

# General Specifications

## Model YPC4000 Portable Modular Calibrator with HART® Communications

YPC4000 is a combination Calibrator / HART® Communicator that reduces the time spent on field calibrations and the number of instruments that have to be carried into the field. The YPC4000 Series delivers the versatility of a modular calibrator and the convenience of HART® communications in one handheld unit. Users can view up to four measurements simultaneously on the high resolution LCD or compare HART® PV and AO values to corresponding values measured. Available sensor modules include a variety of differential, gauge, vacuum and absolute pressure (for EJA/EJX) as well as temperature (for YTA. A voltage and current meter is integral to the base unit. All HART® field devices can be configured, polled, and trimmed using HART® communications. Device Specific commands for supported devices are included.

### FEATURES & ADVANTAGES

**USER INTERFACE** – 2.6" x 2.6" display, four soft keys (definitions change with mode requirements) and eight hard keys provide user interface. Display is configurable for 1 to 4 simultaneous measurements.

**MODULES** – select from a variety of positive lock measurement modules for excellent versatility.

**FIELD RECERTIFICATION** – sensor modules and integral V / I can be recalibrated for zero, span, & linearity through the base unit.

**MEASUREMENT UNITS** – customary English and Metric System units are selectable

**USER CONVENIENCE** – Auto shut off, Damping, Min/Max value capture, display Hold, sensor Zero, direct Contrast adjustment & tare.

**SECURITY LOCKOUT** – YPC4000 settings can be locked out entirely or by specific feature.

**DIAGNOSTICS** – YPC4000 self-tests upon power up and upon installation of sensor modules. Advisories are posted on the display.

**FIELD UPDATES** – uses Internet downloads to update and add capability / HART® support

**DEDICATED DOF MEMORY** – Memory for 500 HART® profiles.

**ALL-IN-ONE TOOL** – takes the place of multiple handheld instruments, simplifies workload and improves productivity

**DOCUMENTING** – Documenting memory and firmware for use with DMS software. Stores up to 200 HART® configuration files and over 100 calibration results (as-found & as-left data [up to 21 points each], time/date info, tag). Communicate with PC via DB-9 connector.

**INTRINSIC SAFETY** – Class I, Div I areas per CSA 22.2 & UL 913 by MET Laboratories .

**OPTIONAL DMS SOFTWARE** – The Device Management System software is a full feature software tool for calibration and configuration management of smart and conventional field devices. DMS provides user-friendly navigation and organization of field devices, scheduling of calibration procedures, and storage of smart field device configuration data.



The calibration management features are extended to the Calibration / Configuration equipment as well. Calibration and configuration change reporting, certificates, and device history are standard features in DMS.

### SPECIFICATIONS

**BASE UNIT:** 9.00"L x 4.70"W x 3.58"D ABS plastic case with shock absorbing boot, 28 ozs, three bays for measurement modules

**DISPLAY:** 128 x 128 pixel graphic display, 2.6" x 2.6" viewable area, 5-digit resolution

**POWER:** 6 AA alkaline or NiMH batteries; optional 100 – 240 Vac power adapter

**TEMPERATURE RANGE:** Storage: -40°F to 140°F (-40°C to 60°C) Operating: 23°F to 122 F (-5°C to 50°C)

**CONNECTIONS:** Pressure: 1/8" FNPT, 316ss Electrical: Std. banana jacks (3/4" center) for ±50 mA/Volts, HART® & Loop leads Data transfer: DB-9 for RS-232C

**NIST TRACEABLE ACCURACY:**

Pressure: ± 0.025% to ± 0.10% of F.S including all effects of linearity, repeatability, hysteresis and temperature over the range 23° F to 122° F.

Current / Voltage: ± 0.025% of F.S. ± 0.001% of Span per ° F (ref. temp. 70° F).

**PRESSURE MODULE LIMITS / MEDIAS:** GI / AI modules: 2X range / 316ss compatible DN modules: 2X range when pressurized on high side only, 150 PSI when applied simultaneously to high and low sides / dry gases only

**MODULES:** 2.3"L x 1.3"W x 2.6"D, 8.3 ozs or less. Positive-lock with spring latch. Depress latch to release. Electrical connections are PC board contacts to spring loaded receivers on base unit. Cap plugs protect any empty bay(s).

