

BMW Motorcycle Diagnostics Overview

Physical Layer & Protocol

The basics of diagnostics on the the bikes has remained relatively stable since the introduction of fuel injection. ISO standards ISO 9141 & 14230 KWP2000 are utilised for communications.

Preprogrammed ECU's (Early Models) K & R Series - Bosch Motronic MA 2,2 & 2.4

Programmable ECU's (1999 onwards)

K/R Series – Bosch ECU C1/F/G/X 650 Singles – Hella ECU G450X – Keihin ECU

Communication is 3 wire or 4 wire OBDII K-Line adhering to ISO 9141-2 physical layer and ISO 14230 KWP2000 (Keyword Protocol 2000) protocol. Secondary vehicle electronics such as ABS is on a separate diagnostics circuit for most machines with the F/G series singles being the exception.

The K1600 is the first model to move to CAN for diagnostics communication.

Dealer Diagnostic Systems

There have been 3 generations of dealer diagnostics systems.

Generation 1 Moditec

Windows 95 PC based system communicating via TCP/IP to a Teraydne Komet interface which has the firmware for K Line communications to the bikes. Written by Genrad

Generation 2 GT1

GT1 hardware from car division & Windows XP based PC System communicating via TCP/IP to a Teraydne Komet interface which has the firmware for K Line communications to the bikes as per the Moditec.

Generation 3 ISIS / ISTA-P / ISTA-D

A client server system common to the car division with communication via TCP/IP to new ICOM vehicle interfaces.

The client PC can be either a customised touch screen tablet or a workshop PC.

The system can be completely in-house at the dealer or operate via the internet back to servers in Europe. Updates to the system are now normally done on-line via the internet.

Dealer Vehicle Interfaces

Communications between the diagnostics system and machine is via either ethernet to an intelligent interface or a J2534 pass through cable. The BMW interfaces are shown below.

Moditec/GT1

These systems used interfaces from Terradyne.

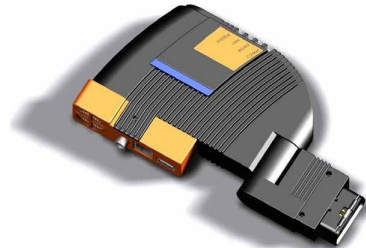
The later one is a Komet Interface which uses a number of adaptor cables for connection to different models. (GT1 only in pic)



ICOM-A

This is the LAN to car & bike interface used by dealers with the new ISIS/ISTA diagnostics systems. It uses adaptor cables to connect to the proprietary BMW diagnostics sockets

There is a new version being released in 2012



ICOM-D

This is the dealer bike adaptor cable which fits ICOM-A. For models 2000 onwards



ICOM-E

This is the ICOM adaptor cable for the early model K & R series bikes with 3 pin diagnostics sockets

Sorry, no pic available

IMIB

Integrated Measurement Interface Box

This is the new LAN connected electrical test unit



J2534 Passthru

A “pass thru” device is a serial or USB to OBDII interface. BMW have certified ACTIA devices but also use Omitec. Adaptor cables are used to suit individual vehicles. Protocols K-Line/CAN & others

