

2002-07 GENERAL INFORMATION

DISplus - Overview - MINI

DISPLUS

DISPLUS

Purpose of the System

The purpose of the DISplus is to meet the challenges for present and future generation BMW group vehicles.

The functions of the DISplus that are:

- Diagnosis Program
- Measurement Techniques
- Remote Controller for the SSS to perform Coding Individualization and Programming

The DISplus has Network capability and allows for any necessary upgrades in the future to keep up with the vehicle technology to come.



Fig. 1: DISplus Tool
Courtesy of BMW OF NORTH AMERICA, INC.

Specifications:

- 500Mhz Intel Pentium™ III processor

- 128MB RAM
- 13.6 GB hard drive
- DVD drive
- Sound card with 2 speakers
- Network card for LAN connection (connected to the Service Department network)
- Additional SVGA output for connection to an external monitor
- 15" TFT touch screen monitor
- Vehicle communication via a diagnostic head (Radio frequency)

System Components

Monitor

The DISplus uses a 15" TFT (Thin Film Transistor) monitor. It has a pressure sensitive touch screen controller to direct the cursor movement.

The monitor is attached to the DISplus by a 15" cable that allows it to be used either on the swivel stand or remotely, e.g. inside of a vehicle.



Fig. 2: DISplus Monitor

Courtesy of BMW OF NORTH AMERICA, INC.

Main Power Switch

The main power switch is located in the upper right hand side, at the rear of the DISplus.

The main switch is turned on first, before turning the DISplus on from the front panel. The System Status LED on the front panel should illuminate amber when the main power has been turned on.

Circuit breakers are located below the DISplus computer. If the unit fails to power-up, check the reset of the circuit breakers before calling for service.



ON/OFF Switch

Rear Panel

Fig. 3: ON/OFF Switch Rear Panel

Courtesy of BMW OF NORTH AMERICA, INC.

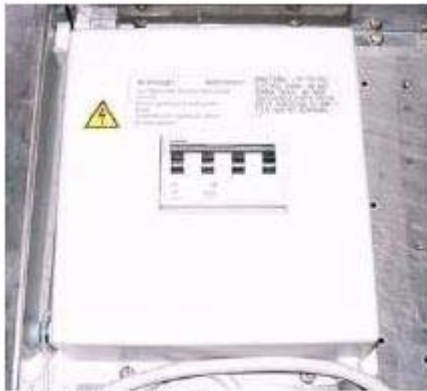


ON/OFF Button & Statue LEDs

Front panel

Fig. 4: ON/OFF Button And Statue Leds Front Panel

Courtesy of BMW OF NORTH AMERICA, INC.



Circuit Breaker

Under CPU (base)

Fig. 5: Circuit Breaker Under CPU (Base)
Courtesy of BMW OF NORTH AMERICA, INC.

System Indicators and ON/OFF Button

After the main power switch has been turned on, the DISplus is powered up by pressing the on/off button on the front panel.

During power up, LED 2 will illuminate. When the process is complete, the System Status LED changes from amber to green.

The fault indicator, LED 3, illuminates amber when there is a fault with the DISplus.



Fig. 6: System Indicators And ON/OFF Button
Courtesy of BMW OF NORTH AMERICA, INC.

DVD and 3.5" Floppy Drive

The DVD and Floppy drives are located behind a door on the right side of the unit.

The Floppy drive is used for the boot-up disk when loading the Diagnosis Program.

The DVD drive is used to load the Basis and Program CDs for Diagnosis.

The TIS CD is also loaded in the DVD drive and remains in the drive for the computer to access during TIS operation.



Fig. 7: DVD And 3.5" Floppy Drive
Courtesy of BMW OF NORTH AMERICA, INC.

RF Access Point

The access point is the transfer device between the hardwired LAN network and the radio frequency assisted LAN.

The DISplus is connected to the access point via a network LAN cable. The access point then communicates with the Diagnostic Head using a radio frequency LAN link.



Fig. 8: RF Access Point
Courtesy of BMW OF NORTH AMERICA, INC.

