

# MODIS™ Ultra EEMS328

## BID SPECIFICATION



### Snap-on® MODIS™ Ultra Multifunction Diagnostic System

#### PRODUCT FEATURES

- Integrated multifunction diagnostic & information system
- Upgradeable software
- 2-channel lab scope with Guided Component Tests
- Digital & graphing multimeter
- Color graphing scan tool
- Domestic and Asian Fast-Track® Troubleshooter
- Data manager function
- Keyless scan adapter for OBD-II compliant vehicles
- Steady-charge battery technology charges directly from vehicle via data cable

#### DISPLAY

- 8" Color, 800 x 480 resolution, resistive touch panel, backlit LCD

#### SYSTEM & USER INTERFACE

- SMX embedded dedicated operating system
- Touchscreen navigation

#### STANDARD ACCESSORIES

- Keyless OBD-II vehicle communication interface cable for 1996-newer vehicles
- Two shielded, color-coded scope leads
- Two insulated test probes
- Three insulated test clips
- 110VAC power adapter
- Removable Lithium-ion battery pack
- Custom-fit organizer trays
- USB cable
- Quick-start guide

#### SCAN TOOL SPECIFICATIONS

- Snap-on vehicle communication and Fast-Track Troubleshooter software included
- Reads & clears OBD-II and OEM-specific trouble codes
- Displays complete trouble code descriptions
- Displays from one to four live data parameters (PIDs) simultaneously in graphing mode
- Displays seven live data parameters (PIDs) simultaneously in text mode
- Adjustable sweep; Min/Max capture in graphing mode
- Includes functional tests, bidirectional controls and reset/relearns

- Save screen captures and scanner movies
- Saves and stores previous vehicle identification
- Software coverage for 1980-newer US Domestic, 1983-newer Asian Import and optional coverage for 1992-newer European vehicles
- Optional European vehicle software with enhanced coverage for Audi, BMW, Fiat, Jaguar, Land Rover, MINI, Mercedes, Porsche, SMART, Volvo and VW

#### GLOBAL OBD-II VEHICLE COMMUNICATION SOFTWARE

- Communicates with 1995 and newer EOBD/OBD-II compatible vehicles
- Automatically establishes communication with the appropriate vehicle protocol

#### Covers 10 Modes of OBD-II

- Mode 1: graphs or displays current data
- Mode 2: retrieves freeze frame data
- Mode 3: monitors diagnostic trouble codes
- Mode 4: clears emissions related data
- Mode 5: oxygen sensor monitoring
- Mode 6: non-continuously monitored systems
- Mode 7: diagnostic trouble codes detected during last drive
- Mode 8: bi-directional controls (where available)
- Mode 9: displays important vehicle information
- Mode 10: permanent codes

#### GM VEHICLE COMMUNICATION SOFTWARE 1980 – 2014

- Enhanced OBD-I, OBD-II & Generic OBD-II modes
- Engine/Powertrain, Transmission, ABS, Airbag, Body, Instrument Panel, Vehicle Theft Deterrent, Tire Pressure Monitor, Transfer Case, Trailer Brake Control, HVAC, Suspension, Keyless entry, Climate control Diagnostics, Code Scan, Clear All Codes, Seats, Parking Brake, Steering Angle, Auto-ID
- Seat Modules
- Rollover Sensor for Safety Systems
- 6.6L Crankshaft Position (CKP) Sensor Test
- Passenger Presence
- Diesel Power Balance Test
- Vehicle Theft Deterrent Codes, Data & Indicator Status
- Radio Systems Codes, Data & Test Including VIN Write
- HVAC Actuator & Recalibration
- 6.6L Turbo Tests
- Theft Deterrent, Keyless Entry and Remote Function Actuation
- ABS & Air Bag GM symptom codes
- Brake Pedal Pressure (BPP) Relearn
- Engine Bi-Directional Testing, incl. EVAP Monitor Test and EVAP System Testing, Output Controls, Injector Balance, ICB, IAC, EGR, Crank Pos Relearn
- Particulate Filter Replacement & Fuel Filter Life Reset Function – Diesel engines where applicable
- Transmission Bi-Directional Testing, incl. Solenoid Tests, Trans Shifting and Adaptive Resets
- ABS Diagnostics and Brake Bleeding
- Dash and Rear Integration Modules
- 2004 and newer Key Fob Programming
- HVAC codes, data, functional test, calibrations
- Air suspension system codes, data, functional test

