

# Industry Firsts\*

## 1968 – 2004

### *Sensors, controls, displays, annunciators*

- First vehicle Illuminated Entry System; General Motors
- First integrated Backlite Timer System (BLT); General Motors, Ford
- First solid state liquid level alarm (Level Guard™); General Motors
- First solid state integrated voltage sensor & alarm (Voltron®); UPS
- First multiple sensor integrated alarm (Bark®); Freightliner, Kenworth
- First audio/visual electronic alarm (Buzz-Lite®); Peterbilt, Kenworth
- First solid state automotive relay; General Motors
- First “1x1x1” automotive relay (Minipower®); General Motors, Ford
- First self canceling truck turn signal system; Kenworth
- First integrated solid state sensors/controls (Smart Power®); General Motors
- First solid state flasher; Oshkosh
- First solid state LED vehicle lamp assembly; Ford, General Motors
- First production smart card door lock system (Saflok)
- First drunk-driver interlock system, Michigan
- First integrated glove box switch/light; General Motors, Ford, Chrysler

### *Microprocessor based systems*

- First electric power steering system; General Motors
- First production drive-by-wire system; General Motors
- First electronic cruise control; General Motors
- First in-dash computer (GM Graphic Control Center)
- First operator interactive (HMI) computer system; General Motors
- First “talking car”; production; General Motors
- First electronic chime; General Motors, Ford
- First voice operated vehicle control system (“Close 2000”); General Motors
- First hands-free vehicle telephone system; General Motors
- First Keyless Entry System; General Motors, Ford
- First solid state glow plug controller; Detroit Diesel, AM General
- First automotive industry Surface-Mount high volume production assemblies; General Motors; Ford
- First road sensing dynamic suspension sensors; General Motors, Ford
- First multi-turn solid state rotary position sensor; General Motors
- First ambient light sensor/alarm; General Motors
- First solid state pedal pressure sensor (Smart Pedal®); General Motors
- First solid state vehicular switches (DC and AC) (Smart Touch®)
- First solid state interactive displays/touchscreens; General Motors, GE
- First full electronic controlled gas range (Smart Flame™)
- First low cost pressure sensor (molecule counter); TRW
- First automotive seat massage system; General Motors
- First solid state PWM lamp dimmer system; Ford, Toyota, General Motors

## 2005 -

### *Further system integration of SENSE→COMPUTE→CONTROL®*

- First high performance centrifugal HVAC compressor; Ford
- First solid state turbidity fluid sensor (“photon counter”); GE
- First “Smart” dishwasher: auto sensing soiled dishes; GE
- First air driven automotive turbine generator; Ford
- First high performance integrated oven & range; Magic Chef
- First diesel Quick-Start electrical control system; GM Diesel
- First touch screen user volume production; E-One
- First scrollable solid state input system; SANYO
- First non-contact anti-trap window closure systems (Smart Close®); SANYO
- First convertible roof closure *non-contact* anti-entrapment systems; ASC
- First RFI motor suppressor; General Motors, Ford
- First low cost integrated seat/door/IP cockpit control system; Chrysler
- First Smart VOV™ high performance refrigerant control; General Motors
- First adaptive, high efficiency, ice cuber system; Scotsman
- First fully integrated variable fuel delivery CAFE system; GM, Chrysler
- First operator interactive gen-set control system; E-One, Pierce
- First high accuracy, solid-state fuel level sensor; Harley Davidson
- First FMVSS hot fluid windshield cleaning system (ClearFast®); Delphi
- First SAE J-1939 multiplex genset system; E-One, Pierce
- First touch screen (electronic) interactive system; Chrysler 200C (iQ Power®)
- First volume production iPad-like centerstack; GM
- First fully autonomous vehicle trailer connect system (AVTCS); Chrysler
- First gesture keyless entry and control systems; General Motors
- First glass keypad keyless entry systems; Ford
- First autonomous trailer-tow safety park system; Chrysler

\*These are Nartron patented products

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partial list Rev. 3/15