# YPC 4000 Multifunction Calibrator

<b>YPC BASE UNIT MODEL NUMBERS (includes CE mark, standard test lead kit and six AA alkaline batteries)</b>									
<b>YPC 4000</b>	Calibrator - Base unit with three (3) modular sensor bays - see available sensor modules on next page; <b>use VMA0055 for 24Vdc loop supply</b>								
<b>YPC 4010</b>	HART <sup>®</sup> Communicator / Calibrator - Base calibrator unit with HART <sup>®</sup> capability (includes HART <sup>®</sup> leads, and 250 ohm resistor) - see available sensor modules on next page ; <b>use VMA0055 for 24Vdc loop supply</b>								
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**YPC4010**      **-01**      **-1**      **-01**      **-0**      **-01**      **-1**  
 YPC4010 base calibrator with HART<sup>®</sup> - standard documenting - Intrinsic Safety – Rear hand Strap – English – Standard 3 year DOF

## Sensor Modules for YPC 4000 Multifunction Tester

<b>SENSOR MODULE MODEL NUMBER, RANGE &amp; ACCURACY</b>		
Modules are Intrinsically Safe when used in accordance with Control Doc.		
FDN0010-01	1 - 10" H2O dp	± 0.1% FS from 23° F to 122° F
FDN0020-01	0 - 20" H2O dp	± 0.1% FS from 23° F to 122° F
DDN0100-01	0 - 100" H2O dp	± 0.025% FS from 23° F to 122° F
DDN0200-01	0 - 200" H2O dp	± 0.025% FS from 23° F to 122° F
DDN0400-01	0 - 400" H2O dp	± 0.025% FS from 23° F to 122° F
DDN2000-01	0 - 2000" H2O dp	± 0.025% FS from 23° F to 122° F
DGI0020-01	0 - 20 PSIG	± 0.025% FS from 23° F to 122° F
DGI0200-01	0 - 200 PSIG	± 0.025% FS from 23° F to 122° F
DGI0500-01	0 - 500 PSIG	± 0.025% FS from 23° F to 122° F
DGI1000-01	0 - 1000 PSIG	± 0.025% FS from 23° F to 122° F
DGI1500-01	0 - 1500 PSIG	± 0.025% FS from 23° F to 122° F
DGI2000-01	0 - 2000 PSIG	± 0.025% FS from 23° F to 122° F
GGI3000-01	0 - 3000 PSIG	± 0.05% FS from 23° F to 122° F
DAI0900-01	0 - 900mm Hg Abs	± 0.025% FS from 23° F to 122° F
DAI2000-01	0 - 2000mm Hg Abs	± 0.025% FS from 23° F to 122° F
DAI5200-01	0 - 5200mm Hg Abs	± 0.025% FS from 23° F to 122° F
TIO0110-01	T/C meas & sim	T/C measure and simulate module supports types B,C,E,J,K,N,R,S,T,M,P
VMA0055-01	V/mA meas & sim	V/I: meas ±55 Vdc, source 0-28Vdc; mA: meas ±100 mA dc, source 0-100 mA dc
RIO4000-01	RTD meas & sim	RTD measure and simulate module supports 22 different RTDs

## Accessories

<b>KIT OPTIONS</b>	
Standard kit includes: hard carrying case (P/N A36750), pressure (B34686) or vacuum (B34700) pump, low pressure connection kit (P/N A34386).	
A37127	Standard kit with B34686 pressure pump
A36786	Standard kit with B34700 vacuum pump

<b>CARRYING CASES/HANGING STRAP</b>	
A36749	Soft case w/ shoulder strap for carrying one YPC and installed modules, additional modules, test lead kit, hand pump & fittings.
A36750	ABS plastic case with handle and foam insert for YPC base unit and installed modules, additional modules, test lead kit, hand pump, RTD temperature probe, fittings & tubing
A36936	YPC Hanging/Shoulder Strap, includes factory mounted D-Rings to YPC case, adjustable strap, spring-loaded swivel snaps

<b>PRESSURE SOURCES</b>	
B34686	961P pressure pump with integral variator, bleed valve, 1/8" FNPT connection, 0 - 145 PSIG
B34700	961V vacuum pump with integral variator, bleed valve, 1/8" FNPT connection, -650 mm Hg
A34744-1	Repair parts kit for pressure pump B34686 (961P)
A34744-2	Repair parts kit for vacuum pump B34700 (961V)

<b>FITTING KITS &amp; ACCESSORIES</b>	
A34386	Low Pressure Connector Kit (not for use above 250 PSIG) includes: 1/8" OD tubing (18 ft), 1/8" OD "T" fittings (2), 1/8" OD tube by 1/8" MNPT adapters (6), 3/16" barb to 1/8" FNPT (1) fitting and 1/4" MNPT to 1/8" FNPT reducers (2)
A34102	1/8" O.D. tubing to 1/8" MNPT connector (not for use above 250 PSIG)
A34112	1/8" O.D. tubing union tee (not for use above 250 PSIG)
A34099-1	1/4" MNPT X 1/8" FNPT reducer bushing, brass
Z9A82-1	10 ft of 1/8" O.D. nylon tubing (not for use above 250 PSIG)
A36853	Push to read equalizing manifold for DP modules, brass, 1/8" FNPT connections
A900020-90502	High Pressure Connection Kit (not for use above 9,000 PSIG) includes: 3' HP Hose with 1pc 1/8" MNPT & 1pc 1/4" MNPT x HP Quick Connect fitting
A900020-90503	High Pressure Connection Kit (not for use above 9,000 PSIG) includes: 1' HP Hose with 1pc 1/8" MNPT and 1pc 1/4" MNPT x HP Quick Connect fitting
A900020-90501	5 pcs 1/4" MNPT x HP Quick Connect Fitting (not for use above 9,000 PSIG)
A900436-00001	1 pcs 1/8" MNPT HP Quick Connect fitting (not for use above 9,000 PSIG)