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### FORD VEHICLE COMMUNICATION SOFTWARE 1981 – 2014

- Enhanced OBD-I, OBD-II & Generic OBD-II modes
- Engine, Transmission, ABS, Airbag, Occupant Classification, Body/GEM, Instrument Panel, Anti-Theft, Transfer Case, GEM, 4x4 Module, Tire Pressure Monitor, Door modules, Driver's Seat, Sliding Door, Liftgate Trunk, Power Running Boards, Lighting Control, Auto Temp Control/HVAC, Navigation, Parking Aid, Electric Power Steering, Battery Control Diagnostics
- Battery Monitor
- Crankshaft Position (CKP) Relearn
- Engine Functional Tests
- EVAP
- Code Scan and Clear All Codes
- CAN UDS Auto-ID
- OEM Sub codes
- Diesel Particulate Filter (DPF) tests and Manual Regeneration
- Ford/Lincoln Air Suspension Re-calibration
- Engine Bi-Directional Testing, incl. EEC V engine controls, EVAP System Testing, Cold Soak Test, 7.3 Powerstroke Cylinder Contribution
- EGR functional test & Injector power balance 6.0 diesels
- Vane Turbo Functional Test 6.0 diesel
- Cylinder Contribution test – includes non-CAN, CAN and UDS Vehicles, where applicable
- Transmission Bi-Directional Testing, incl. Transmission Bench and Drive Tests, Gear Command, Adaptive Learning, Trans Table Resets
- ABS Diagnostics, Brake Bleeding and Pump Motor Test, incl. Bosch, Teves, and Kelsey-Hayes
- Air suspension codes, data, functional test

### CHRYSLER VEHICLE COMM SOFTWARE 1983 – 2014

- Enhanced OBD-I, OBD-II & Generic OBD-II modes
- Engine, Transmission, ABS, Airbag, Body, Occupant Classification Module, TPMS, Electronic shifter, HVAC, Steering angle sensor, ESP, Door Modules, Park Assist, Central Gateway, Instrument Panel, Transfer Case Diagnostics, Code Scan
- Sub Codes
- 6.7L Transmission Quick Learn
- Pinion Factor
- Diesel Exhaust Fluid (DEF) Tests
- Engine Misfire Detection
- Diesel Cylinder Performance Test
- DPF Stationary De-Soot
- NAG Transmission Resets & Initialization
- Engine Bi-Directional Testing, incl. Actuator Tests, Forced EVAP Monitor Test, Set RPM/IAC Test, Purge Vapors Test, EGR System Test, ETC Throttle Follower Test, Misfire Counters, Generator Field, PCM VIN Programming
- Particulate Filter Replacement & Fuel Filter Life Reset Function – Diesel engines where applicable
- Transmission Bi-Directional Testing, incl. EMCC Reset, Quick Learn, Quick learn CAN, Battery Disconnect
- ABS brake bleed incl. Kelsey-Hayes, Teves, Bendix
- Body ATM Tests, incl. Door Locks, Lights, Chimes, Horn, Wipers, Sunroof and Overhead Module
- TPMS including sensor ID function