Diagnostic Head

The DISplus uses a Diagnostic Head similar to the DISplus III as the communication link between the DISplus and the vehicle electronics.

The Head receives operating power when the diagnosis cable is connected to the vehicle.



Fig. 9: DISplus Diagnostic Head
Courtesy of BMW OF NORTH AMERICA, INC.

Communication between the DISplus and the Head can occur two ways:

- Radio frequency (maximum 30m distance)
- Hard wired to the network or DISplus

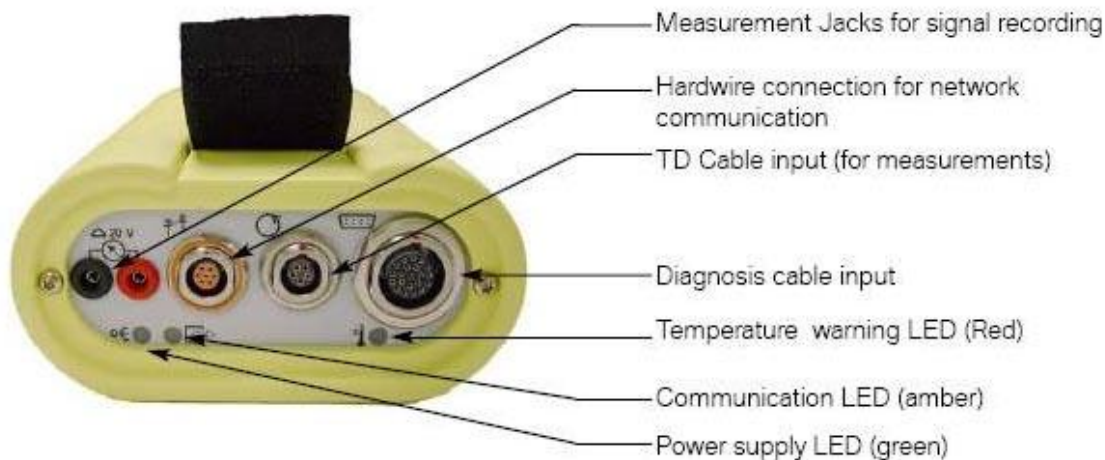


Fig. 10: Communication Between DISPlus And Head
Courtesy of BMW OF NORTH AMERICA, INC.

2006 MINI Cooper

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Signal recorder button
(currently not used)

Serial interface connection



Fig. 11: Signal Recorder Button And Serial Interface Connection
Courtesy of BMW OF NORTH AMERICA, INC.

DISplus Cables and Leads

DISplus Cables:

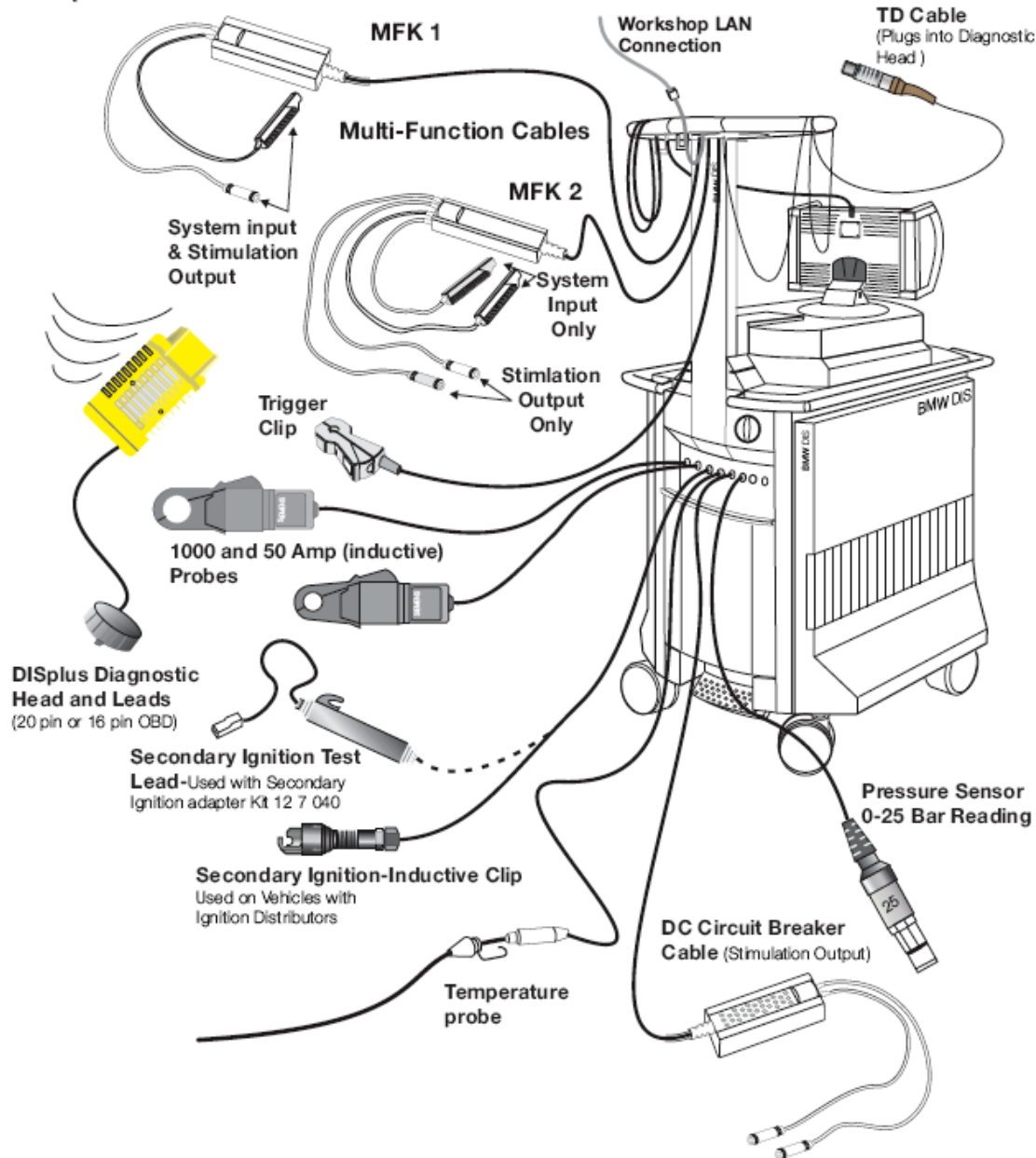


Fig. 12: DISplus Cables And Leads
 Courtesy of BMW OF NORTH AMERICA, INC.

Diagnostic Cable

20 and 16 pin cables are provided for connection between the vehicle diagnostic socket and Diagnostic Head.



16 pin OBD II connector

Fig. 13: 16 Pin OBDII Connector

Courtesy of BMW OF NORTH AMERICA, INC.



20 pin connector (not used for MINI)

Fig. 14: 20 Pin Connector (Not Used For MINI)

Courtesy of BMW OF NORTH AMERICA, INC.

Test Cables

Various test cables and the main power cable are connected to the rear of the DISplus through the conduit channel of the cable arm mast. The following test cables are stored on the arm.

LAN (Local Area Network) Connection

The LAN connection has the appearance of a large phone receptacle. It provides the connection for the DISplus to the Ethernet wiring for the Service Department Network.



Fig. 15: Test Cables

Courtesy of BMW OF NORTH AMERICA, INC.

TD (RPM input) Cable

TD is a processed engine RPM signal. The TD input cable is used for specific test modules or preset measurements that require a hard wired RPM input for measurement functions.



Fig. 16: TD (RPM Input) Cable

Courtesy of BMW OF NORTH AMERICA, INC.

Multi-Function Test Cable-MFK#1 (two cable ends)

MFK 1 is used to measure:

- Voltage - up to 50 Volts
- Current - up to 2 Amps

- Resistance
- Diode Testing
- Frequency
- Period
- Duty Cycle
- Pulse Duration
- Oscilloscope Measurements



Fig. 17: Multi-Function Test Cable-Mfk#1 (Two Cable Ends)
Courtesy of BMW OF NORTH AMERICA, INC.

