

IT.TP4000 is a modular training system for the study of the industrial transducers and of the relevant electronic circuits of signal managing and conversion. By means of its modular composition, it is possible to choose the optimal configuration according to any specific educational requirements and budget with the possibility of further integrations or updating in the future.

The TP4000 system consists of the following items:

- Desk-top base unit (TP4000-BS) arranged to house the "UBE" and "UMS" series panels and experimental modules.
- Different D.C. power supplies, digital instruments, A/D, D/A, I/V and V/I converters, drives and controls are provided to carry out all the exercises foreseen in the courseware manuals included.
- "UBE" series experimental panels with electronic circuits for the conditioning of signals coming from any ic or digital transducer.
- "UMS" series experimental modules for the study of different types of transducers.
- Series of special conductors and different accessories required for the system use (included in the basic configuration).
- Theoretical-practical volumes with developed exercises available in English or French languages.
- Hardware and management software device for PC data acquisition
- Storage enclosure Mod. UN/CNT for UBE-UMS series modules.

Eac training system configuration chosen by the customer is supplied completely autonomous. The experimental modules with different built-in transducers are already equipped with the electrical or mechanical devices for the transducer excitation without additional external devices. The IT.TP4000-BS desk-top base unit and the "UBE" series of electronic panels are designed to receive and manage signals of the most transducers nowadays on the market, so making the IT.TP4000 system even more flexible. The connection to external devices, as for example PLC or PC, allows to simulate dinamically open or closed loop in industrial processes.



IT.TP4000-BS DESK-TOP BASE UNIT

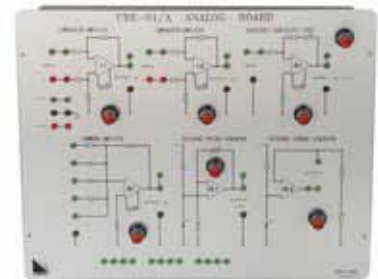
- Stabilized 0÷30 Vdc power supply
 - Stabilized +5 ±12 ±15 + 24 Vdc power supply
 - Temperature adjustable oven for thermocouples and thermo-resistances
 - Two digital multimeters
 - Analog-to-digital converter (8 bit)
 - Digital-to-analog converter (8 bit)
 - Signal converter 0÷10 V/0÷20 mA
 - Signal converter 0÷20mA/0÷10V
 - 4 digit BCD display
 - 12 led string for binary reading
 - 1 high reliability bread board
 - Banana plug-BNC adapters (different diameters)
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- Synoptic panel in anodized and silk-screened alluminium
 - Single-phase mains power supply 220 V / 50 Hz
 - Fuses and mains filter
 - Dimensions: cm 41x72x44h
 - Weight: about 21 kg

EXPERIMENTAL PANELS WITH ELECTRONIC CIRCUITS

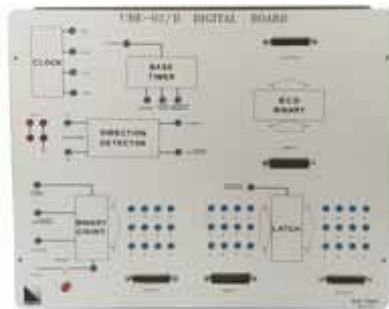
IT.UBE01-A - Analog signals conditioning

Universal electronic panel for managing and conversion of signals coming from analog transducers.

- Electronic circuits lower plastic protection
- Synoptic panel in anodized and silk-screened
- High reliability 2mm bushes
- Reference voltage generator
- 2 Comparator amplifiers
- Four inputs summing amplifier
- Adjustable gain output stage
- Dimensions: cm 30x37



- Panel in anodized and silk-screened alluminium reproducing different internal electronic circuits



IT.UBE02-D -Digital signals conditioning

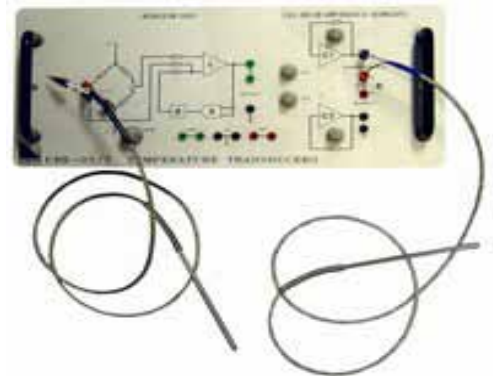
Universal electronic panel for managing and conversion of signals coming from digital transducers.