### ASIAN VEHICLE COMM SOFTWARE 1983 – 2014

- Enhanced OBD-I, OBD-II & Generic OBD-II modes
- In-depth Engine (including Hybrid), Transmission, Airbag & ABS, HVAC, Instrument, TPMS, Cruise Control, Code Scan, Clear All Codes, Power Steering coverage for popular Asian Import vehicle makes:
  - Acura, Daihatsu, Honda, Hyundai, Infiniti, Isuzu, Kia, Lexus, Mazda, Mitsubishi, Nissan, Scion, Subaru, Suzuki, Toyota
- Toyota Multiple Freeze Frame
- Mazda Sub Codes
- Suzuki Code Scan
- Nissan Electronic Power Steering (EPS)
- Honda Adaptive Cruise, Collision and Lane Module, Blind Spot Info
- Hyundai/Kia Electronic Park Brake
- Toyota Push Start Button
- Toyota Electronic Activated Control (EAC) Mounts
- Toyota/Mazda Auto-ID
- Suzuki 4WD and Power Steering
- Toyota/Lexus/Scion Transmission, Park Brake and Main Body
- Nissan/Infiniti HVAC Codes, Data & Test
- Suzuki HVAC Codes, Data & Test
- Mazda EVAP Test
- Hyundai & Kia Power Intelligent Control System
- Honda Civic and Acura Hybrid Brake
- Suzuki TPMS Systems
- Toyota Air Injection Test
- Mazda ABS Function Tests
- Lexus Air Suspension
- Toyota VIN Writing, Immobilizer System, Engine Memory Reset and Door/Mirror Modules
- Honda & Acura Occupant Detection
- Nissan Intelligent Cruise Control
- Hyundai, Kia and Mitsubishi PCM VIN Write
- Honda/Acura TPMS coverage including tire registration
- Honda active cruise control
- Honda VIN programming
- Hyundai and Kia power balance tests
- Subaru TPMS
- Nissan/Infiniti body control modules

### DOMESTIC/ASIAN IMPORT DRIVEABILITY

#### FAST-TRACK® TROUBLESHOOTER

General Motors, Ford, Chrysler/Jeep, Acura, Daihatsu, Honda, Hyundai, Infiniti, Isuzu, Kia, Lexus, Mazda, Mitsubishi, Nissan, Subaru, Suzuki, Toyota

- Domestic 1980 – 2014
- Asian Imports 1983 – 2014
- Troubleshooter procedures that verify a repair is completed and fixed properly
- Exclusive experience-based information
- Over 6.8 Million VIN-specific Troubleshooter Tips
- Exclusive VIN-Specific troubleshooting and systems code tips, no-code tips, no-start tips, driveability symptoms and frequent component failures
- Enhanced OBD-II Fast-Track data scan tips reflect manufacturer-specific enhanced dataStream capabilities
- Component locators
- Service procedures and specifications

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- Code set specifications
- Fast-Track wiring diagrams, VIN-specific service bulletins and procedures
- Enhanced diesel symptom tips
- Enhanced functional test descriptions
- Firing orders and cylinder locations

### DOMESTIC/ASIAN IMPORT TRANSMISSION

#### FAST-TRACK TROUBLESHOOTER

- Domestic 1981 through 2014 model year
- Asian import 1983 – 2014
- Electronic Controlled Transmission/transaxle coverage
- Technical service bulletins
- Enhanced Fast-Track data scan tips
- Transmission functional test insight
- Hundreds of transmission wiring diagrams

### DOMESTIC/ASIAN IMPORT ABS, BODY, AIRBAG

#### FAST-TRACK TROUBLESHOOTER

- Solutions for ABS-related codes through 2014 models
- Symptom-based tips for 2014 models and earlier
- 24 vehicle makes supported
- Additional reference material and service bulletins
- Electronic steering & alignment functions

### FAST-TRACK TROUBLESHOOTER REFERENCE

#### DATABASE

- Codes in the tool provide user reference to lookup related information at [www.askatech.com](http://www.askatech.com) for 24 vehicle makes
- OEM-sourced information. Including diagnostic reference information from TSBs, service manuals, test procedures, vehicle specifications, schematics, wiring diagrams, and more
- Coverage for drivability, transmissions and brake systems

**NOTE:** Scan tool coverage varies by model. Information current as of 3/3/2015. Subject to change without notice.

### LAB SCOPE SPECIFICATIONS

**Two-Trace Scope:** Captures and displays live signals up to two waveforms on screen in real time.

Sample rate rate up to 6 million samples per second on one channel (at 50 us sweep).

