

BLANKET PURCHASE ORDER

STATE OF MARYLAND

***** STATE OF MARYLAND *****

BPO NO: 001B9400477

PRINT DATE: 07/31/19

PAGE: 01

SHIP TO:

AS SPECIFIED ON INDIVIDUAL ORDERS

VENDOR ID:

TELEDYNE INSTRUMENTS INC
DBA TELEDYNE ISCO
16830 CHESTNUT ST
CITY OF INDUSTRY, CA 91748
(999)999-9999

REFER QUESTIONS TO:

KIMBERLY HACKETT
(410)767-0788
KIMBERLY.HACKETT@MARYLAND.GOV

ITB: 001IT820982

EXPR DATE: 06/30/21
POST DATE: 07/29/19

DISCOUNT TERMS: . NET 30 DAY
CONTRACT AMOUNT: 1,000,000.00

TERMS:

ARTICLES HEREIN ARE EXEMPT FROM MARYLAND SALES AND USE TAXES BY EXEMPTION CERTIFICATE NUMBER 3000256-3 AND FROM FEDERAL EXCISE TAXES BY EXEMPTION NUMBER 52-73-0358K. IT IS THE VENDOR'S RESPONSIBILITY TO ADVISE COMMON CARRIERS THAT AGENCIES OF THE STATE OF MARYLAND ARE EXEMPT FROM TRANSPORTATION TAX.

AGENCY SPECIFIC CONTRACT

FOR

MARYLAND DEPARTMENT OF THE ENVIRONMENT'S
AIR AND RADIATION ADMINISTRATION FOR
API/TELEDYNE EQUIPMENT

CONTRACT TERM: DATE OF AWARD THROUGH JUNE 30, 2021

COMPANY NAME: TELEDYNE - API
VENDOR CONTACT: JOEL BLOOM
VENDOR NUMBER: (DIRECT) 858-642-7741 /(FAX) 657-9816
VENDOR EMAIL: API-SALES@TELEDYNE.COM

AGENCY: MARYLAND DEPARTMENT OF THE ENVIRONMENT
AIR AND RADIATION ADMINISTRATION
AGENCY CONTACT: CHRIS SMITH
AGENCY ADDRESS: 1800 WASHINGTON BLVD, BALTIMORE, MD 21230
AGENCY NUMBER: 410-537-3719/410-537-4243 (FAX)
AGENCY E-MAIL: CHRIS.SMITH@MARYLAND.GOV

PRODUCT ACCEPTABILITY SHALL BE AT THE SOLE DESCRETION OF THE MARYLAND

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TERMS (cont'd):

DEPARTMENT OF ENVIRONMENT (MDE). NO SUBSTITUTIONS OF EQUIPMENT WILL BE ALLOWED DUE TO COMPATIBILITY WITH MDE'S SYSTEMS. ANY PRODUCT DELIVERED AS A RESULT OF THIS AWARD WHICH DOES NOT MEET THE SPECIFICATIONS OR IS OTHERWISE FOUND TO BE DEFECTIVE, SHALL BE REJECTED AND RETURNED AT THE VENDOR'S EXPENSE FOR REPLACEMENT OR CREDIT.

THE VENDOR SHALL PROVIDE ALL EQUIPMENT, ALONG WITH TWO-YEAR STANDARD WARRANTY ON EACH ITEM.

VENDOR MUST INCLUDE THE 9-DIGIT ZIP CODE OF COMPANY ADDRESS ON ALL INVOICES. FAILURE TO DO SO MAY RESULT IN DELAY OF PAYMENT.

THE DEPARTMENT OF GENERAL SERVICES "TERMS AND CONDITIONS" FOR COMMODITY CONTRACTS OVER \$50,000" AND ALL SPECIFICATIONS, TERMS AND CONDITIONS OF SOLICITATION# MDDGS31043229/001IT820982 INCORPORATED HEREIN BY REFERENCE.

<u>LINE #</u>	<u>STATE ITEM ID</u>	<u>U/M</u>	<u>UNIT COST</u>
0001	41558-0000XX	EA	14,400.0000

LABORATORY EQUIPMENT, GENERAL

VARIOUS LAB EQUIPMENT FROM TELEDYNE ADVANCED POLLUTION INSTRUMENTATION (TAPI)

1) MODEL T100U ULTRA-SENSITIVE UV FLUORESCENCE SO2 ANALYZER
INCLUDES: NUMAVIEW SOFTWARE, INTERNAL PUMP, PARTICULATE FILTER
PRODUCT MANUALS ON CD

TWO YEAR STANDARD WARRANTY

TAPI CUSTOMER SERVICE SUPPORT BY PHONE, FAX OR EMAIL FOR THE LIFE OF THE INSTRUMENT.