<b>ELECTRICAL / COMMUNICATIONS AND POWER ACCESSORIES</b>	
A900529-00014	HART <sup>®</sup> Test Lead Kit - std banana plugs, mini-grabbers, 250 ohm resistor (inc'd w/ YPC 401X)
A900529-00011	Standard Test Lead Kit - std banana plugs with assorted connectors
A36821	Std size 250 ohm shunt resistor req'd for HART <sup>®</sup> low resistance loops (inc'd w/ YPC 401X)
9P155	VMA Test Lead Kit - banana plugs on 9" breakouts both ends, assorted connectors
A900441-00014	Adapter, standard banana jack (F) to mini-banana jack (M)
A900447-00052	DB-9 cable, Male x Female, 6 ft length
A36800	6-pack of AA Alkaline Batteries
A36843	6-pack of AA 1.2V NIMH Batteries
A37134	NIMH battery charger, holds up to 8 individual AA cells, 8 hours, 120 VAC 60 Hz
9B000007	Power adapter, 100 Vac to 240 Vac, 50-60 Hz; Universal plug adapter (New Style)
A37003	Power adapter, 100 Vac to 240 Vac, 50-60 Hz; Universal plug adapter (Old Style – Prior to 11/06)
A900447-00135	24Vdc Power Supply, input: 120Vac 60 Hz, output: 24Vdc 350 mA

<b>TEMPERATURE ACCESSORIES</b>	
A900028-90201	Pt 100 RTD, DIN Class "A", 0.00385 alpha, 4 lead, 1/4" O.D. 300 Series SS probe, 10" length, 3.5" handle and 5 ft coiled cable with connector for RTD1000 temperature module
A900028-90200	Mating connector for RTD temperature modules facilitates use of customer's RTD
A900028-90500	User cable for RTD temp module, 5 ft cable, 4 lead wires, alligator clip terminations
A36857	T/C wire Kit 1 for types E, J, K, N, T; mini t/c connector, 1 m cable
A36858	T/C wire Kit 2 for types B, K, R/S; mini t/c connector, 1 m cable
A36881	mV measure/simulate cable assembly; mini t/c connector, 3.5 ft. copper cable, alligator clips

<b>OPEN BAY PROTECTION MODULE (included with base YPC as required)</b>	
A36741	Dummy module protects unused (open) sensor module bays in YPC

<b>INSTRUCTION MANUAL</b>	
F/N 4000:440	Paper instructions for YPC 4000 (PDF instructions sent with each YPC on CD)

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## DOF Subscriptions for YPC 401X Multi-Function Tester with HART® Communications

HART® communication support for the YPC4000 products and HART® smart field devices takes two forms. One is a Generic Device Object File (DOF) shipped with every YPC unit. The Generic DOF enables Universal and Common Practice HART® commands to poll, write and execute analog trim and loop test functions on any HART® device. Device Specific Commands are supported by device specific DOFs. All device specific DOFs available at the time are included with each YPC shipment. New device specific HART® DOFs are added at a rate of 5 to 8 per month and posted on our Download Site at <http://dpcupdates.1911mptdofs.com/past.aspx>

A Subscription to the Download Site provides the user with access to YPC/YHC firmware updates and all posted DOFs for a period of 3 years after YPC/YHC shipment. Users will gain access to the Download Site by logging in with a User Name (YPC/YHC serial number, example 950680-S01 including hyphen) and Password (initially assigned by supplier but user can enter his own after first log in).

Why subscribe: 2 reasons

1. Products remain current. With the release of HART® 6.0 specifications, new devices and new device revisions of older products will be released. This subscription will enable you to download DOF's for new devices and new revisions for older devices. Additionally, the exclusive Field Device Revision Independence (FDRI) allows YHC and YPC to automatically map configurations from older devices to newer devices by the same manufacturer in the event of field replacement. This feature saves you valuable downtime, and is exclusive to the YPC/YHC HART® products.
2. Firmware updates. Periodically, enhancements, improvements, and or features are made available. You may also decide to add new options (Documentation capability for example). The firmware is flashable (i.e. field upgradeable) so that the unit never leaves the customer's facility for an update – the result is no down time.

Discontinuous Service: Users may elect to allow their subscription to lapse. For these users, there is an increased amount over the standard annual subscription rate.