Sample rate rate up to 3 million samples per second on two channels (at 100 us sweep).

**Note:** Also see SCOPE/METER SYSTEM SPECIFICATIONS at end of this document

- Displays digital readout along with each waveform to determine voltage at the selected point on the waveform
- Color-coded waveform for each channel
- Manual & automatic display and trigger configuration
- AC Coupling: Provides the ability to enlarge the alternating current (AC) component of a signal for closer examination
- Invert: Flip waveform to adjust for flexible hookups and easier viewing
- Peak Detect: User selectable for capturing hi-speed signals

### DIGITAL & GRAPHING MULTIMETER SPECIFICATIONS

- Auto scaling, high-impedance multimeter measurement system
- Digital and graphing display of results
- Pinpoint measurement of:

- DC volts, AC Volts RMS, Ohms, Frequency, Pulse-width, Injection pulse-width, Duty cycle,
- Interface for optional amp probe and pressure/vacuum transducers
- Continuity tester with audible beep

### FAST-TRACK® GUIDED COMPONENT TESTS

- Built-in Guided Component Test software
  - Coverage for over 40 domestic, Asian and European makes; 1979-newer
  - Guided test procedures for over one million components
  - Test coverage for sensors, solenoids, injectors, charging/starting systems, ignition, motors, pumps, ABS and more
  - Automatic meter setup and presets
  - Connector diagrams and connection tips
  - Component description and operation
  - Known good test values
  - Waveform library
- 10 Minute Training Class modules

### POWER/WEIGHT/DIMENSIONS

- Battery: Lithium-ion battery pack included
- Dimensions: 12.5"W x 6.5"H x 2.0"D
- Weight: 3.2 lbs

### OPTIONAL ACCESSORIES – SCAN TOOL

- Domestic/Asian OBD-I Adapter Kit 1 – EAK0301B08A
- Domestic/Asian OBD-I Adapter Kit 2 – EAK0288B04B
- European Vehicle Software/Adapter Kit – EESP328EUA (1992 – newer BMW, 1992 – newer VW/Audi, 1992 – newer Mercedes-Benz, 2000 – newer Jaguar, 2000 – newer Land Rover, 1996 – newer MINI, 2000 – newer Volvo, 2005 – newer SMART)
- European Vehicle Adapter Kit – EAK0301B07B
- Adapter for Kia ABS & Airbag – EAA0355L92A

### OPTIONAL ACCESSORIES – IGNITION ADAPTERS

- Secondary Coil Adapter Lead – EETA309A05A
- EETM306A02 – Secondary Ignition clip-on Wire Adapter
- EETM306A03 COP-1 Ford
- EETM306A04 COP-2 Chrysler
- EETM306A05 CIC-2 Honda, Toyota
- EETM306A06 CIC-1 GM
- EETM306A07 COP-3 Audi, VW
- EETM306A08 COP-4 Acura/Honda, Isuzu
- EETM306A09 COP-5 Volvo/BMW
- EETM306A10 COP-6 Mercedes
- EETM306A11 COP-7 Mercedes Dual
- EETM306A12 COP-8 BMW
- EETM306A13 COP-9 Lexus
- EETM306A14 COP-11 Audi, BMW, Chrysler, Jeep, Lexus, Mercedes, Saab, Toyota, Volvo, VW

### OPTIONAL ACCESSORIES – LAB SCOPE/METER

- Precision low amp current probe - EETA308D
- 100 PSI Pressure/Vacuum transducer w/cable - EEPV302AL
- 500 PSI Pressure transducer w/cable - EEPV302AT
- 5000 PSI Pressure transducer w/cable - EEPV302AH
- Note: Pressure transducers require optional pressure transducer adapter – EEMS324PSA
- Pressure transducer extension cable - EAX0024B30A
- Waveform emulation demo board - EESX306A