RANGES: MIN: 0-5 PPB FULL SCALE; MAX: 0-20,000 PPB FULL SCALE
(SELECTABLE, DUAL RANGE); MEASUREMENT UNITS: PPB, PPM, µG/M3, MG/M3
(SELECTABLE); ZERO NOISE: 25 PPT (RMS); SPAN NOISE: 0.5% OF READING
(RMS) ABOVE 5PPB; LOWER DETECTION LIMIT: 50 PPT; ZERO DRIFT: <0.2 PPB/
24 HOURS; SPAN DRIFT: <0.5% OF FULL SCALE/24 HOURS; LAG TIME: 30
SECONDS; RISE/FALL TIME: <140 SECONDS TO 95%; LINEARITY: 1% OF FULL
SCALE; PRECISION: 0.5% OF READING; SAMPLE FLOW RATE: 650 CM3/MIN ±10%;
POWER REQUIREMENTS: 100V-120V, 220V-240V, 50/60 HZ; ANALOG OUTPUT
RANGES: 10V, 5V, 1V, 0.1V (SELECTABLE); RECORDER OFFSET: ±10%; INCLUDED
I/O: 1 X ETHERNET: 10/100BASE-T, 2 X RS232 (300-115,200 BAUD), 2 X USB
DEVICE PORTS, 8 X OPTO-ISOLATED DIGITAL OUTPUTS, 6 X OPTO-ISOLATED

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DIGITAL INPUTS, 4 X ANALOG OUTPUTS; OPERATING TEMPERATURE RANGE:
5 - 40°C (WITH US EPA EQUIVALENCY); DIMENSIONS: 7" X 17" X 23.5"
(178 X 432 X 597MM); WEIGHT: 45 LBS (20.5 KG); CERTIFICATION: US EPA:
EQSA-0495-100

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LABORATORY EQUIPMENT, GENERAL

2) MODEL T200U ULTRTA-SENSITIVE CHEMILUMINESCENCE NO/NO2/NOX ANALYZER
INCLUDES: NUMAVIEW SOFTWARE, EXTERNAL PUMP, PARTICULATE FILTER

PRODUCT MANUALS ON CD

TWO YEAR STANDARD WARRANTY

TAPI CUSTOMER SERVICE SUPPORT BY PHONE, FAX OR EMAIL FOR THE LIFE OF
THE INSTRUMENT.

RANGES: MIN: 0-5 PPB FULL SCALE, MAX: 0-2,000 PPB FULL SCALE (SELECT-
ABLE, INDEPENDENT NO, NO2, NOX RANGES), MEASUREMENT UNITS: PPB, µG/M3
(SELECTABLE) ZERO NOISE: < 25 PPT (RMS); SPAN NOISE: < 0.5% OF READING
(RMS) ABOVE 5 PPB; LOWER DETECTABLE LIMIT: 50 PPT; ZERO DRIFT: < 0.1
PPB/24 HOURS, SPAN DRIFT: < 0.5% OF READING/24 HOURS; LAG TIME: 20
SECONDS; RISE/FALL TIME: < 50 SECONDS TO 95%; LINEARITY: 1% OF FULL
SCALE; PRECISION: 0.5% OF READING ABOVE 5 PPB; SAMPLE FLOW RATE: 1,000
CC/MIN ± 10%; POWER REQUIREMENTS: 100V-120V, 220V-240V, 50/60 HZ;
ANALOG OUTPUT RANGES: 10V, 5V, 1V, 0.1V (SELECTABLE); RECORDER OFFSET:
±10%; INCLUDED I/O: 1 X ETHERNET: 10/100BASE-T, 2 X RS232 (300-115,200
BAUD), 2 X USP DEVICE PORTS, 8 X OPTO-ISOLATED DIGITAL OUTPUTS, 6 X
OPTO-ISOLATED DIGITAL INPUTS, 4 X ANALOG OUTPUTS; OPERATING
TEMPERATURE RANGE: 5 - 40°C; 20 - 30°C (WITH US EPA EQUIVALENCY);
DIMENSIONS (HXWXD): 7" X 17" X 23.5" (178 X 432 X 597 MM) WEIGHT:
ANALYZER: 40 LBS (18 KG) EXTERNAL PUMP: 21 LBS (9.5KG); CERTIFICATIONS
US EPA: RFNA-1194-099

