

TCU-100



Temperature Controller Unit

10kW 10 liter/min



International Electric Co.

Output performance

Power dissipation capacity	0 to 10	kW
Heating capacity	0 to 0.5	kW
Cooling temperature range	17 to 27	°C
Control Accuracy	±0.1	K
Coolant medium	Distilled water	
Heat exchanger	Water-to-water	

Control and Monitoring

SETTINGS

Load temperature setting	10 turn potentiometer
Water temperature setting	10 turn potentiometer

METERS

Coolant temperature from chiller	0 to 60 °C
Water temperature to magnet	0 to 60 °C
Coolant pressure from chiller	0 to 10 bar
Water pressure to load	0 to 10 bar
Cooling water level	MAX – ALARM - MIN

LED INDICATORS

Power OK	Green
Wake up	Green
Chiller OK	Green
TCU OK	Green
Temperature OK	Green
Water level OK	Green

OPTOISOLATOR OUTPUTS

Interlock, closed when TCU OK	24V, 50mA max.
Water level, closed when OK	24V, 50mA max.
Temperature, closed when OK	24V, 50mA max.

System specifications



POWER SUPPLY

Input voltage 3-phase

U = 3 x 400 VAC \pm 10%,
N, PE, 47 - 63 Hz
I = 1.8 / 2.2 Amps 50/60Hz
P = 1.0 / 1.4 kW 50/60 Hz

OPERATING ENVIRONMENT

Location

Ambient temperature

Ambient humidity

Equipment room

10...30°C

30...70% non-condensing

Temperature
Controller
Unit

10kW 10 liter/min

CABINET DIMENSIONS

Height

950 mm

Width

525 mm

Depth

400 mm

Weight

100 kg

PRIMARY LOOP

Coolant

In-house chilled water or propylene glycol /
water mixture

Coolant inlet temperature

+9 - +13 °C

Flow rate, nominal

40 l/m

Flow rate, minimum

24 l/m

Recommended static pressure

0.2 MPa

Maximum input pressure

1.0 MPa

Filtering

The chilled water supply line includes 100
micron water filter

Balancing valve

The chilled water supply line includes a
Balancing valve with flow meter

Hose fittings diameter

32 mm (1 ¼")

Filling and emptying

Filling and drain valve

SECONDARY LOOP

Pump material

Stainless steel

Coolant

Distilled water, requires 30 liters

Active temperature range

+16 - +26 °C

Typical standby temperature

+29 - +32 °C

Typical flow rate @ 50Hz

10 l/m

Typical pressure @ 50Hz

800 kPa

Hose fittings diameter

19 mm (¾")

Filling and emptying

Filling hole and drain valve

MATERIALS

The water circuits are constructed from
corrosion resistant materials, such as
stainless steel, copper and brass.

SAFETY AND COMPLIANCE

Designed and manufactured to meet
standard EN 60601-1

Company in brief

International Electric Company (IECO) designs and manufactures state-of-the-art electronics for medical, industrial and military applications tailored to meet customer needs.

With over 30 years of experience in power electronics we are able to provide solutions for even the most challenging requirements. IECO's quality system is ISO 9001 and ISO 13485 certified.

Power amplifier technology

IECO introduced its first gradient amplifier in 1994. This revolutionary PWM amplifier enabled excellent image quality in open MRI systems. Simultaneously IECO also launched the first D-class magnet power supply delivering new efficiency levels with 0,1ppm accuracy. IECO's expertise has recently been utilized in the development of the industry's first High Temperature Superconductive MRI magnets.

IECO's power amplifiers are easily scalable for any type of load and any power level needed. Compact amplifier units can be connected in series or in parallel in Master/Slave operation to gain output voltages up to 1100V and output currents up to 1200A. Thanks to low-noise, wide bandwidth and excellent step response, IECO has gained the reputation of a technology leader in gradient amplifiers.

Over 700 MRI amplifier systems delivered worldwide.



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