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## **OPTIONAL ACCESSORIES – PROTECTION AND ORGANIZATION**

- Silicone protective skin, black - EAC0111L51A
- Foam drawer organizers for 3-series carts – VERUSUFOAM3
- Foam drawer organizers for 4-series carts – VERUSUFOAM4
- Screen protector 3-pack - EAC0111L76A3

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## SCOPE/METER SYSTEM SPECIFICATIONS

### MULTIMETER

| Function                                  | Range                  | Comments               |
|---|------------------------|------------------------|
| Channels                                  | 1 – 2                  | Common Ground          |
| Sample Rate                               | 6.0 MSPS @ 50us sweep  | Simultaneous           |
|   | 3.0 MSPS @ 100us sweep | Continuous per channel |
| Bandwidth                                 | DC – 3 MHz             | 3 db point @ 3 MHz     |
| Input Impedance                           | 10 MΩ @ DC             | All channels           |
|   | 4 kΩ @ 3MHz            |                        |
| V dc (Full Scale)                         | 75 V maximum           |                        |
| V ac (Full Scale)<br>Peak to Peak Voltage | 50 V maximum           |                        |

### DIGITAL METER OHMS AND DIODE CONTINUITY TESTS

| Function        | Range               | Comments                                   |
|-----------------|---------------------|--|
| Channels        | 1-2                 | Inputs between channels<br>1 (-) and 2 (+) |
| Input Impedance | 10 MΩ               |  |
| Glitch capture  | Approximately 50 mS |  |
| Ohms            | 400 Ω – 4 MΩ        | Fixed scales or Auto<br>Ranging            |
| Diode Test      | 2 V Scale           |  |

### GRAPHING MULTIMETER

| Function          | Range                        | Comments               |
|-------------------|------------------------------|------------------------|
| Input Channels    | 1 – 2                        |                        |
| Input Impedance   | 10 Megohm                    |                        |
| Volts (DC)        | 400 mV thru 400V*            | Auto Ranging           |
| Frequency         | 5 Hz thru 50 KHz             | Auto Threshold Setting |
| Pulse Width       | 5 ms thru 2 s                | Auto Threshold Setting |
| Inj Pulse Width   | 5 ms thru 2 s                |                        |
| MC Dwell (60)     | 20 - 40 - 60 degrees         | Auto Threshold Setting |
| MC Dwell (90)     | 30 - 60 - 90 degrees         | Auto Threshold Setting |
| Duty Cycle        | 20 - 40 - 60 - 80 - 100%     | Auto Threshold Setting |
| Low Amps (20)     | 1 - 2 - 5 - 10 – 20A         | With EETA308D          |
| Low Amps (40)     | 10 – 20 - 40A                | With EETA308D          |
| Low Amps (60)     | 10 – 20 – 40 – 60A           | With EETA308D          |
| Vacuum            | 5 - 10 – 20 in Hg            | Sensor specific        |
| 100 psi Pressure  | 10 - 25 - 50 - 100 PSI       | Sensor specific        |
| 500 psi Pressure  | 50 - 100 - 250 - 500 PSI     | Sensor specific        |
| 5000 psi Pressure | 500 - 1000 - 2500 - 5000 PSI | Sensor specific        |

\* See Safety Warnings in MODIS Ultra user manual

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### LAB SCOPE

| Function   | Range   | Comments           |
|--|---|--------------------|
| Channels   | 1 – 2   | Common Ground      |
| Bandwidth  | DC - 3 MHz  | 3 db point @ 3 MHz |
| Input Impedance  | 10 MΩ @ DC<br>4 kΩ @ 3MHz   | All channels       |
| VDC (full scale)<br>Do not test greater than 75Vdc                               | 400 Volts<br>200 Volts<br>100 Volts<br>50 Volts<br>20 Volts<br>10 Volts       |                    |
| VAC (full scale)<br>Peak to Peak Voltage<br>Do not test greater than 50Vac (rms) | 5 Volt<br>2 Volt<br>1 Volt<br>500 millivolt<br>200 millivolt<br>100 millivolt |                    |
| Secondary Ignition   | 1 – 50 KV   | Channels 1 and 2   |

