MOBILITY • EXPERIENCE • TRAINING
VR PROJECT

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3 Phase Motor Diagnosis and Troubleshooting: Input Power

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1. Goals for the Student

The goal is to successfully and safely troubleshoot a 3 phase AC motor that is not working correctly.

Prerequisites for this module are (normally) the successful completion of the following modules:

- Health and Safety precautions
- System De-energising and checking zero-potential
- Correct connection sequence
- Startup
- Functional testing

The module offers a step-by-step guide for successful troubleshooting of a motor. Depending on system complexity or specific requirements the module can be adjusted to fit the specific needs (e.g. with or without frequency testing).

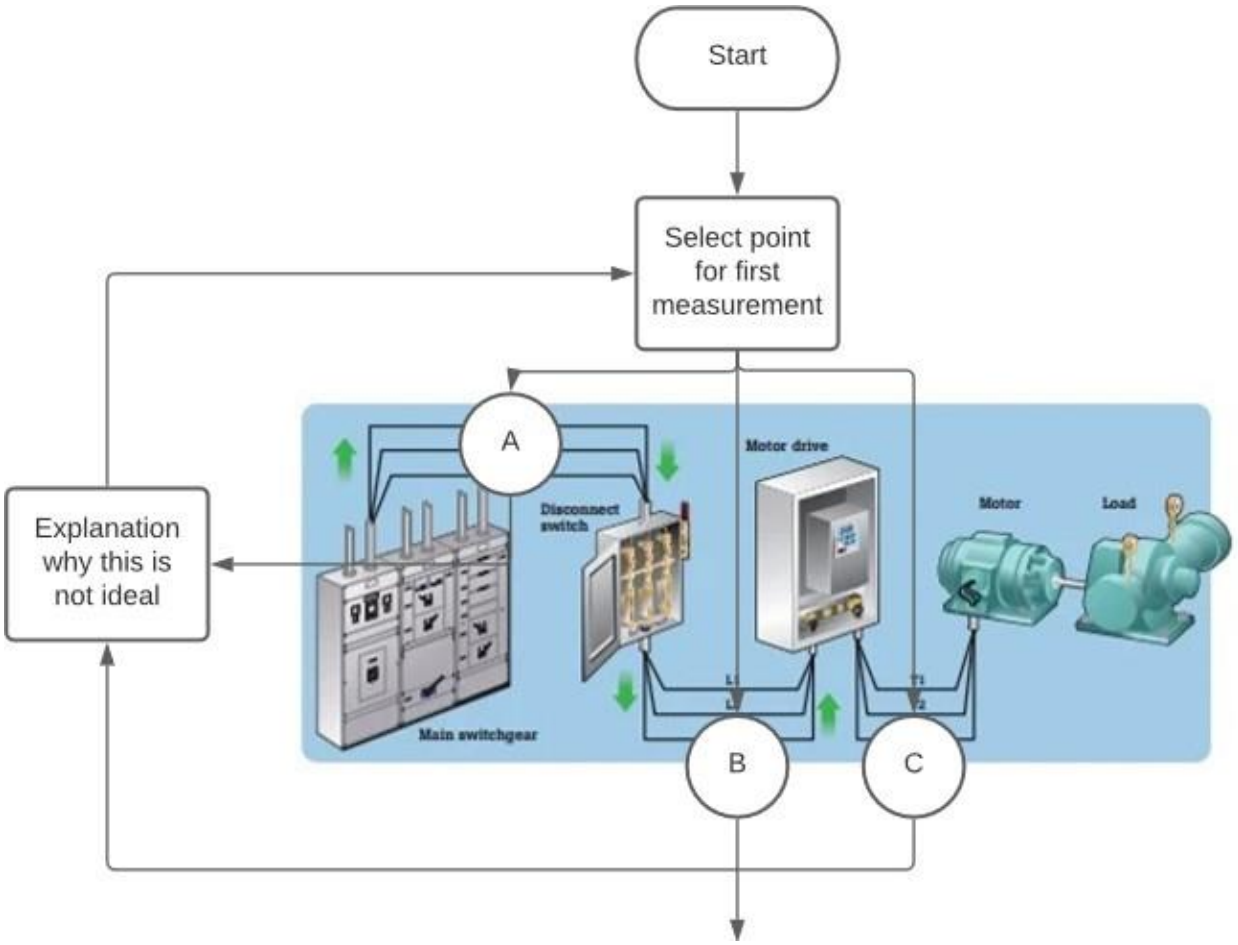
2. Step by step plan

STEP 1: Select point for first measurement.

Show the student the whole installation from the mains Switchgear to the Motor and let them select a point for first measurement.

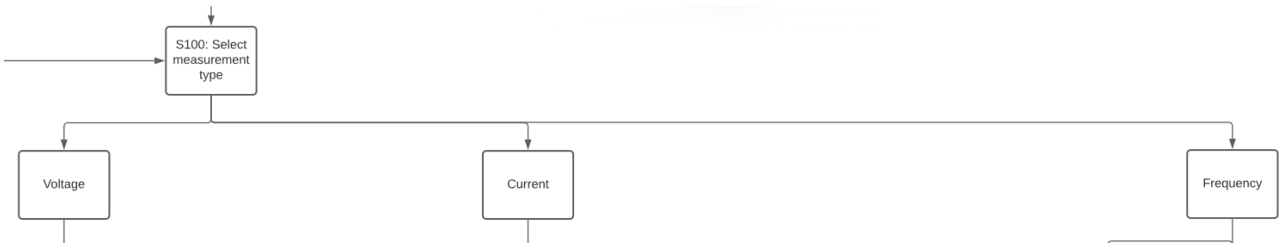
The task is performed correctly, when the student selects a point between the disconnect switch and the motor drive controller.