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LABORATORY EQUIPMENT, GENERAL

3) MODEL T200U ULTRA-SENSITIVE CHEMILUMINESCENCE NO/NOY ANALYZER
INCLUDES: NUMAVIEW SOFTWARE EXTERNAL PUMP, FLOW CONTROL MODULE,
UMBILICAL, EXTERNAL NOY CONVERTER, AND PARTICULATE FILTERS. PRODUCT
MANUALS ON CD. TWO YEAR STANDARD WARRANTY. TAPI CUSTOMER SERVICE

SUPPORT BY PHONE, FAX OR EMAIL FOR THE LIFE OF THE INSTRUMENT.

RANGES: MIN: 0-5 PPB FULL SCALE, MAX: 0-2,000 PPB FULL SCALE (SELECT-
ABLE, INDEPENDENT NO, NOY RANGES) MEASUREMENTS UNITS: PPB, µG/M3
(SELECTABLE); ZERO NOISE: < 25 PPT (RMS); SPAN NOISE: < 0.5% OF

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READING (RMS) ABOVE 5 PPB; LOWER DETECTABLE LIMIT: < 50 PPT; ZERO
DRIFT: < 0.1 PPB/24 HOURS; SPAN DRIFT: < 0.5% OF READING/24 HOURS;
LAG TIME: 20 SECONDS; RISE/FALL TIME: < 50 SECONDS TO 95%; LINEARITY:
1% OF FULL SCALE; PRECISION: 0.5% OF READING ABOVE 5 PPB; SAMPLE FLOW
RATE: 1800 CM3/MIN ±200 CM3/MIN (NO & NOY) (INCLUDES 800 CC BYPASS)
POWER REQUIREMENTS: 100V-120V, 220V-240V, 50/60HZ; ANALOG OUTPUT
RANGES: 10V, 5V, 1V, 0.1V (SELECTABLE); RECORDER OFFSET: ± 10%;
INCLUDED I/O: 1 X ETHERNET: 10/100 BASE-T, 2 X RS232 (300 - 115,200
BAUD), 2 X USB DEVICE PORTS, 8 X OPTO-ISOLATED DIGITAL OUTPUTS, 6 X
OPTO-ISOLATED DIGITAL INPUTS, 4 X ANALOG OUTPUTS; OPERATING
TEMPERATURE RANGE: 5 - 40°C; DIMENSIONS (HXWDXD): ANALYZER: 7" X 17" X
23.5" (178 X 432 X 597 MM); FLOW MODULE: 8.75" X 17" X 23.5" (222 X
432 X 597MM), CONVERTER: 13.5" X 10.5" X 6.5" (343 X 267 X 165),
ANALYZER: 40 LBS (18KG), FLOW MODULE: 28 LBS (12.7 KG), CONVERTER: 15
LBS (6.8 KG), EXTERNAL PUMP: 21 LBS (9.5 KG)

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LABORATORY EQUIPMENT, GENERAL

4) MODEL T300U ULTRA-SENSITIVE GAS FILTER CORRELATION CO ANALYZER
INCLUDES: NUMAVIEW SOFTWARE, INTERNAL PUMP, INLET DRIER, INTERNAL ZERO
SOURCE AND PARTICULATE FILTER. PRODUCT MANUALS ON CD. TWO YEAR
STANDARD WARRANTY. TAPI CUSTOMER SERVICE SUPPORT BY PHONE, FAX OR
EMAIL FOR THE LIFE OF THE INSTRUMENT.

