

# BLACKMAX®

## DIGITAL MANIFOLDS

US Patent No. 9,043,161

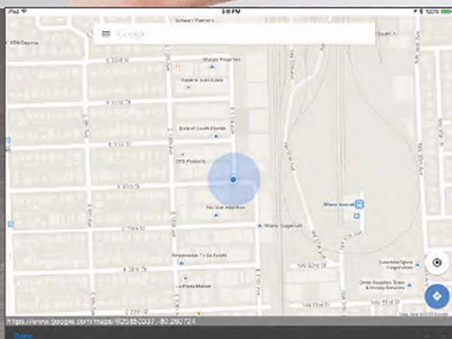


### WIRELESS MANIFOLDS WITH CPS LINK™ APP

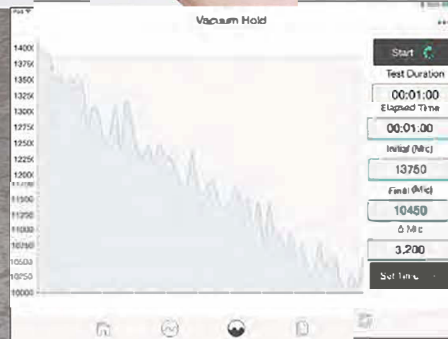


CPS Link™ is a free iOS and Android based mobile application (APP), designed to communicate with and control select functions of BLACKMAX® Digital Wireless Manifolds.

- Monitor and perform full system measurements—in real time
- Fast, convenient touch screen control
- Perform select manifold functions without the need to physically touch the manifold
- Pressure hold or vacuum hold tests can be viewed, saved, stored or emailed as a graph
- Supports over 90 common refrigerants, with quick access to your favorite five
- Bilingual CPS Link™ app (English or Spanish)
- Built-in geolocation and data logging
- Change units, pressure, temperature, vacuum or languages at the touch of a button



Geolocation coordinates



Vacuum Hold Test

| Time     | Pressure (PSI) | Temperature (°F) | Other Data |
|----------|----------------|------------------|------------|
| 00:01:00 | 13760          | 92               |            |
| 00:01:01 | 13750          | 92               |            |
| 00:01:02 | 13740          | 92               |            |
| 00:01:03 | 13730          | 92               |            |
| 00:01:04 | 13720          | 92               |            |
| 00:01:05 | 13710          | 92               |            |
| 00:01:06 | 13700          | 92               |            |
| 00:01:07 | 13690          | 92               |            |
| 00:01:08 | 13680          | 92               |            |
| 00:01:09 | 13670          | 92               |            |
| 00:01:10 | 13660          | 92               |            |
| 00:01:11 | 13650          | 92               |            |
| 00:01:12 | 13640          | 92               |            |
| 00:01:13 | 13630          | 92               |            |
| 00:01:14 | 13620          | 92               |            |
| 00:01:15 | 13610          | 92               |            |
| 00:01:16 | 13600          | 92               |            |
| 00:01:17 | 13590          | 92               |            |
| 00:01:18 | 13580          | 92               |            |
| 00:01:19 | 13570          | 92               |            |
| 00:01:20 | 13560          | 92               |            |
| 00:01:21 | 13550          | 92               |            |
| 00:01:22 | 13540          | 92               |            |
| 00:01:23 | 13530          | 92               |            |
| 00:01:24 | 13520          | 92               |            |
| 00:01:25 | 13510          | 92               |            |
| 00:01:26 | 13500          | 92               |            |
| 00:01:27 | 13490          | 92               |            |
| 00:01:28 | 13480          | 92               |            |
| 00:01:29 | 13470          | 92               |            |
| 00:01:30 | 13460          | 92               |            |
| 00:01:31 | 13450          | 92               |            |
| 00:01:32 | 13440          | 92               |            |
| 00:01:33 | 13430          | 92               |            |
| 00:01:34 | 13420          | 92               |            |
| 00:01:35 | 13410          | 92               |            |
| 00:01:36 | 13400          | 92               |            |
| 00:01:37 | 13390          | 92               |            |
| 00:01:38 | 13380          | 92               |            |
| 00:01:39 | 13370          | 92               |            |
| 00:01:40 | 13360          | 92               |            |
| 00:01:41 | 13350          | 92               |            |
| 00:01:42 | 13340          | 92               |            |
| 00:01:43 | 13330          | 92               |            |
| 00:01:44 | 13320          | 92               |            |
| 00:01:45 | 13310          | 92               |            |
| 00:01:46 | 13300          | 92               |            |
| 00:01:47 | 13290          | 92               |            |
| 00:01:48 | 13280          | 92               |            |
| 00:01:49 | 13270          | 92               |            |
| 00:01:50 | 13260          | 92               |            |
| 00:01:51 | 13250          | 92               |            |
| 00:01:52 | 13240          | 92               |            |
| 00:01:53 | 13230          | 92               |            |
| 00:01:54 | 13220          | 92               |            |
| 00:01:55 | 13210          | 92               |            |
| 00:01:56 | 13200          | 92               |            |
| 00:01:57 | 13190          | 92               |            |
| 00:01:58 | 13180          | 92               |            |
| 00:01:59 | 13170          | 92               |            |
| 00:02:00 | 13160          | 92               |            |

