



### Practicals Covered

- Inching and self-locking control of 3-phase asynchronous motors
- Star-Delta (Y/Δ) start control
- Interlocking forward/reverse control of 3-phase motors
- Time delay forward/reverse control
- Panel operation of frequency converter
- Multi-speed operation of frequency converter
- External analog open-loop speed control via inverter
- Instant restart after power loss
- Parameter setting and operation of frequency converter
- Alarm and protection functions of frequency converter
- DC speed regulator parameter setting (590C)
- Start/stop control of DC motor
- Forward/reverse control of DC motor
- Closed-loop speed control with speed feedback
- Speed and current dual closed-loop control

### Technical Data

#### System Power Supply Section

- Power input indicator
- Leakage circuit breaker

*Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.*



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- Emergency stop button
- Key-operated switch
- Signal sources: DC 0–10V, 4–20mA
- DC 24V fixed supply
- Adjustable DC supply: 0–220V
- AC supply: 380V / 220V

### AC Speed Control Section

- Siemens V20 Frequency Converter (0.37kW)
- 3 × AC Contactors
- 1 × Thermal Relay
- Control Buttons & Indicator Lamps
- 1 × Time Relay

### DC Speed Regulation Section

- Parker (Continental) 590C DC Speed Controller
- Mitsubishi FX3SA PLC
- 2 × Digital Speed Displays
- 2 × Intermediate Relays

### Instrument & Measurement Section

Instrument	Range	Accuracy
AC Voltmeters (3×)	0–500V	0.5
AC Ammeters (3×)	0–5A	0.5
DC Voltmeter	0–500V	0.5
DC Ammeter	0–5A	0.5
3-phase Power Meter	0–3kW / 6A	1
Single-phase Power Meter	0–400W / 2A	1
Power Factor Meter	0.5 – 1.0	1
Frequency Meter	45–55 Hz	1

### Motors and Encoders

- **AC Motor:** 180W, AC380V, 1400 RPM
- **DC Motor:** 180W, DC220V, 1500 RPM

### Frequency Conversion Control Training

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- Panel operation of frequency inverter
- Multi-speed control
- External analog open-loop control
- Instant restart after power loss
- Parameter programming and fault protection

**DC Speed Regulation Training**

- 590C DC regulator parameter setup
- Start/stop and direction control of DC motor
- Closed-loop and dual-loop feedback speed control

**Power & Environmental Ratings :**

Parameter	Specification
Input Power	AC 380V ±10%, 50 Hz
Environment Temperature	-10°C to 45°C
Humidity	< 90% RH
Capacity	< 2 KVA
Working Environment	-10°C-45°C, RH < 90%, 3-phase, 5-wire
Output Power Supply	AC: 380V / 220V; DC: 220V (adjustable), 24V
Signal Source	DC 0-10V, 4-20mA

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