RANGES: MIN: 0-100 PPB FULL SCALE, MAX: 0-100 PPM FULL SCALE (SELECT-
ABLE, DUAL-RANGE SUPPORTED). MEASUREMENT UNITS: PPB, PPM, µG/M3,
MG/M3 (SELECTABLE); ZERO NOISE: < 10 PPB (RMS); SPAN NOISE: < 0.5% OF
READING (RMS) ABOVE 2.5 PPM; LOWER DETECTABLE LIMIT: < 20 PPB, ZERO
DRIFT: < 20 PPB/24 HOURS, SPAN DRIFT: < 0.5% OF READING/24 HOURS ABOVE
5 PPM; LAG TIME: 10 SECONDS; RISE/FALL TIME: < 60 SECONDS TO 95%;
LINEARITY: 1% OF FULL SCALE; PRECISION: 0.5% OF READING; SAMPLE FLOW
RATE: 1800 CM3/MIN ±20%; POWER REQUIREMENTS: 100V-120V, 220V-240V,
50/60 HZ; ANALOG OUTPUT RANGES: 10V, 5V, 1V, 0.1V (SELECTABLE);
RECORDER OFFSET: ± 10%, INCLUDED: 1 X ETHERNET: 10/100 BASE-T, 2 X
RS232 (300-115,200 BAUD), 2 X USB DEVICE PORTS, 8 X OPTO-ISOLATED
DIGITAL OUTPUTS, 6 X OPTO-ISOLATED DIGITAL INPUTS, 4 X ANALOG OUTPUTS;
OPERATING TEMPERATURE RANGE: 5 - 40°C, 10 - 40°C (WITH US EPA
EQUIVALENCY); DIMENSIONS (HXWDXD): 7" X 17" X 23.5" (178 X 432 X 597MM)
WEIGHT: 50 LBS (22.7 KG); CERTIFICATIONS: US EPA: RFCA-1093-093

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LABORATORY EQUIPMENT, GENERAL

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5) MODEL T400 UV ABSORPTION 03 ANALYZER

RANGES: 0-100 PPB TO 0-10 PPM; INCLUDES: NUMAVIEW SOFTWARE, INTERNAL PUMP, PARTICULATE FILTER. PRODUCT MANUALS ON CD. TWO YEAR STANDARD WARRANTY. TAPI CUSTOMER SERVICE SUPPORT BY PHONE, FAX OR EMAIL FOR THE LIFE OF THE INSTRUMENT. RANGES: MIN: 0-100 PPB FULL SCALE, MAX: 0-10 PPM FULL SCALE (SELECTABLE, DUAL-RANGE SUPPORTED); MEASUREMENT UNITS: PPB, PPM, µG/M3, MG/M3 (SELECTABLE); ZERO NOISE: < 0.2 PPB (RMS); SPAN NOISE: < 0.5% OF READING (RMS) ABOVE 100 PPB; LOWER DETECTABLE LIMIT: 0.4 PPB*; ZERO DRIFT: < 1.0 PPB/24 HOURS; SPAN DRIFT < 1% OF FULL SCALE/24 HOURS; LAG TIME: < 10 SECONDS; RISE/FALL TIME: < 20 SECONDS TO 95%; LINEARITY: 1% OF FULL SCALE; PRECISION: 0.5% OF READING ABOVE 100 PPB; SAMPLE FLOW RATE: 800 CC/MIN ±10%; POWER REQUIREMENTS: 100V-120V, 220V-240V, 50/60 HZ; ANALOG OUTPUT RANGES: 10V, 5V, 1V, 0.1V (SELECTABLE); RECORDER OFFSET: ± 10%; INCLUDED I/O: 1 X ETHERNET: 10/100 BASE-T, 2 X RS232 (300-115,200 BAUD), 2 X USB DEVICE PORTS, 8 X OPTO-ISOLATED DIGITAL OUTPUTS, 6 X OPTO-ISOLATED DIGITAL INPUTS, 4 X ANALOG OUTPUTS; OPERATING TEMPERATURE RANGE: 5 - 40°C (WITH US EPA APPROVAL); DIMENSIONS (HXWXD): 7" X 17" X 23.5" (178 X 432 X 597MM); WEIGHT: 28 LBS (12.7 KG) 30.6 LBS (13.8 KG) WITH IZS; CERTIFICATIONS: US EPA EQOA-0992-087

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LABORATORY EQUIPMENT, GENERAL