Test Data Log and Geolocation Coordinates



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# DIGITAL MANIFOLDS



## Rugged Design

- Water-resistant, high-strength, glass-filled nylon housing
- Precision machined anodized aluminum manifold body
- Proprietary Vortech® valve systems (certified to 10 microns)
- High-impact polycarbonate LCD window
- Advanced sight glass design

## Simplicity & Versatility

- One key ON/OFF and function select
- Preloaded with over 90 of the most common refrigerants
- Compatible with R744 subcritical CO2 refrigerants
- One-touch access to your 5 favorite refrigerants
- 25 hours of continuous use with full backlight illumination

## 2 & 4 Valve Manifolds

- BLACKMAX® digital manifolds combine the latest measurement technology with best-in-class accuracy for pressure, temperature and vacuum (See specifications on back).

## Wireless and Standard

- BLACKMAX manifolds are available in standard digital models as well as wireless. Wireless models require the use of the free CPS Link™ app for Android and iOS devices.

## Full System Measurement

- 2 Pressures, 2 temperatures and vacuum (using MDXVG accessory)
- Vacuum hold and pressure hold test functions
- Simultaneously displays:
  - HI and LO pressures, superheat and subcooling
  - HI and LO pressures, T1 and T2
  - HI and LO pressures, saturation T1 and saturation T2
  - HI and LO pressures, displays T1, T2 and Delta T

## AT A GLANCE



# WIRELESS MANIFOLDS



BLACKMAX® wireless manifolds let you perform select manifold functions from up to 300 feet away and provides additional features not available with standard digital models.



## Configurations



| BLACKMAX® Digital Manifolds | Number Of Valves | Wireless or Standard | Thermistor Sensor with 6' leads (MDXCP) x 2 | 5' Black & Chrome Ball Valve Charging Hoses 3 Pk (HP5BKEZ) | 5' Heavy Duty Black & Chrome Vacuum Hose (1) (HV5Z) | Vacuum Gauge Accessory Kit* (MDXVG) | Rechargeable NiMH Battery and Universal Plug Kit** (MDXBK) | Soft Case For All MD Series (MDXSC) |
|-----------------------------|------------------|----------------------|---|--|---|-------------------------------------|--|-------------------------------------|
| MD50                        | 2                | Standard             | Included                                    |  |   | Optional                            | Optional   | Optional                            |
| MD50W                       |                  | Wireless             | Included                                    |  |   | Optional                            | Optional   | Optional                            |
| MD50HE                      |                  | Standard             | Included                                    | Included   |   | Optional                            | Optional   | Optional                            |
| MD50WHE                     |                  | Wireless             | Included                                    | Included   |   | Optional                            | Optional   | Optional                            |
| MD50VHE                     |                  | Standard             | Included                                    | Included   |   | Included                            | Optional   | Optional                            |
| MD50WVHE                    |                  | Wireless             | Included                                    | Included   |   | Included                            | Optional   | Optional                            |
| MD100                       | 4                | Standard             | Included                                    | Optional   |   | Optional                            | Optional   | Optional                            |
| MD100W                      |                  | Wireless             | Included                                    |  |   | Optional                            | Optional   | Optional                            |
| MD100HE                     |                  | Standard             | Included                                    | Included   | Included  | Optional                            | Optional   | Optional                            |
| MD100WHE                    |                  | Wireless             | Included                                    | Included   | Included  | Optional                            | Optional   | Optional                            |
| MD100VHE                    |                  | Standard             | Included                                    | Included   | Included  | Included                            | Optional   | Optional                            |
| MD100WVHE                   |                  | Wireless             | Included                                    | Included   | Included  | Included                            | Optional   | Optional                            |
| MD100WVHEC<br>NEW! CAMO     |                  | Wireless             | Included                                    | Included   | Included  | Included                            | Optional   | Optional                            |

\*Includes Vacuum Accessory & 1 AVT45 1/4" SAE Brass Tee Connector. \*\*Includes 1 Universal Charger With 5' Cord; 4 rechargeable NiMH batteries, 1 U.S. Plug, 1 Euro Plug, 1 Australia/New Zealand/China Plug, 1 UK/Ireland/Singapore/Hong Kong Plug.