- 12 bit latch
- Up-down binary counter
- Direction detector
- 12 bit binary to BCD converter
- Clock generator
- Base time generator

IT.UBE03-T Electronic panel for conditioning of analog signals coming from temperature transducers.

Universal electronic panel for signals managing coming from temperature transducers. It is supplied equipped with J type thermocouple and PT100 thermoresistance with shielded and compensated cables. The sensors may be inserted into the variable temperature oven of the base unit.

- Linearization circuit for thermoresistances
- Cold junction compensator for thermocouples



IT.UMS01-PZ

Module for the study of potentiometric resistive transducers (linear and angular position) with displacement micrometric device



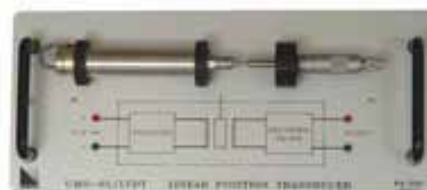
IT.UMS02-LVDT TRANSDUCER LVDT

Module for the study of linear position transducers (LVDT differential transformer) complete of displacement micrometer



**IT.UMS02-LVDT
TRANSDUCER LVDT**

Module for the study of linear position transducers (LVDT differential transformer) complete of displacement micrometer.



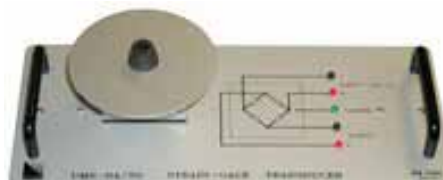
**IT.UMS03-RO
OPTICAL LINE**

Module for the study of incremental linear position transducers with displacement micrometric device.



**IT.UMS04-SG
STRAIN GAUGE**

Module for the study of strength, weight and pressure (Strain-gage) transducers complete of calibrated weights.



**T.UMS05-PS
PROXIMITY SENSOR**

Module for the study of inductive, analog inductive and capacitive proximity sensors complete of displacement micrometric device.



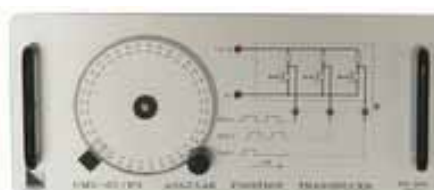
**IT.UMS06-FT
PHOTOTRANSDUCERS**

Module for the study of the main phototransducers (photo-diode, phototransistor, photoresistance and photovoltaic cell) complete of variable intensity light source.



**IT.UMS07-EN
ANGULAR ENCODER**

Module for the study of angular encoders (angular position transducers) with graduated angular scale.



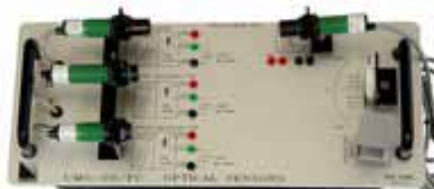
**IT.UMS08-TV
SPEED TRANSDUCER**

Module for the study of speed transducers (encoder and tachometric generator) with variable speed motor-driven dragging



**IT.UMS09-FC
PHOTOCELL**

Module for the study of photocell sensors (2 types) with trigger device



**IT.UMS10-PS
PRESSURE TRANSDUCER**

Module for the study of pressure transducers with pneumatic device and reading manometer.



**IT.UMS11-US
ULTRASONIC SENSOR**

Module for the study of ultrasonic sensors (2 types) with reading scale



**IT.UMS12-EA
ABSOLUTE ENCODER**

Module for the study of absolute encoders with decoder and manual displacement device .



**IT.UMS15-HL
HALL EFFECT TRANSDUCER**

Module for the study of magnetic "HALL" effect proximity sensors with excitation device.



**IT.UMS16-PL
FLOW AND LEVEL SENSOR**

Module for the study of flow and level sensors complete with hydraulic devices.



**IT.TP4000-SMC
COMPUTERIZED MULTI-FUNCTION MEASURING
INSTRUMENT**

Computerized multi-function system (memory Oscilloscope, Spectrum Analyzer, double voltmeter TRMS, transient Analyzer and square waveform generator) for capturing and storing data from digital and analogue transducers