6) MODEL T500U CAPS NO2 ANALYZER

INCLUDES: NUMAVIEW SOFTWARE, INTERNAL PUMP, PARTICULATE FILTER, SAMPLE CONDITIONER. PRODUCT MANUALS ON CD. TWO YEAR STANDARD WARRANTY. TAPI CUSTOMER SERVICE SUPPORT BY PHONE, FAX OR EMAIL FOR THE LIFE OF THE INSTRUMENT. RANGES: 0 - 5 PPB TO 0 - 1 PPM NO2; MEASUREMENT UNITS PPB, PPM, µG/M3, MG/M3 (SELECTABLE); ZERO NOISE: < 20 PPT (RMS); SPAN NOISE: < 0.2% OF READING (RMS) + 20 PPT; LOWER DETECTABLE LIMIT: < 40 PPT; ZERO DRIFT: < 0.1 PPB / 24 HOURS; SPAN DRIFT: < 0.5% OF READING / 24 HOURS; RISE/FALL TIME: < 30 SECONDS TO 95%; LINEARITY: 1% OF FULL SCALE; PRECISION: 0.5% OF READING ABOVE 5 PPB; SAMPLE FLOW RATE: 900 CM3/MIN ±10%; POWER REQUIREMENTS: 80W; 100-250VAC (50-60HZ); ANALOG OUTPUT RANGES: 10V, 5V, 1V, 0.1V (SELECTABLE); RECORDER OFFSET: ±10%; INCLUDED I/O: 1 X ETHERNET: 10/100 BASE-T, 2 X RS232 (300-115,200 BAUD), 2 X USB DEVICE PORTS, 8 X OPTO-ISOLATED DIGITAL OUTPUTS 6 X OPTO-ISOLATED DIGITAL INPUTS, 4 X ANALOG OUTPUTS, OPERATING TEMPERATURE RANGE: 5 - 40°C (WITH US EPA APPROVAL); DIMENSIONS (HXWXD): 7" X 17" 23.5" (178 X 432 X 597MM); WEIGHT: 33 LBS; CERTIFICATIONS: US EPA: FEDERAL EQUIVALENT METHOD (EQNA-0514-212).

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LABORATORY EQUIPMENT, GENERAL

7) MODEL T700U DYNAMIC DILUTION CALIBRATOR WITH 3 MFCS
NUMAVIEW SOFTWARE, DILUTION GAS MFC 0-20 SLPM, SOURCE GAS MFC 0-200
CC/MIN, 2ND SOURCE GAS MFC 0-20 CC/MIN, INTERNAL OZONE GENERATOR AND
GPT MIXING CHAMBER, UV PHOTOMETER MODULE, DUAL GAS OUTPUT (NOY) OUTPUT
B, PRODUCT MANUALS ON CD, TWO YEAR STANDARD WARRANTY, TAPI CUSTOMER
SERVICE SUPPORT BY PHONE, FAX OR EMAIL FOR THE LIFE OF THE INSTRUMENT.
DILUTION SYSTEM: FLOW MEASUREMENT ACCURACY: $\pm 1\%$ OF FULL SCALE, RE-
PEATABILITY OF LOW CONTROL: ± 0.2 OF FULL SCALE, LINEARITY OF FLOW
MEASUREMENTS: $\pm 0.5\%$ OF FULL SCALE, FLOW RANGE OF DILUTION AIR:
0 - 10 SLPM; OPTIONAL RANGES: 0 - 5 SLPM, 0 - 20 SLPM (OTHERS AVAIL-
ABLE); FLOW RANGE OF CYLINDER GASES*: 0 - 200 CC/MIN; OPTIONAL RANGES:
0 - 50 CC/MIN, 0 - 100 CC/MIN (OTHERS AVAILABLE); ZERO AIR REQUIRE-
MENTS: 10 SLPM @ 30 PSI; OPTIONAL RANGES: 20 SLPM @ 30 PSI; INPUT
PRESSURE: 20 - 40 PSIG REQUIRED; CALIBRATION GAS INPUT PORTS: 4 (CON-
FIGURABLE); DILUENT GAS INPUT PORT: 1; NO2 GENERATION (GPT MODES):
MINIMUM OUTPUT: 20 PPB LPM; MINIMUM CONCENTRATION: 3 PPB; PRECISION:
 $\pm 2\%$ (WITH GPTPS); OZONE GENERATOR MODULE: MAXIMUM OUTPUT: 6 PPM LPM;
MINIMUM OUTPUT: 20 PPB LPM; MINIMUM OZONE CONCENTRATION: 3 PPB; RE-
SPONSE TIME: 180 SECONDS TO 98%; OPTICAL FEEDBACK: STANDARD
UV PHOTOMETER OPTION: RANGE: 100 PPB TO 10 PPM (SELECTABLE); PRE-
CISION: 1.0 PPB; LINEARITY: 1.0% OF READING; RISE/FALL TIME: < 20
SECONDS (PHOTOMETER RESPONSE); RESPONSE TIME: 180 SECONDS TO 95%
(SYSTEM RESPONSE); ZERO DRIFT: < 1.0 PPB/24 HOURS; ELECTRICAL:
POWER REQUIREMENTS: 85V - 264V, 47HZ - 63HZ; ANALOG OUTPUT RANGES:
10V, 5V, 1V, 0.1V (SELECTABLE); RECORDER OFFSET: $\pm 10\%$; COMMUNICATION
SPECIFICATIONS: INCLUDED I/O: 1 X ETHERNET: 10/100 BASE-T, 2 X
RS232 (300-115,200 BAUD), 2 X USB DEVICE PORTS, 12 X DIGITAL CONTROL
OUTPUTS, 12 X DIGITAL CONTROL INPUTS, 8 X DIGITAL STATUS OUTPUTS,
PHYSICAL SPECIFICATIONS: OPERATING TEMPERATURE RANGE: 5 - 40°C
DIMENSIONS (HXWXD): 7" X 17" X 24" (178 X 432 X 609MM); WEIGHT:
31 LBS (14.06 KG); 39.2 LBS (17.78 KG) WITH PHOTOMETER, GPT, AND
O3 GENERATOR