## 93 \*Refrigerants Stored In Memory

|         |       |        |        |       |       |              |              |                      |                                |
|---------|-------|--------|--------|-------|-------|--------------|--------------|----------------------|--------------------------------|
| R11     | R124  | R143   | R236FA | R402B | R407D | R412A        | R421A        | R427A / M089 / FX100 | R504                           |
| R113    | R125  | R143A  | R245ca | R403A | R407F | R413A / M049 | R421B        | R428A                | R507A                          |
| R114    | R1270 | R152A  | R245fa | R403B | R408A | R414A        | R422A / M079 | R434A                | R508A                          |
| R115    | R13   | R176   | R290   | R404A | R409A | R414B        | R422B        | R437A / MD49PLUS     | R508B                          |
| R116    | R134  | R21    | R32    | R405A | R41   | R415A        | R422C        | R437A / MD49PLUS     | R509A                          |
| R12     | R134A | R218   | R401A  | R406A | R410A | R416A        | R422D / M029 | R438A / M099         | R600                           |
| R123    | R13B1 | R22    | R401B  | R407A | R410B | R417A / M059 | R423A / 39TC | R500                 | R600A                          |
| R123A   | R141B | R23    | R401C  | R407B | R411A | R418A        | R424A        | R501                 | R601                           |
| R1234YF | R142B | R236ea | R402A  | R407C | R411B | R419A        | R425A        | R502                 | R601A                          |
|         |       |        |        |       |       | R420A        | R426A        | R503                 | R744 (Sub-critical range only) |

\* Free periodic app updates will update your manifold with any new refrigerants.

### Manifold Specifications

|  |  |   |
|--|--|---|
| High side pressure range   | -14.5 to 800.0 PSIG (-1.0 to 55 bar)                         |   |
| Low side pressure range  | -14.5 to 800.0 PSIG (-1.0 to 55 bar)                         |   |
| Pressure reading accuracy  | +/- 1% of reading or +/- 0.5 PSIG (+/- 0.05 bar)             |   |
| Pressure reading resolution  | 0.5 PSIG (0.05 bar)  |   |
| High and low side burst pressure                                   | 1500.0 PSIG (103.4 bar)                                      |   |
| High side temperature range  | -58.0 °F to 302 °F (-50 °C to 150°C)                         |   |
| Low side temperature range   | -58.0 °F to 302 °F (-50 °C to 150°C)                         |   |
| Temperature reading accuracy                                       | +/- 0.36 °F (+/- 0.2°C)                                      |   |
| Vacuum indication accuracy   | +/- 10 microns (requires MDXVG accessory)                    |   |
| SH, SC and saturation temperature accuracy                         | +/- 0.5°F (+/- 0.3°C)  |   |
| Instrument working temperature                                     | -4.0 °F to 122°F (-20°C to 50°C)                             |   |
| Instrument communication range (with CPS Link™)                    | 300 ft. maximum (Dependent on connected device capabilities) |   |
| Instrument working RH range  | 0% to 100% non-condensing                                    |   |
| APO (Automatic Power Off)  | 10 minutes. Can be disabled by user.                         |   |
| MD100 size (L x H x W)   | 8.1" x 3.5" x 7.0" (20.5 cm x 8.9 cm x 17.8cm)               |   |
| MD50 size (L x H x W)  | 8.1" x 2.5" x 7.0" (20.5 cm x 6.4 cm x 17.8cm)               |   |
| MD100 weight   | 3.3 lb. (1.5 kg)   |   |
| MD50 weight  | 3.0 lb. (1.4 kg)   |   |
| Display Life using 4 industrial alkaline AA batteries (included)   | Backlight full ON:   | 25+ hrs. continuous duty                  |
|  | Backlight full OFF:  | 60+ hrs. continuous duty                  |
| Display Life using 4 Rechargeable NiMH AA batteries (not included) | Backlight full ON:   | 20+ hrs. continuous duty from full charge |
|  | Backlight full OFF:  | 50+ hrs. continuous duty from full charge |

### MDXVG Vacuum Gauge Specifications

|                                |   |                      |
|--------------------------------|---|----------------------|
| Sensor Type                    | Self - heated thermistor bridge with integral temperature compensation from 0 to 50 °C (32 to 122 °F).          |                      |
| Display Pressure Range         | AUTO-RANGING SCALES:  |                      |
|                                | 0 to 99 microns   | 1 micron resolution  |
|                                | 100 to 990 microns  | 10 micron resolution |
|                                | 1000 to 9900 microns  | 20 micron resolution |
|                                | 10000 to 25000 microns  | 50 micron resolution |
| Accuracy                       | +/- 10% of reading or +/- 10 microns, whichever is greater  |                      |
| Operating Temperature Range    | Compensated (accuracy as stated): 0°C TO 50°C (32°F TO 122°F)   |                      |
|                                | Non-compensated (add +/- 0.5% of reading error for every °C outside compensated range): -10 to 0°C (14 to 32°F) |                      |
| Operating and Storage Humidity | 0 to 95%, non-condensing  |                      |
| Storage Temperature            | -40 to 85°C (-40 to 185°F)  |                      |

### MDXBK Charger Specifications

|                                 |   |
|---------------------------------|---|
| Operating Temperature Range     | 32°F to 122°F (0°C to 50°C)   |
| Operating and Storage Humidity  | 0-95%   |
| Power Source                    | 100-240VAC input, 9VDC 2.0 amp maximum output                                   |
| Battery Type                    | AA size, NiMH rechargeable, approximate battery life is 20,000 to 50,000 hours* |
| Rechargeable Battery Cycle Life | 1000 recharges *based on usage with or without the LCD backlight energized.     |



**Distinctive Display Box**  
(With **Clear Window**) for Select  
MD50W & MD100W Manifolds