Multi-Function Test Cable-MFK #2 (Four cable ends)

MFK 2 is used to measure:

- Voltage - up to 500 Volts
- Frequency
- Period
- Duty Cycle
- Pulse Duration
- Oscilloscope Measurements

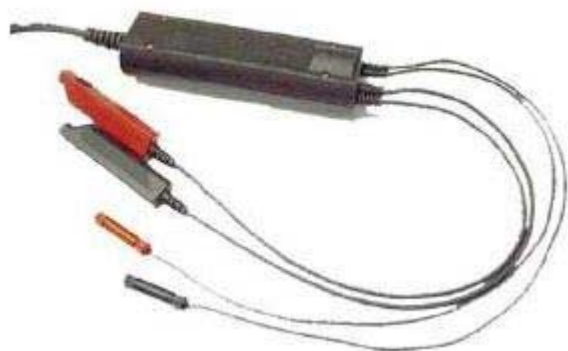


Fig. 18: Multi-Function Test Cable-Mfk #2 (Four Cable Ends)
Courtesy of BMW OF NORTH AMERICA, INC.

Both MFK 1 and MFK 2 can be used for signal outputs from the stimulate output function of the multimeter.

On MFK 2, the two large cable ends are for input only (measuring) and the two small ends are for the Stimulate Output function. MFK 1 's leads are for both measuring and stimulation.

Both large positive cable ends of MFK 1 and MFK 2 include a button used to hold the measured value on the display screen.

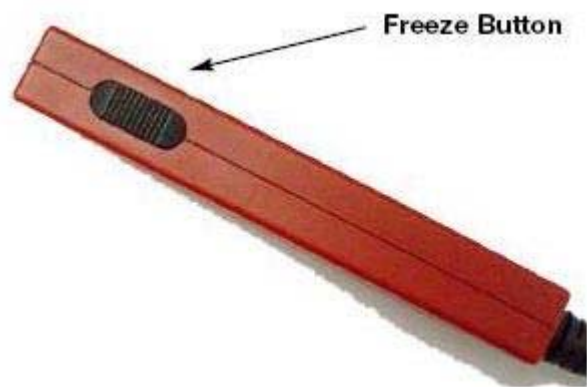


Fig. 19: Freeze Button
Courtesy of BMW OF NORTH AMERICA, INC.

Trigger Clip (inductive)

The trigger clip is used when testing ignition or fuel injection systems to establish engine firing order.



Fig. 20: Trigger Clip (Inductive)
Courtesy of BMW OF NORTH AMERICA, INC.

Additional Test Cables

There are additional test cables connected to the rear of the DISplus on the measurement system board. The ends of the cables are color-coded for easy identification.



- | | |
|----------------------------|-----------------------|
| 1. 1000 Amp probe | 5. DC Circuit Breaker |
| 2. 50 Amp probe | 6. Pressure Sensor 1 |
| 3. Secondary Ignition Clip | 7. Pressure Sensor 2 |
| 4. Temperature Sensor | 8. Future Use |

Fig. 21: Rear Displus Measurement System Board
Courtesy of BMW OF NORTH AMERICA, INC.

Secondary Ignition Test Cables

The inductive clip (1) is used when checking secondary ignition on MINI vehicles. It is clipped to the vehicle's spark plug wire.



Fig. 22: Secondary Ignition Test Cables
Courtesy of BMW OF NORTH AMERICA, INC.

50 and 1000 Amp Inductive Probes

The Amp probes measure AC and DC current. They are self-calibrating inductive pickups.



Fig. 23: 50 And 1000 Amp Inductive Probes
Courtesy of BMW OF NORTH AMERICA, INC.

Temperature Sensor

The long temperature probe measures the temperature of liquids and gasses. The measurement range is from -20°C to 200°C.



Fig. 24: Temperature Sensor Probe
Courtesy of BMW OF NORTH AMERICA, INC.

Pressure Sensor

The Pressure Sensor measures from 0 to 25 bar. There are two pressure inputs to the measuring unit that permit two different pressures to be measured simultaneously if two sensors are used.



Fig. 25: Pressure Sensor
Courtesy of BMW OF NORTH AMERICA, INC.

Notes: