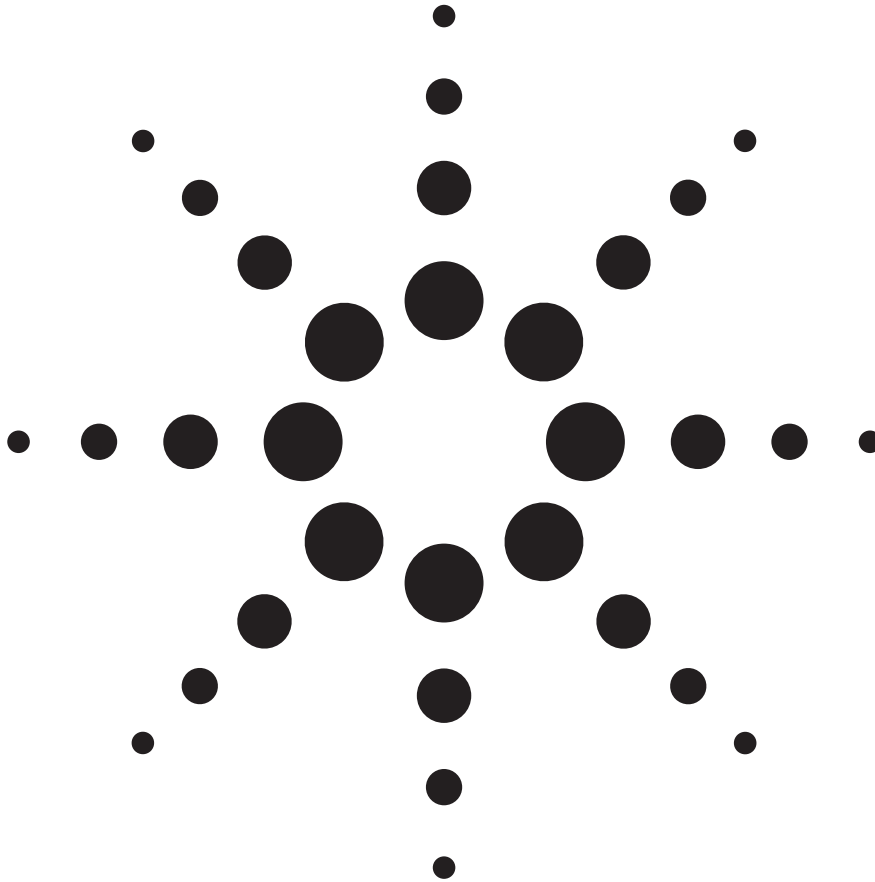


Agilent 8163A/B Lightwave Multimeter
Agilent 8164A/B Lightwave Measurement System
Agilent 8166A/B Lightwave Multichannel System
Configuration Guide
June 2002



