Agilent 8163A/B Lightwave Multimeter
Agilent 8164A/B Lightwave Measurement System
Agilent 8166A/B Lightwave Multichannel System

Configuration Guide

February 2002_1

This guide provides configuration details for the Agilent 816x family of mainframes and modules, including options and accessories.

Agilent Technologies

8164A/B Lightwave Measurement System

Any 816x and 8156x compact modules, also 8153A modules

Agilent high performance tunable laser module- 1 per 8164A/B
Use 81645A filler module if no tunable laser is installed

Figure 1

Tunable Lasers: Low SSE modules
81480B - 1400nm page 3
81680B - 1550nm page 3
81640B - 1600nm page 3
81480A - 1400nm page 3
81680A - 1550nm page 3
81640A - 1600nm page 3

Tunable lasers: High Power modules
81672B - 1300nm, + 10dBm page 3
81482B - 1400nm, + 8.5dBm page 3
81682B - 1550nm, + 8dBm page 3
81642B - 1600nm, + 8.5dBm page 3
81682A - 1550nm, +8dBm page 3
81642A - 1600nm, +7dBm page 3

Lightwave Multimeter Modules

816xx A
816xx B
8156xA
see Figure 2

Compact tunable Laser Modules

81689A page 4
81689B
81649A

8163A/B Lightwave Multimeter

Any 816x and 8156x compact modules, also 8153A modules

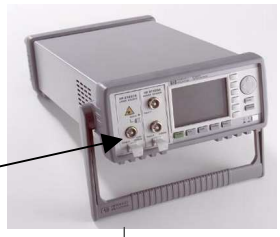


Figure 2

Light Source Modules

FP Standard Modules page 6
81650A - 1310nm
81651A - 1550nm
81652A - 1550/1625nm
81654A - 1310/1550nm

FP High Power Modules page 6
81655A - 1310nm
81656A - 1550nm
81657A - 1310/1550nm

DFB Laser Sources page 5
81662A
81663A

Compact Tunable
Laser Sources page 4
81689A
81689B
81649A

Return Loss Modules
page 10

81610A - no laser
81611A - 1310nm
81612A - 1550nm
81613A - 1310/1550nm
81614A - 1550/1625nm

Power Sensor Modules
Page 7

81630B
81634B
81635A

Fast Power Sensor Modules
Page 7

81636B
81637B

Interface Modules page 8-9
81618A – single interface
81619A – dual interface

High Power Optical Heads
81622B page 8
81626B page 8
81628B page 8
Standard Optical Heads
81623B page 8
81624B page 8
81627B page 9

Attenuator Modules

81560A page 11
81561A page 11
81566A page 11
81567A page 11

8166A/B Lightwave Multichannel System

Any 816x and 8156x compact modules
(8153 modules not allowed)

Figure 3

Lightwave Multimeter Modules

816xx A
816xx B
8156xA
see Figure 2

Information about Agilent connectors and connector interfaces can be found at http://www.agilent.com/comms/oct-accessories

High-Performance Tunable Laser Modules

For Laser Safety see page 12

Tunable Laser Sources Low SSE Modules

81480B - 1400nm
81680B - 1550nm
81640B - 1600nm
81480A - 1400nm
81680A - 1550nm
81640A - 1600nm

Tunable Laser Sources

Low SSE

Tunable Laser Sources

High Power

Option 003 Attenuator (built -in) (except 81672B)

Tunable Laser Sources High power Modules

81672B - 1300nm, + 10dBm
81482B - 1400nm, + 8.5dBm
81682B - 1550nm, + 8dBm
81642B - 1600nm, + 8.5dBm
81682A - 1550nm, +8dBm
81642A - 1600nm, +7dBm

Filler Module

Specifiy 81645A Filler Module if no high performance tunable laser is installed

Option 071 PMF Straight contact interface

Option 072 PMF Angled contact interface

Connector Interfaces for straight connectors

Connector Interfaces for angled connectors

Connector Interfaces for straight connectors

2 ea required for 81480B, 81680B, 81640B, 81480A, 81680A, 81640A
1 ea required for 81672B, 81482B, 81682B, 81642B,81682A, 81642A

81000AI	Diamond HMS-10
81000FI	FC/PC/SPC
81000GI	D4
81000HI	E-2000
81000KI	SC/PC/SPC
81000SI	DIN 47256
81000VI	ST
81000WI	Biconic

Connector Interface for angled connectors

2 ea required for 81480B, 81680B, 81640B, 81480A, 81680A, 81640A
1 ea required for 81672B, 81482B, 81682B, 81642B, 81682A,81642A

81000HI	E-2000 APC
81000KI	SC/APC
81000NI	FC/APC
81000SI	DIN 47256/4108.6

Note: Option 072 is highly recommended over Option 071 to reduce front-panel connector reflections which will greatly reduce interference noise and spectral ripple in the test setup.

Compact Tunable Laser Module

For Laser Safety see page 12

Compact Tunable Laser

Compact Tunable Laser Module

81689A Compact Tunable Laser 1550nm
81689B Compact Tunable Laser 1550nm
81649A Compact Tunable Laser 1600nm

Option 071
PMF
Straight
contact
interface

Option 021
SMF
Straight
contact
interface

Option 072
PMF
Angled
contact
interface

Option 022
SMF
Angled
contact
interface

Connector Interfaces for straight connectors

81000AI Diamond HMS-10
81000FI FC/PC/SPC
81000GI D4
81000HI E-2000
81000KI SC/PC/SPC
81000SI DIN 47256
81000VI ST
81000WI Biconic

Connector Interfaces for straight connectors

Connector Interfaces for angled connectors

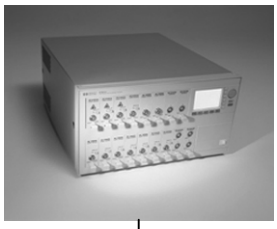
Connector Interfaces for angled connectors

81000HI E-2000 APC
81000KI SC/APC
81000NI FC/APC
81000SI DIN 47256/4108.6

Note: Options 022 or 072 are highly recommended over Option 021 and 071 to reduce front-panel reflections which will greatly reduce interference noise and spectral ripple in the test setup.

DFB Source Modules

For Laser Safety see page 12



DFB Source
PMF
Angled
contact
interface

81662A DFB Source +10 dBm C- and L- band
81663A DFB source +13 dBm C-and L-band
(wavelength determined by option number)

Connector
Interfaces
for angled
contact
connectors

Connector Interfaces for angled connectors

81000HI E-2000 APC
81000KI SC/APC
81000NI FC/APC
81000SI DIN 47256/4108.6

Fabry-Perot Laser Modules

For Laser Safety see page 12

FP Standard Source Modules 0 dBm

81650A 1310nm
81651A 1550 nm
81652A 1550/1625 nm
81654A 1310/1550 nm

Source Modules 0 dBm

SMF, Straight contact interface

Source Modules 13 dBm

SMF, Straight contact interface

FP High Power Source Modules 13 dBm

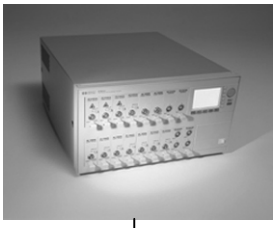
81655A 1310nm
81656A 1550 nm
81657A 1310/1550 nm

Connector Interfaces for straight connectors

Connector Interfaces for straight connectors

81000AI Diamond HMS-10
81000FI FC/PC/SPC
81000GI D4
81000HI E-2000
81000KI SC/PC/SPC
81000SI DIN 47256
81000VI ST
81000WI Biconic

Power Sensor Modules



Power Sensors
High Performance Modules
81633A/B +10 dBm to –90 dBm
81634A/B +10 dBm to –110 dBm
81637B + 10 dBm to –80 dBm (Fast Power Sensor)
81630B +28 dBm to –70 dBm

Sensor Module Interface for both angled and straight connectors

Power Sensors
Economy Modules
81632A/B +10 dBm to –80 dBm (single channel)
81635A +10 dBm to –80 dBm (dual channel)
81636B + 10 dBm to –80 dBm (Fast Power Sensor)

Connector Interfaces
81000AI Diamond HMS-10
81000FI FC/PC/SPC
81000GI D4
81000JI SMA
81000KI SC/PC/APC
81000PI E-2000
81000SI DIN 47256 / 4108.6
81000VI ST
81002LI LC

Connector Interfaces

Connector Interfaces

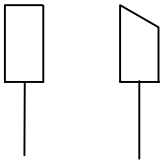
Bare Fiber Adapter

81000BB Bare Fiber Kit
fits into connector interfaces:

81000AI Diamond HMS-10
81000FI FC/PC/SPC
81000KI SC
81000SI DIN 47256 / 4108.6
81000VI ST
81000PI E-2000

Following single
Combination is available

81000FI FC
81000FB Bare Fiber Adapter

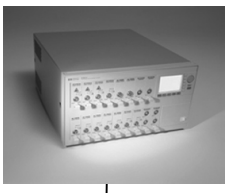


(bare fiber)

Note: All sensor inputs are non-contact and accept both straight and angled connectors.

Optical Heads
(5mm Sensor)

Connectorized
Fiber,
Bare Fiber and
Open beam
NA ≤ 0.3



Interface Module

Interface Modules
81618A Single Interface Module
81619A Dual Interface Module

Optical Heads

Optical Heads
81622B Ge +27dBm to – 55dBm
81623B Ge +10dBm to – 80 dBm
81624B InGaAs + 10dBm to – 90 dBm
81626B In GaAs + 27dBm to – 70 dBm
81628B In GaAs + 40dBm to – 60 dBm (only with threaded Connector Adapters)

Accessories
81624CE 4m extension cable
81624DD additional D-shape quick change adapter
81624RM Half-rack Mount Kit for 2 Heads [1]
81625RM Rack Mount Kit for 4 Heads [1]

D-Shaped Adapter 81624DD – 1ea supplied with head [1]

Integrating Sphere
81002FF

Depolarizing Filter
8100DF

Filter Holder [2]

Filter / Holder
81000AF Filter Holder
81001FF 10 dB Filter and Holder
81000DF Depolarizing Filter and Holder

Connector Adapters (threaded)
81000AA Diamond HMS-10
81000BA Bare Fiber (125um)
81000FA FC/PC/SPC/APC
81000GA D4
81000KA SC/PC/APC
81000MA MU
81000PA E2000
81000SA DIN 47256/4108
81000VA ST

81000ZA Blank Adapter (to be customized by user)
810003LA LC

Connector Adapters (with intergral D-Shape)

81624DD D-Shaped adapter not required

81001BA Bare Fiber 125μm
81001FA FC/PC/SPC/APC
81001KA SC/PC/APC
81001LA LC
81001MA MU
81001PA E-2000
81001SA DIN 47256 / 4108.6
81001ZA BLANK Adapter

81003JD MT - RJ
81003PD MPX
81003TD MTP

High Return Loss Adapter

High Return Loss Adapter
(for use with straight connectors)
81000RA High Return Loss Adapter

Connector Adapters Threaded

Integral D-Shaped Adapters

Connector Interfaces

Connector Interfaces
81000AI Diamond HMS-10
81000FI FC/PC/SPC
81000GI D4
81000HI E2000
81000KI SC/PC/SPC
81000SI DIN 47256
81000VI ST
81002LI LC

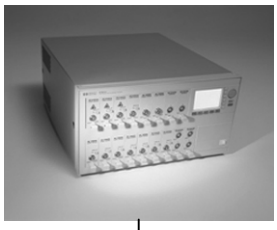
[1] Not applicable to 81628B

[2] For use with 81622B or 81626B and straight connectors
If input power > +10dBm the use of the filter holder will result in better accuracy (refer to specs)

Optical Heads

(3mm Sensor)

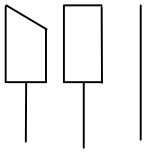
Configuration for connectorized fibers and bare fiber



Interface Module

Optical Head

Connector Adapters with integral D-Adapter



Accessories
81624CE 4m extension cable
81624RM Half-rack Mount Kit for 2 Heads
81625RM Rack Mount Kit for 4 Heads

Interface Modules

81618A
81619A

Optical Heads

81627B

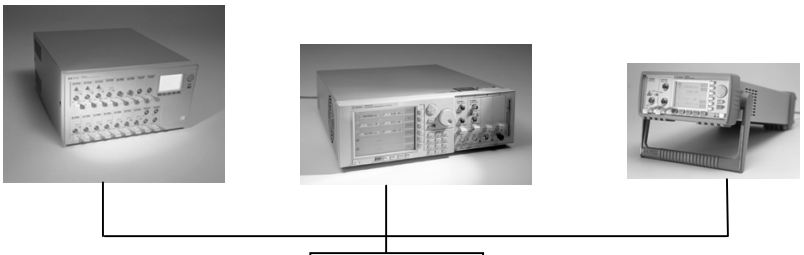
Connector Adapters (with intergral D-Shape)

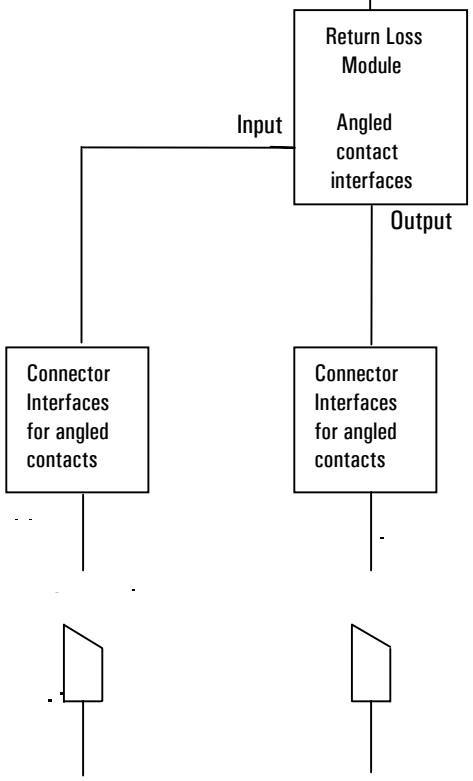
81001BA Bare Fiber 125μm
81001FA FC/PC/SPC/APC
81001KA SC/PC/APC
81001LA LC
81001MA MU
81001PA E-2000,APC
81001SA DIN 47256 / 4108.6
81001ZA BLANK Adapter

NA $\leq$ 0.11 (Single mode fiber)
NA $\leq$ 0.22 (Multi mode fiber)

For Laser Safety see page 12

Return Loss Modules



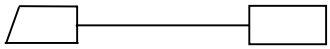


81610A Return Loss Module without internal source
81611A Return Loss Module (1310nm)
81612A " " " (1550nm)
81613A " " " (1310/1550nm)
81614A " " " (1550/1625nm)

Connector Interfaces
81000HI E-2000 APC
81000KI SC/APC
81000NI FC/APC
81000SI DIN 4108.6

Reference Cable

81610CC Reference Cable – for calibration of all 8161xA Return Loss Modules
Connectors - DIN 4108.6 (connectors to modules) and FC/PC supplied (w/calibrated return loss values)
An 81000SI connector interface is required to connect this cable to the module.
This cable is used for calibration only, not for measurements.



Optical Attenuator Modules

81560A
Optical Attenuator
(single slot)

81566A
Optical Attenuator
with Power Control
(dual slot)

Optical Attenuator Straight Contact Interface

Optical Attenuator Angled Contact Interface

81561A
Optical Attenuator
(single slot)

81567A
Optical Attenuator
with Power Control
(dual slot)

Connector Interfaces
81000 AI HMS-10
81000 FI FC/PC/SPC
81000 GI D4
81000 HI E-2000
81000 KI SC/PC/SPC
81000 SI DIN 47256
81000 VI ST

Connector Interface for straight connectors

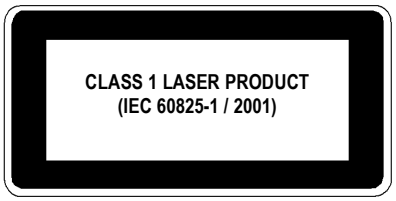
Connector Interface for angled connectors

Connector Interfaces
81000 HI E-2000 APC
81000 KI SC/APC
81000 NI FC/APC
81000 SI DIN 4108.6

Laser Safety Information

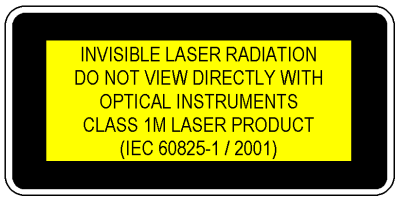
81611A 1310nm RL
81612A 1550 nm RL
81613 1310/1550nm RL
81614 1550/1625nm RL
81650A 1310 nm FP
81651A 1550 nm FP
81652A 1550/1625 nm FP
81654A 1310/1550 nm FP

The laser sources listed directly above are classified as Class 1 according to IEC 60825-1 (2001).
All laser sources comply with 21 CFR 1040.10 except for deviations pursuant to Laser Notice No. 50, dated 2001-July-26.



81655A 1310nm FP
81656A 1550 nm FP
81657A 1310/1550 nm FP
81662A C- and L-Band DFB
81663A C-band DFB
81480B 1400nm TLS
81680B 1550nm TLS
81640B 1600nm TLS
81672B 1300nm TLS
81482B 1400nm TLS
81682B 1550nm TLS
81642B 1600nm TLS
81480A 1400nm TLS
81640A 1600nm TLS
81642A 1600nm TLS
81680A 1550nm TLS
81682A 1550nm TLS
81689A 1550nm TLS
81689B 1550nm TLS
81649A 1595nm TLS

The laser sources directly listed above are classified as Class 1M according to IEC 60825-1 (2001).
All laser sources comply with 21 CFR 1040.10 except for deviations pursuant to Laser Notice No. 50, dated 2001-July-26.



Further information about Agilent connectors and connector interfaces can be found at http://www.agilent.com/comms/oct-accessories

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Agilent Technologies'
Test and Measurement
Support, Services, and Assistance

Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Support is available for at least five years beyond the production life of the product. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

Our Promise

Our Promise means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you use Agilent equipment, we can verify that it works properly, help with product operation, and provide basic measurement assistance for the use of specified capabilities, at no extra cost upon request. Many self-help tools are available.

Your Advantage

Your Advantage means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and on-site education and training, as well as design, system integration, project management, and other professional engineering services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

By internet, phone, or fax, get assistance with all your test & measurement needs

Online assistance:
www.agilent.com/comms/lightwave

Phone or Fax
United States:
(tel) 1 800 452 4844

Canada:
(tel) 1 877 894 4414
(fax) (905) 206 4120

Europe:
(tel) (31 20) 547 2323
(fax) (31 20) 547 2390

Japan:
(tel) (81) 426 56 7832
(fax) (81) 426 56 7840

Latin America:
(tel) (305) 269 7500
(fax) (305) 269 7599

Australia:
(fax) (61 3) 9210 5947

New Zealand:
(tel) 0 800 738 378
(fax) 64 4 495 8950

Asia Pacific:
(tel) (852) 3197 7777
(fax) (852) 2506 9284

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Related Literature:

Agilent 8163B Lightwave Multimeter
Agilent 8164B Lightwave Measurement System
Agilent 8166B Lightwave Multichannel System
Technical Specifications
p/n 5988-3924EN

Agilent 8163A Lightwave Multimeter
Agilent 8164A Lightwave Measurement System
Agilent 8166B Lightwave Multichannel System
Technical Specifications
p/n 5988-1568EN

Agilent 81480/680/640B
Agilent 81672/482/682/642B
Tunable Laser Sources
Technical Specifications
p/n 5988-5508EN

Agilent 81480/680/640A Tunable Lasers
Agilent 81682/642A Tunable Lasers
Technical Specifications
p/n 5988-4027EN

Agilent 81689A/81689B/81649A
Compact Tunable Laser Modules
Technical Specifications
p/n 5988-3675EN

Agilent 81662A DFB Laser
Agilent 81663A DFB Laser
Agilent Fabry-Perot Laser
Technical Specifications
p/n 5988-1570EN

Agilent Power Sensor Modules
Agilent Optical Heads
Agilent Return Loss Modules
Technical Specifications
p/n 5988-1569EN

Agilent 81560A/81561A Optical Attenuators
Agilent 81566A/81567A Optical Attenuators with Power Control
Technical Specifications
p/n 5988-2696EN

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