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LABORATORY EQUIPMENT, GENERAL

8) MODEL T701H HIGH PERFORMANCE ZERO AIR SYSTEM INCLUDES:
STANDARD 30 SLPM @ 35 PSI; HYDROCARBON & CO SCRUBBER; FULL MODBUS TCP/
IP COMMUNICATION; DEWPOINT SENSOR; PRODUCT MANUALS ON CD; TWO YEAR
STANDARD WARRANTY. TAPI CUSTOMER SERVICE SUPPORT BY PHONE, FAX OR

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EMAIL FOR THE LIFE OF THE INSTRUMENT.

OUTPUT: 30 SLPM AT 35 PSIG; MAX DELIVERY PRESSURE: 35 PSIG; DEWPOINT: -40°C; DRYER: REGENERATIVE HEATLESS DRYER WITH LIFETIME OF GREATER THAN 5 YEARS.

OUTPUT CONCENTRATION: SO₂ < 0.025 PPB, H₂S < 0.025 PPB, NO < 0.025 PPB, NO₂ < 0.025 PPB, NH₃ < 0.025 PPB, O₃ < 0.3 PPB, CO < 10 PPB, HC < 0.25 PPB; COMPRESSOR: DUAL-CYLINDER, INTERNAL LONG LIFE, OIL-LESS PISTON PUMP; POWER REQUIREMENTS: 115V, 60 HZ; OPERATING TEMPERATURE RANGE: 5 - 40°C; DIMENSIONS (HXWXD): 8.75" X 17" X 28" (22.2CM X 43.2CM X 71.12 CM); WEIGHT: 69 LBS (31.3 KG); MOUNTING: BENCH TYPE (STANDARD)

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LABORATORY EQUIPMENT, GENERAL

9) MODEL T703 UV PHOTOMETRIC O₃ CALIBRATOR WITH INTERNAL ZERO AIR PUMP AND EXTERNAL ZERO AIR SHUT-OFF VALVE
NUMAVIEW SOFTWARE; DRYER (DRIERITE CARTRIDGE); PRODUCT MANUALS ON CD; TWO YEAR STANDARD WARRANTY. TAPI CUSTOMER SERVICE SUPPORT BY PHONE, FAX OR EMAIL FOR THE LIFE OF THE INSTRUMENT. SYSTEM: LINEARITY: ± 1% OF FULL SCALE; PRECISION: 1.0 PPB; RESPONSE TIME: < 180 SECONDS TO 95%; STABILITY (7 DAYS): < 1% WITH PHOTOMETER FEEDBACK; OZONE GENERATOR MODULE: FLOW RATE (WITH INTERNAL ZERO AIR SOURCE): 1 TO 5 LPM ADJUSTABLE; FLOW RATE (WITH EXTERNAL ZERO AIR SOURCE): 1 TO 15 LPM ADJUSTABLE; MAXIMUM OUTPUT: 5 LPM; MINIMUM OUTPUT: 100 PPB LPM; MAXIMUM CONCENTRATION: 5 PPM AT 1 LPM; MINIMUM CONCENTRATION: 50 PPB AT 2 LPM; RESPONSE TIME: < 180 SECONDS TO 98%; UV PHOTOMETER: RANGE: 0 - 100 PPB TO 0 - 10 PPM (SELECTABLE); PRECISION: 1.0 PPB; LINEARITY: ± 1% OF FULL SCALE; RISE/FALL TIME: < 20 SECONDS TO 95 % (PHOTOMETER RESPONSE); RESPONSE TIME: < 180 SECONDS TO 95% (SYSTEM RESPONSE); ZERO DRIFT: < 1.0 PPB/7 DAYS; SPAN DRIFT: < 1%/24 HOURS; LAG TIME: < 10 SECONDS; FLOW RATE: 800 CC/MIN ±10%; ELECTRICAL SPECIFICATIONS: POWER REQUIREMENTS: 100V-120V, 220V-240V, 50/60 HZ ANALOG OUTPUT REQUIREMENTS: 10V, 5V, 1V, 0.1V (SELECTABLE); INCLUDED I/O: 1 X ETHERNET: 10/100 BASE-T, 2 X RS232 (300-115,200), 2 X USB DEVICE PORTS, 12 X DIGITAL CONTROL OUTPUTS, 12 DIGITAL CONTROL INPUTS, 8 X DIGITAL STATUS OUTPUTS; PHYSICAL SPECIFICATIONS: OPERATING TEMPERATURE RANGE: 5 - 40°C; DIMENSIONS (HXWXD): 7" X 17" X 24" (178 X 432 X 609MM); WEIGHT: 35.5 LBS (16.1 KG) WITH INTERNAL ZERO AIR PUMP

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10) MODEL T703U UV PHOTOMETRIC 03 CALIBRATOR WITH INTERNAL ZERO AIR PUMP AND EXTERNAL ZERO AIR SHUT-OFF VALVE
NUMAVIEW SOFTWARE; DRYER (DRIERITE CARTRIDGE); PRODUCT MANUALS ON CD;
TWO YEAR STANDARD WARRANTY. TAPI CUSTOMER SERVICE SUPPORT BY PHONE,
FAX OR EMAIL FOR THE LIFE OF THE INSTRUMENT. SYSTEM: LINEARITY:
± 1% OF FULL SCALE; PRECISION: 1.0 PPB; RESPONSE TIME: < 240 SECONDS
TO 95%; STABILITY (7 DAYS): < 1% WITH PHOTOMETER FEEDBACK; <3% WITHOUT
PHOTOMETER FEEDBACK (CNST OR REF); OZONE GENERATOR MODULE: FLOW RATE
(WITH INTERNAL ZERO AIR SOURCE): 1 TO 5 LPM ADJUSTABLE; FLOW RATE
(WITH EXTERNAL ZERO AIR SOURCE): 1 TO 15 LPM ADJUSTABLE; MAXIMUM
OUTPUT: 5 PPM LPM; MINIMUM CONCENTRATION: 3 PPB AT 5 LPM; RESPONSE
TIME: < 240 SECONDS TO 98%; UV PHOTOMETER: RANGE: 0 - 100 PPB TO 0-
10 PPM (SELECTABLE); PRECISION: 1.0 PPB; LINEARITY: ± 1% OF FULL SCALE
RISE/FALL TIME: < 20 SECONDS TO 95% (PHOTOMETER RESPONSE); RESPONE
TIME: < 180 SECONDS TO 95% (SYSTEM RESPONSE); ZERO DRIFT: < 1.0 PPB/7
SPAN DRIFT: < 1%/24 HOURS; LAG TIME: < 10 SECONDS; FLOW RATE: 800 CC/
MIN ± 10%; ELECTRICAL SPECIFICATIONS: POWER REQUIREMENTS: 100V-120V,
220V-240V, 50/60 HZ; ANALOG OUTPUT RANGES: 10V, 5V, 1V, 0.1V (SELECT-
ABLE) COMMUNICATIONS SPECIFICATIONS: INCLUDED I/O: 1 X ETHERNET:
10/100 BASE-T, 2 X RS232 (300-115,200 BAUD), 2 X USB DEVICE PORTS,
12 X DIGITAL CONTROL OUTPUTS, 12 X DIGITAL CONTROL INPUTS, 8 X DIGITAL
STATUS OUTPUTS; PHYSICAL SPECIFICATIONS: OPERATING TEMPERATURE RANGE:
5 - 40°C; DIMENSIONS (HXWXD): 7" X 17" X 24" (178 X 432 X 609MM);
WEIGHT: 35.5 LBS (16.1 KG) WITH INTERNAL ZERO AIR PUMP

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LABORATORY EQUIPMENT, GENERAL