If the student select a different point, the system should point out why this is not ideal and lead him back to make a new selection.



STEP 2. Select measurement type

In this step, the student selects what type of measurement he wants to perform from the three options below:



Depending on the choice, he will need to select the correct settings on the digital/virtual multimeter.

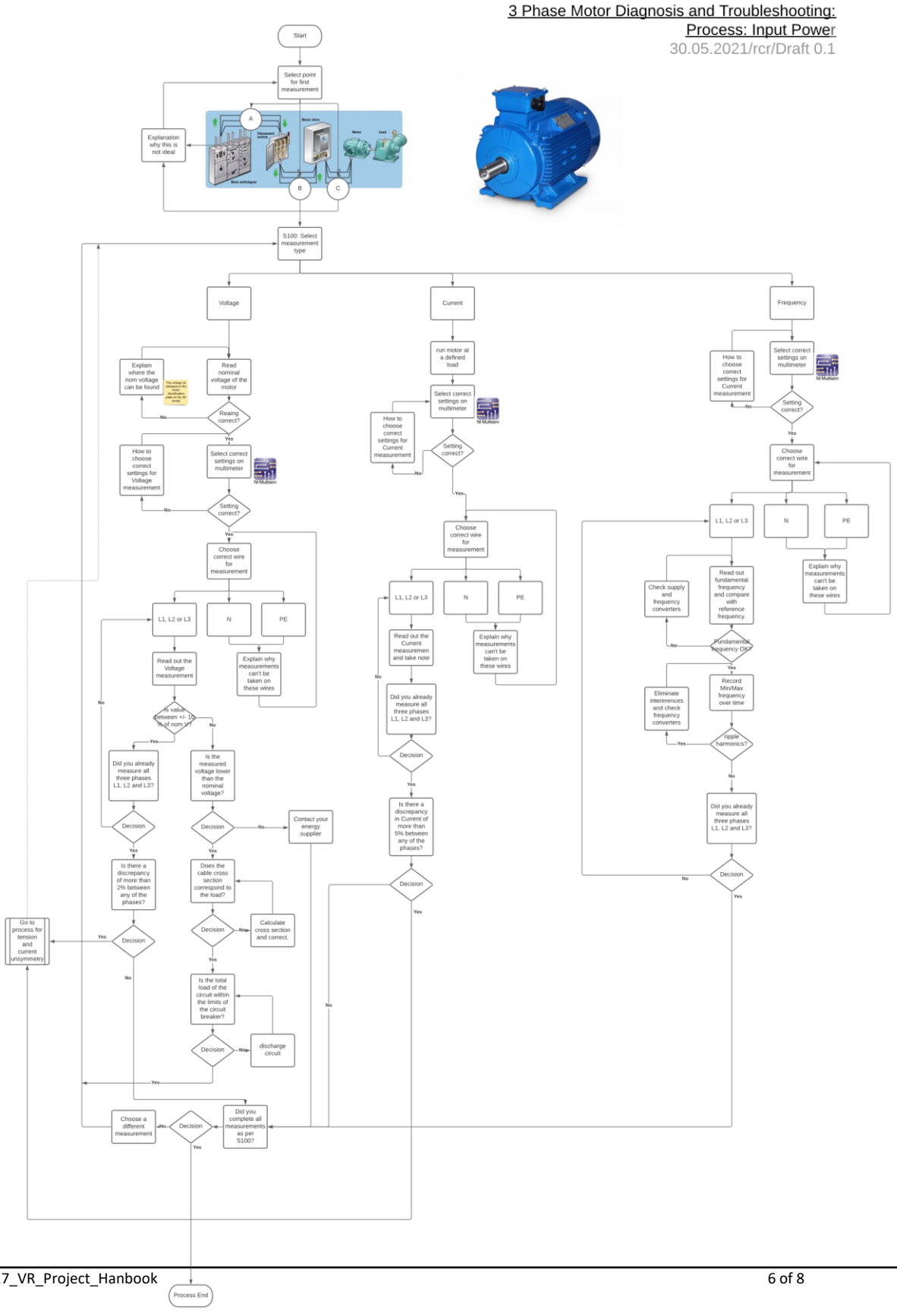
https://www.ni.com/en-us/shop/labview.html

STEP 3. Carry out diagnostics

Follow the relevant flow chart for the specific measurement type as per selection in step 2.

Here is the example for selection “Voltage”:

3. Draw a Flowchart for each stage



4. List all the tools, materials and equipment

1	3 Phase electric motor			generic	https://grabcad.com/library/electric-motor-15hp-1
2	Motor Speed Controller			generic	https://grabcad.com/library/motor-speed-controller-us590-02-1
3	Disconnect Switch			ABB	https://grabcad.com/library/abb-os400j03-fused-disconnect-1
	(internal view disconnect Switch)			ABB	https://grabcad.com/library/abb-versarupter-interrupter-switch-1
4	Main Switchboard		With 3phase, similar to the one in the model file		https://grabcad.com/library/electrical-switchboard-with-controller-logo-8-1

5. Scenery definition, relating scenario with flowchart

A warehouse with access to:

- a main switchgear
- a disconnect switch
- a motor drive
- a 3-phase electric motor connected to a load
- wiring between previous elements
- Tools panel or toolbox with a multimeter and a screwdriver

6. Validation of transition requisites between states

End of Document