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



Agilent Technologies

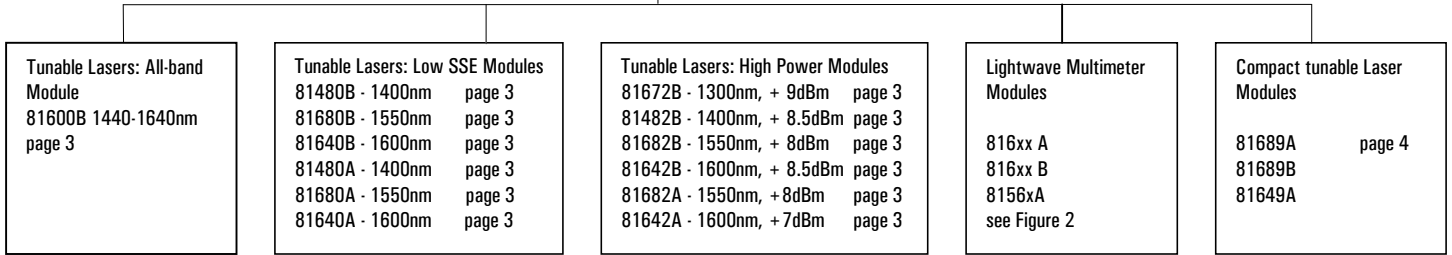
8164A/B Lightwave Measurement System



Figure 1

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



8163A/B Lightwave Multimeter

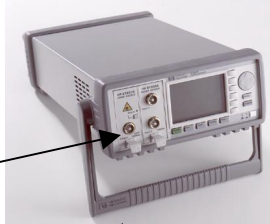
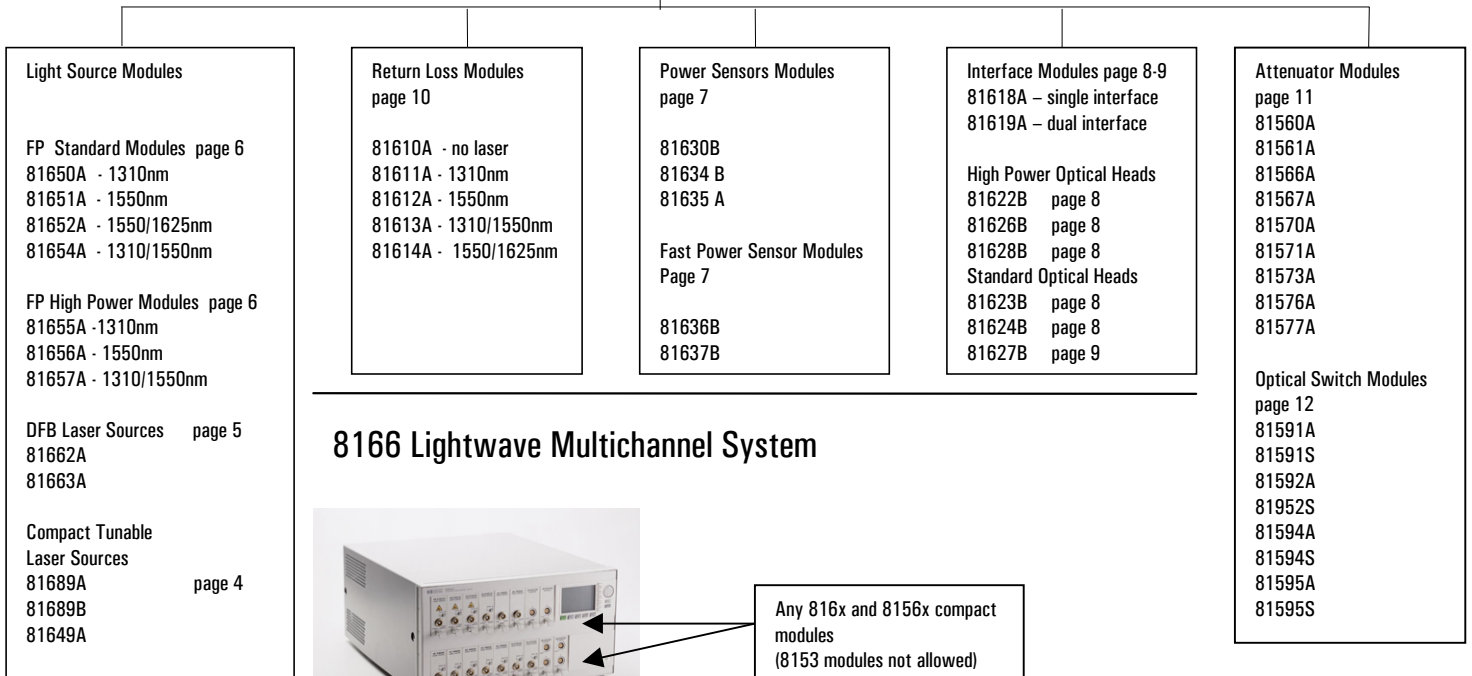


Figure 2

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



8166 Lightwave Multichannel System



Figure 3

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

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



OPTIONAL

MANDATORY AND MUTUALLY EXCLUSIVE

For Laser Safety see page 13

Tunable Laser Source All-band

81600B · 1440nm – 1640nm

Tunable Laser Sources Low SSE Modules

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

Tunable Laser Sources
All-band

Tunable Laser Sources
Low SSE

Tunable Laser Sources
High Power

Tunable Laser Sources High power Modules

81672B · 1300nm, + 9dBm
 81482B · 1400nm, + 8.5dBm
 81682B · 1550nm, + 8dBm
 81642B · 1600nm, + 8.5dBm
 81682A · 1550nm, + 8dBm
 81642A · 1600nm, + 7dBm

Filler Module

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

Connector Interfaces for straight connectors

2 ea required for 81600B, 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

81xxxB-0C-INTATT

81xxxB-071
PMF Straight contact interface
81xx2B-371
with Attenuator (built in) (except 81672B)

81xxxB-072
PMF Angled contact interface
81xx2B-372
with Attenuator (built in) (except 81672B)

Connector Interface for angled connectors

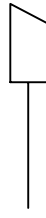
2 ea required for 81600B, 81480B, 81680B, 81640B, 81480A, 81680A, 81640A
 1 ea required for 81672B, 81482B, 81682B, 81642B, 81682A, 81642A

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

816xxxB-0C-ACCS

8163B-0C-STRGHT
Connector Interfaces for straight connectors

8163B-0C-ANGLED
Connector Interfaces for angled connectors



Note: 81xxxB-072 is highly recommended over 81xxxB-071 to reduce front-panel connector reflections which will greatly reduce interference noise and spectral ripple in the test setup.