### LAB SCOPE SPECIFICATIONS BY SWEEP RATE

| Sweep  | Channels | Data points per screen | Buffer storage/Ch | Max # Screens | Total time <sup>1</sup> | Sample rate <sup>2</sup> | Peak Detect <sup>3</sup> |
|--------|----------|------------------------|-------------------|---------------|-------------------------|--------------------------|--------------------------|
| 50 μs  | Ch 1     | 300                    | 524,288           | 1747          | 87.3 ms                 | 6.0 MHz                  | N                        |
| 100 μs | Ch 1,2   | 300                    | 261,120           | 870           | 87.0 ms                 | 3.0 MHz                  | N                        |
| 200 μs | Ch 1,2   | 300                    | 131,040           | 436           | 87.2 ms                 | 1.5 MHz                  | N                        |
| 500 μs | Ch 1,2   | 500                    | 131,070           | 262           | 131 ms                  | 1.0 MHz                  | N                        |
| 1 ms   | Ch 1,2   | 500                    | 131,040           | 262           | 262 ms                  | 500 KHz                  | Y                        |
| 2 ms   | Ch 1,2   | 500                    | 131,040           | 262           | 524 ms                  | 250 KHz                  | Y                        |
| 5 ms   | Ch 1,2   | 500                    | 131,040           | 262           | 1.3 S                   | 100 KHz                  | Y                        |
| 10 ms  | Ch 1,2   | 500                    | 131,040           | 262           | 2.6 S                   | 50 KHz                   | Y                        |
| 20 ms  | Ch 1,2   | 500                    | 131,070           | 262           | 5.2 S                   | 25 KHz                   | Y                        |
| 50 ms  | Ch 1,2   | 500                    | 131,070           | 262           | 13.1 S                  | 10 KHz                   | Y                        |
| 100 ms | Ch 1,2   | 500                    | 131,070           | 262           | 26.2 S                  | 5 KHz                    | Y                        |
| 200 ms | Ch 1,2   | 500                    | 131,070           | 262           | 52.4 S                  | 2.5 KHz                  | Y                        |
| 500 ms | Ch 1,2   | 500                    | 131,070           | 262           | 2.2 M                   | 1.0 KHz                  | Y                        |
| 1 s    | Ch 1,2   | 500                    | 131,070           | 262           | 4.3 M                   | 500 Hz                   | Y                        |
| 2 s    | Ch 1,2   | 500                    | 131,070           | 262           | 8.7 M                   | 250 Hz                   | Y                        |
| 5 s    | Ch 1,2   | 500                    | 131,070           | 262           | 21.8 M                  | 100 Hz                   | Y                        |
| 10 s   | Ch 1,2   | 500                    | 131,070           | 262           | 43.7 M                  | 50 Hz                    | Y                        |
| 20 s   | Ch 1,2   | 500                    | 131,070           | 262           | 87.3 M                  | 25 Hz                    | Y                        |

\* See Safety Warnings in MODIS Ultra user manual

1 - Total time is equal to the sweep times the number of screens.

2 - Actual sample rate for sweeps 50-200 μs. Effective sample rate for sweeps 500 μs and longer. The effective sample rate is based on the number of sample points stored to the data buffer memory over the selected time sweep. On all sweeps 500 μs and longer, the ADC samples at 1.5 MHz per channel regardless of sweep. The number of sample points is greater than the number of points needed to complete a screen. Only enough points to complete a screen are selected to be stored to the data buffer. This results in the effective sample rate being lower than the actual sample rate of 1.5MHz.

3 - When Peak Detect is on, all samples are evaluated. The points stored to the buffer are intelligently selected to capture fast events that might be missed at slower effective sample rates. Peak Detect will capture fast changes at an effective sample rate of 1.5MHz.