



नाम Name _____

अनुक्रमांक Roll No. _____

पाठ्यक्रम Course _____

प्राप्त अंक Marks Awarded _____

दिनांक Date _____

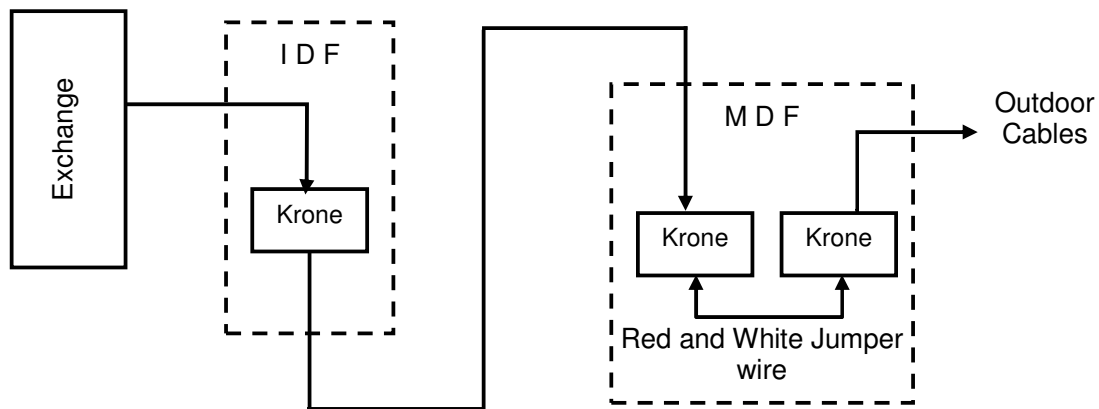
अनुदेशक का अध्याक्षर Instructor Initial _____

Objective

Study of IDF / MDF and Power Supply Arrangement in Exchanges

Equipments Required:

IDF, MDF cabinet, krone strips, krone tool, jumper wires (red/white - 0.5mm), Multimeter, rosette.



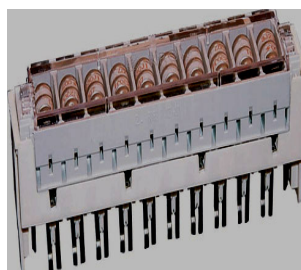
MDF: Main Distribution Frame

This is the second distribution point from the Telephone Exchange towards subscriber. All the incoming cables from subscriber telephones and trunk lines from other exchanges are terminated at one side in MDF.

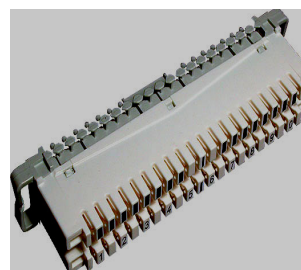
GD Tube



Arrestor Magazine



Krone Module



Krone Tool



IDF: Intermediate Distribution Frame

This is the first distribution point from the Telephone Exchange towards subscriber. All the incoming cables from exchange are terminated at one side in IDF. From other side wiring goes to MDF. Internal jumpering is done with red & white wires to extend the connections.

Krone Module:

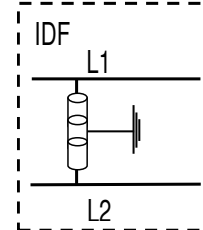
A krone module supports wiring for ten pairs. Initial removing of insulation is not required in this krone wiring.

Wiring is done with a special tool called Krone Insertion Tool.

- It includes a scissor-action cutter that is designed to cut off surplus wire after the termination. This occurs automatically as part of the punch-down action.
- It is provided with a folded-out metal hook for removing the wires from the terminals.

Protective devices like Gas Discharge Tubes (GDT) are connected in IDF. GDTs operate on the principle of the arc discharge phenomenon. Electrically, GDT act as voltage-dependent switches.

As soon as the voltage applied to the GDT exceeds the spark over voltage, an arc is formed in the GDT. When the discharge has died down, the GDT extinguishes and the internal resistance immediately returns to a very high value.



Under normal operating conditions the high insulation resistance has virtually no effect on the system to be protected.

Power Supply Arrangement:

Telephone exchanges require uninterrupted power source. For this a float cum boost charger is used to power the exchange. To feed power during mains failure a battery bank is connected in parallel to the charger. This arrangement is called float charging.

In this system when mains supply is available charger supplies power to the exchange and also charges the battery.

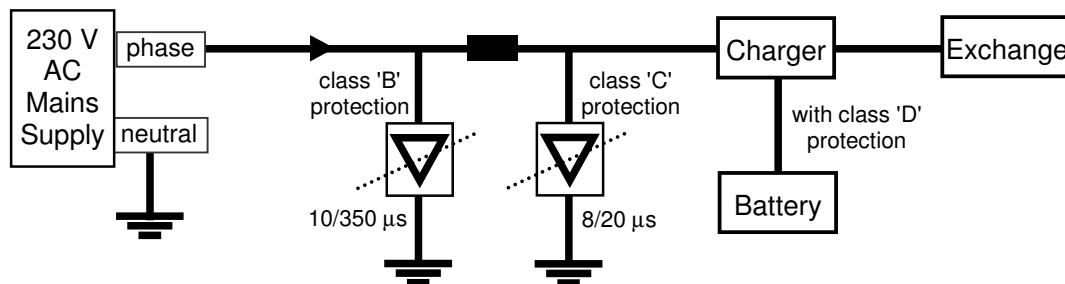
The capacity of the charger installed in this lab is 50V/50A.

Battery Bank:

Telephone exchange works on -48V DC. For this a battery bank of 24 cells connected in series is used. each cell is of 2V.

The nominal load current of the exchange is < 10 A.

The capacity of the battery installed in this lab is 300Ah.



Surge Protection Devices:

Devices that shield electrical and other electronic devices from surges in electrical power or transient voltage, that flow from the power supply are termed as SPD.

A surge protector works by channeling the extra voltage into the outlet's grounding wire, preventing it from flowing through the electronic devices while at the same time allowing the normal voltage to continue along its path.

Devices like MOV (Metal Oxide Varistor), Gas Discharge Tubes are used to protect the electrical and electronic devices under use. Class B & C protections are used as shown in the above figure.

Review Questions

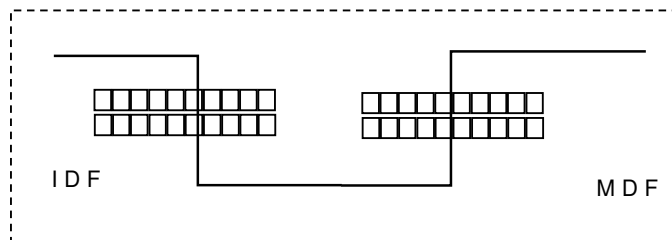
1. Observe and draw the IDF / MDF wiring in the exchange ?

2. Draw the power supply arrangements made for telephone exchanges with ratings ?

3. Draw the front panel diagram of Float charger.

4. What are the surge protection arrangements made in the exchange ?

5. Mark the connections in the following wiring ?



Signature of the Trainee