Compact Tunable Laser Modules

OPTIONAL

MANDATORY AND MUTUALLY EXCLUSIVE

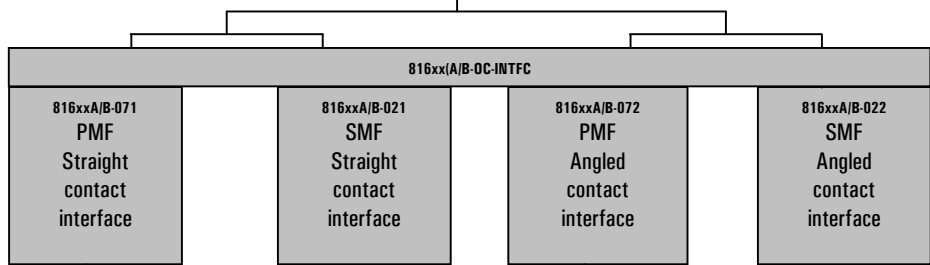
For Laser Safety see page 13



Compact Tunable Laser

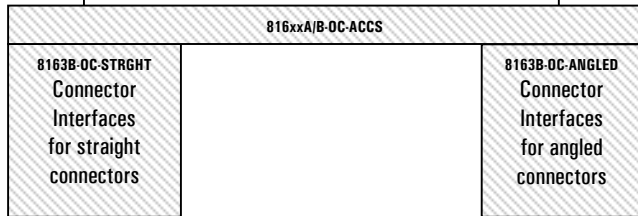
Compact Tunable Laser Module

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



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

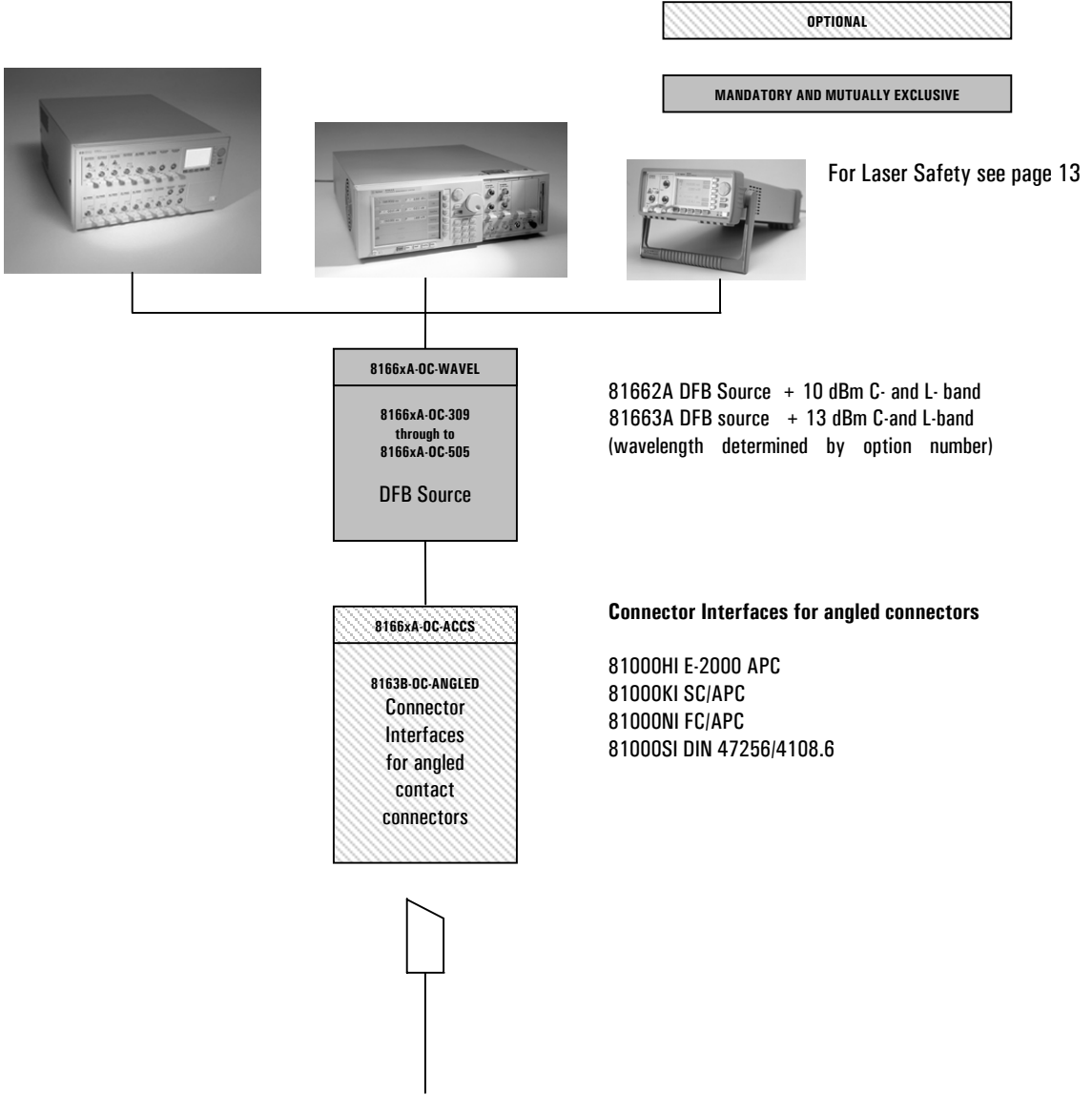


Connector Interfaces for angled connectors

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

Note: 816xxA/B-022 or 816xxA/B-072 are highly recommended over 816xxA/B-021 and 816xxA/B-071 to reduce front-panel reflections which will greatly reduce interference noise and spectral ripple in the test setup.

DFB Source Modules



Fabry-Perot Laser Modules

OPTIONAL

For Laser Safety see page 13



**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**

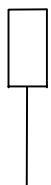
