

Document Revisions

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23-04-2021	1.0	Initial draft
27-04-2021	1.1	Added instructions for test F3, functional dummy test and test equipment calibration

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1 Before you start...

1.1 Audience

This manual is the **Manufacturing Instrutions Manual** for the **Toolsquare Machine Control Unit**.

It describes how to correctly and safely manufacture and assemble the product.

1.2 Explanation of Safety Warnings

DANGER! Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury

WARNING! Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

CAUTION! Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

1.3 Conventions Used in This Manual

The following style conventions are used in this document:

- **Bold** : Important words or clauses.
- [hyperlink](#) : a link to further information on the internet

1.4 Obtaining Documentation and Information

The latest version of the documentation is available at the following address:

<http://ww.toolsquare.io/manuals>

1.5 Documentation Feedback

If you are reading ToolSquare product documentation on the internet, any comments can be sent to team@toolsquare.io.

We appreciate your feedback.

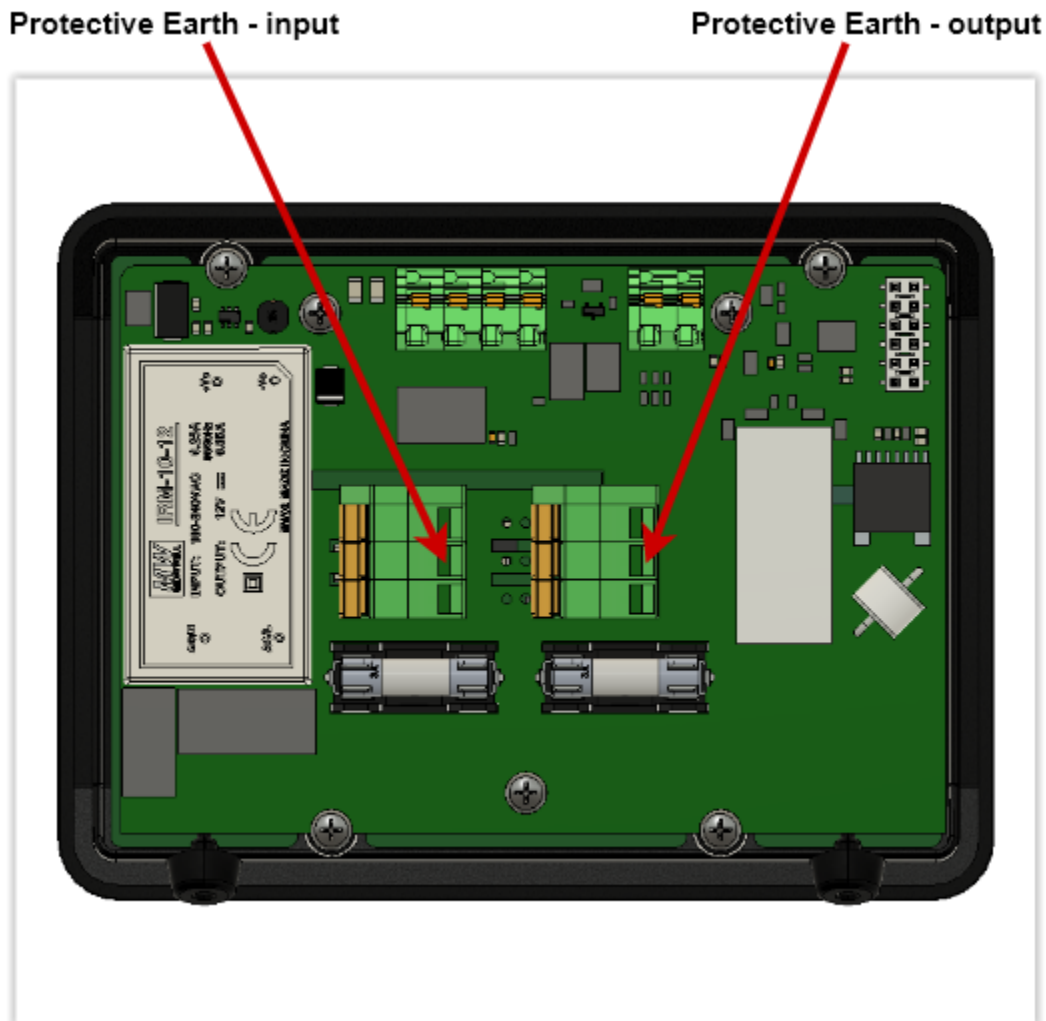
2 Routine tests procedures - IEC 61010-1 Annex F

The following routine tests need to be performed on 100% of the units, during manufacturing and assembly.

2.1 Verify the continuity of the Protective Earth (PE)

Test 1.1 : Before assembling the Power PCB into the product, verify the continuity of the protective earth from input to output, using a multimeter. The resistance should be lower than 1 Ohm.

Test 1.2 : After assembly, verify the continuity on the protective earth conductor of the installed cables, using a multimeter. The resistance should be lower than 1 Ohm.



2.2 Routine test of mains circuit

Test 2.1 : Apply a test voltage between

- Line and Neutral terminals, connected together
- The Protective Earth

Test voltage is 1400 Vac, test duration is 2 seconds. During the test, inspect the test-equipment for isolation errors and inspect the PCB for flashover of clearances or breakdown of insulations.

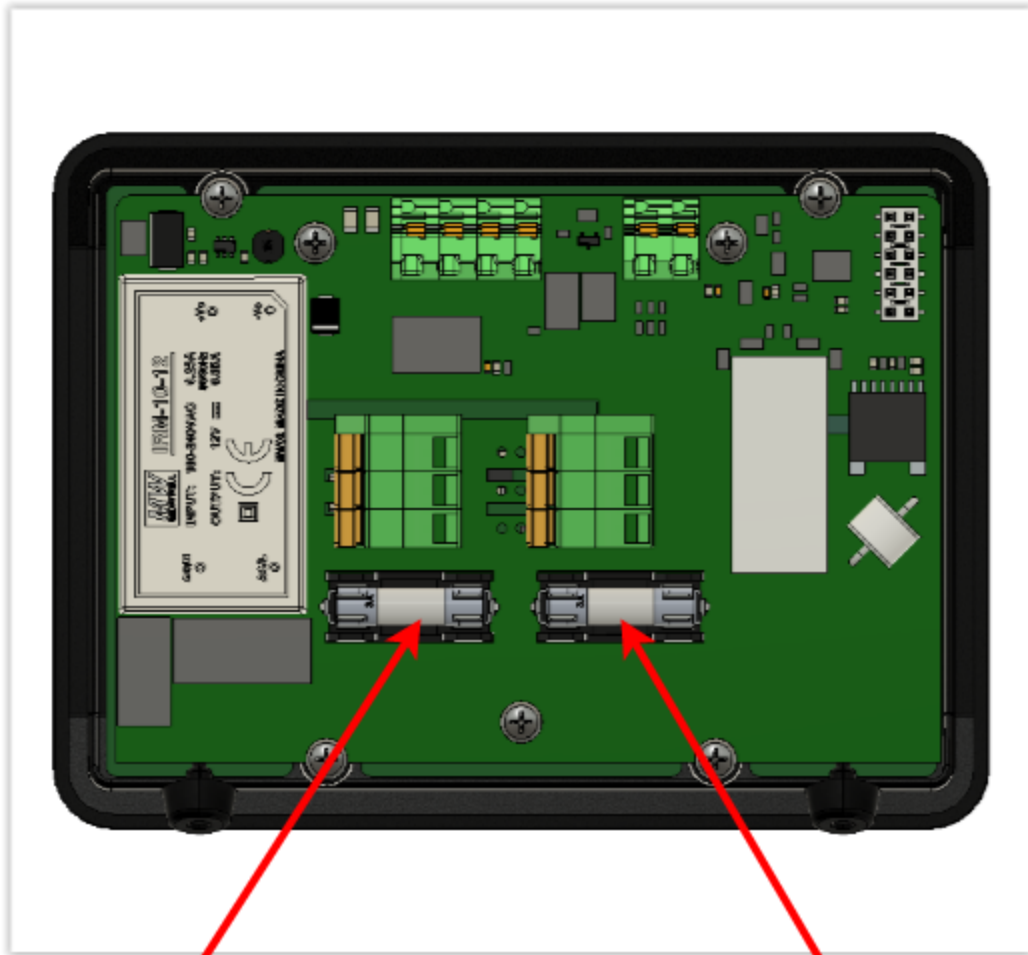
The functional self-test of the MCU must be performed after the test 2.1, in order to detect any malfunctions which could be caused by the application of test 2.1.

2.3 Verification of installed fuses

Test 3.1 : Before assembling the Power PCB into the product, verify that the installed fuses are the correct type and rating, by visual inspection :

MCU Power fuse : 5x20mm 0.63A : T0.63A H 250V

Output Power Fuse : 5x20mm 10A : T10A H 250V



MCU Power Fuse

Output Power Fuse

3 Test Equipment Calibration

Test equipment used for the above routine tests, must be calibrated at least yearly. Each test equipment device, used for the above tests, must carry a label indicating the date and result of the last calibration.

4 Related Documentation

#	Document Title	Version #	Location	Author
	Toolsquare End User Manual	V1.3	www.toolsquare.io/manuals	Toolsquare
	Toolsquare MCU Installation Manual	V1.8	www.toolsquare.io/manuals	Toolsquare