11) MODEL T640 PM MASS MONITOR
NUMAVIEW SOFTWARE; PRODUCT MANUALS ON CD; TWO YEAR STANDARD WARRANTY.
TAPI CUSTOMER SERVICE SUPPORT BY PHONE, FAX OR EMAIL FOR THE LIFE OF
THE INSTRUMENT. INTERNAL SAMPLE PUMP (FOR 5 LPM SAMPLE FLOW)
WITH IN-LINE DFU FILTER; INTERNAL SAMPLE FLOW CONTROLLER WITH AMBIENT
TEMPERATURE/PRESSURE COMPENSATION; AEROSOL SAMPLE CONDITIONER (ASC);
AMBIENT TEMPERATURE PROBE WITH 15 FT CABLE AND SOLAR SHIELD; PERFOR-
MANCE: MEASUREMENT PRINCIPLE: BROADBAND SPECTROSCOPY USING 90°
WHITE-LIGHT SCATTERING WITH POLYCHROMATIC LED; PARTICLE SIZE
RESOLUTION: 256 SIZES OVER 0.18 - 20µm RANGE, COMBINED TO 64 CHANNELS
FOR MASS CALCULATION. PM MASS MEASUREMENTS: PM10, PM2.5 AND PM10-2.5
SIMULTANEOUSLY; PM MASS RESOLUTION MEASUREMENT RANGE: 0.1 - 10,000
µG/M3; MASS MEASUREMENT & DISPLAY RESOLUTION: 0.1 µG/M3; PRECISION:
± 0.5 µG/M3 (1 - HR AVERAGE); LOWER DETECTABLE LIMIT: < 0.1 µG/M3 (1 -
HR AVERAGE); DATE RATE: 10S TO 48HR (USER SELECTABLE); MASS CONCENTRA-
TION ACCURACY: EXCEEDS US EPA PM 10 FEM AND CLASS III FEM PM2.5

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STATE OF MARYLAND

***** STATE OF MARYLAND *****

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<u>LINE #</u>	<u>STATE ITEM ID</u>	<u>U/M</u>	<u>UNIT COST</u>	
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PERFORMANCE REQUIREMENTS FOR ADDITIVE AND MULTIPLICATIVE BIAS COMPARED TO FRM SAMPLERS; FLOW RATE: 5.0-LPM SAMPLE FLOW (STANDARD MODEL); 11.67 - LPM OPTIONAL BYPASS FLOW (WITH OPTION 640X); FLOW ACCURACY: WITHIN $\pm 1\%$; (TYPICALLY WITHIN $\pm 0.5\%$); OPERATING CONDITIONS: OPERATING TEMPERATURE: 0 - 50°C, NON-CONDENSING; AMBIENT TEMPERATURE: -40 -60°C; AMBIENT RELATIVE HUMIDITY: 0 - 100%; SAMPLE HUMIDITY CONTROL: 24VDC, 90W (MAX) HEATER CONTROLLED TO 35% RH; WEATHERPROOF ENCLOSURE REQUIRED WITH 0 - 50°C, NON-CONDENSING ENVIRONMENTAL CONTROL REQUIRES ONLY 10-MIN WARM-UP TIME; INTERFACES AND DATA STORAGE: T SERIES ANALYZER INTERFACE WITH FULL TOUCH SCREEN DISPLAY AND NUMAVIEW™ PREMIUM OPERATING SOFTWARE AND NUMAVIEW™ REMOTE SOFTWARE. 4GB MEMORY ALLOWS FOR > 1 YEAR OF INTERNAL DATA STORAGE; FRONT PANEL USB PORTS: 2X TYPE-A PERIPHERAL PORTS; ETHERNET COMMUNICATIONS (SUPPORTS TCP/IP MODBUS AND HTTP POLLING PROTOCOLS; ELECTRICAL: T640 INSTRUMENT: 100 - 230VAC 50/60HZ, POWER CONSUMPTION < 120W @ 120VAC; EXTERNAL PUMP (FOR OPTIONAL BYPASS FLOW - OPTION 640X): 100 - 120VAC 60HZ OR 220 - 240VAC 50/60HZ, POWER CONSUMPTION < 360W @ 120VAC; PHYSICAL SPECIFICATIONS: UNIT DIMENSIONS (HXWXD): 7" X 17" X 14" (17.8 X 43.2 X 35.6CM); UNIT WEIGHT: 19 LBS (8.6 KG); SAMPLE HEATER TUBE HEIGHT: 43" (109 CM); SAMPLE HEATER TUBE WEIGHT: 6 LBS (2.7); CERTIFICATIONS: US EPA PM2.5 FEDERAL EQUIVALENT METHOD EQPM-0516-236; US EPA PM2.5 FEDERAL EQUIVALENT METHOD EQPM-0516-238*; US EPA PM 10 FEDERAL EQUIVALENT METHOD EQPM-0516-239* US EPA PM 10-2.5 FEDERAL EQUIVALENT METHOD EQPM-0516-240* *WITH 640X OPTION

END OF ITEM LIST

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