- 81655A 1310nm
- 81656A 1550 nm
- 81657A 1310/1550 nm

8165xA-0C-ACCS

8163B-0C-STRGHT
Connector
Interfaces
for straight
connectors

Connector Interfaces for straight connectors

- 81000AI 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

OPTIONAL



Power Sensors

High Performance Modules

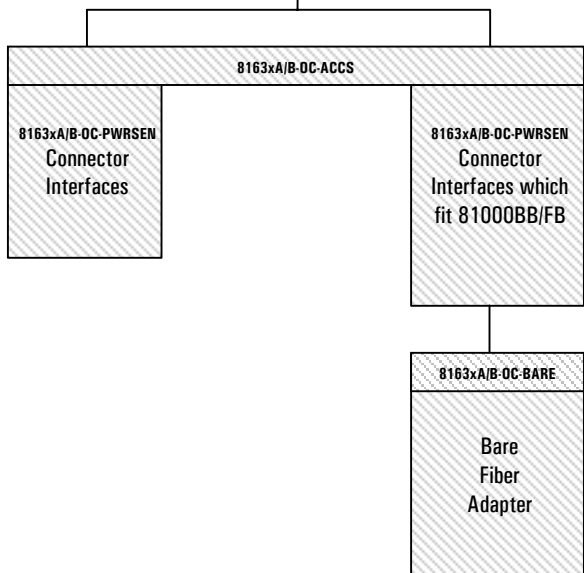
- 81633A/B +10 dBm to -90 dBm
- 81634A/B +10 dBm to -110 dBm
- 81637B +10 dBm to 80 dBm (Fast Power Sensor)
- 81630B +28 dBm to -70 dBm

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 -110 dBm (dual channel)
- 81636B +10 dBm to -80 dBm (Fast Power Sensor)



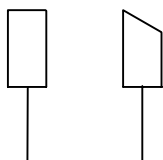
Connector Interfaces

- 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

- 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

- 81000BB Bare Fiber Kit
- 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
 $NA \leq 0.3$

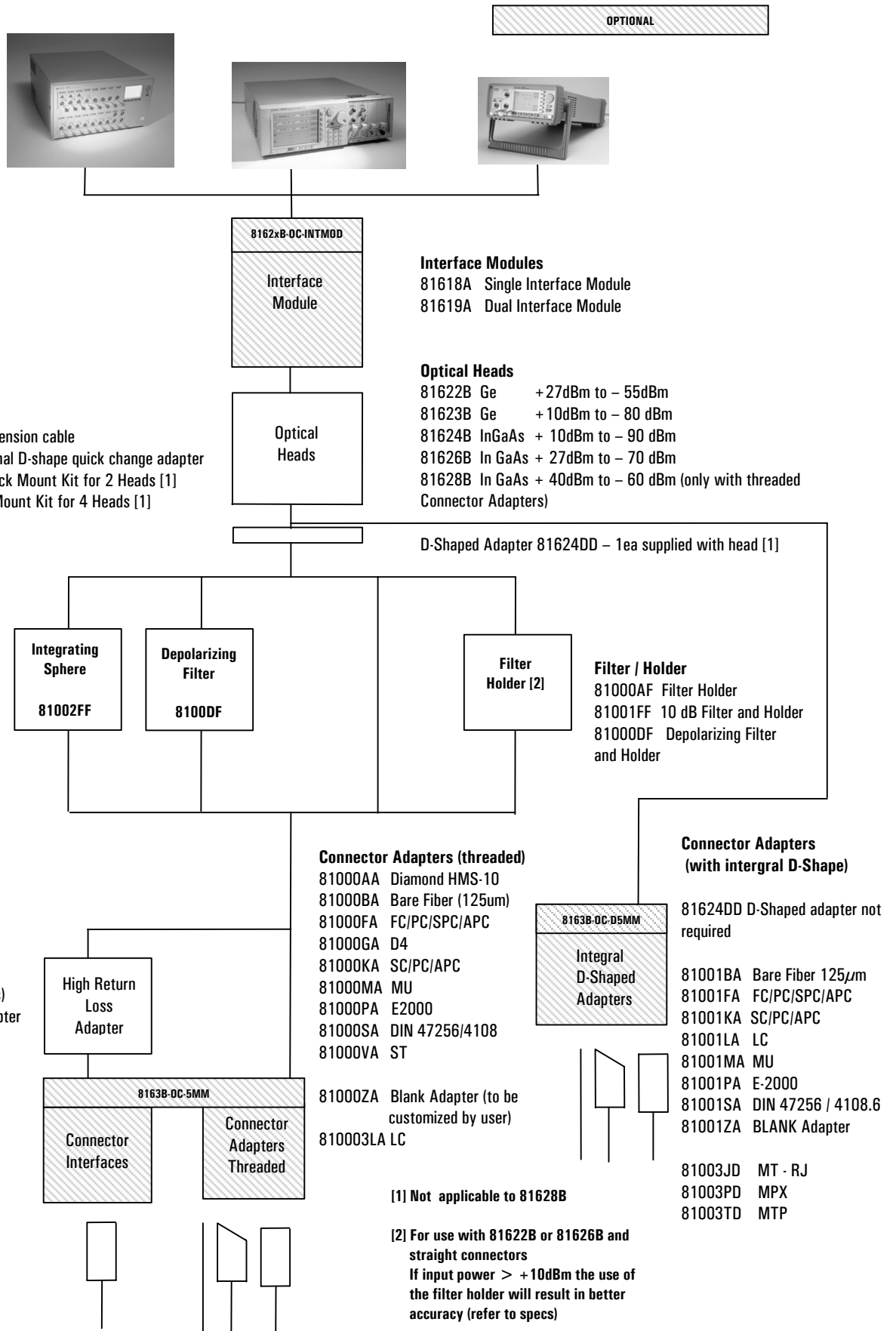
Accessories

- 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]

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

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)

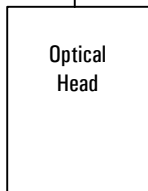
OPTIONAL

Configuration
for
connectorized
fibers and bare
fiber



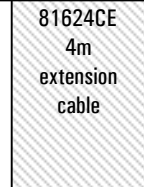
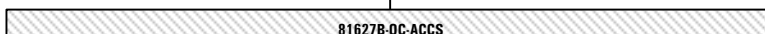
Interface Modules

81618A
81619A



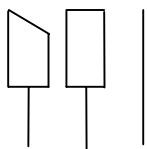
Optical Heads

81627B



Connector Adapters (with integral D-Shape)

- 81001BA Bare Fiber 125 μ m
- 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

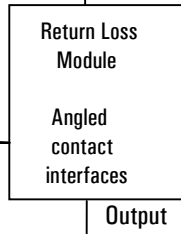


NA \leq 0.11 (Single mode fiber)
NA \leq 0.22 (Multi mode fiber)

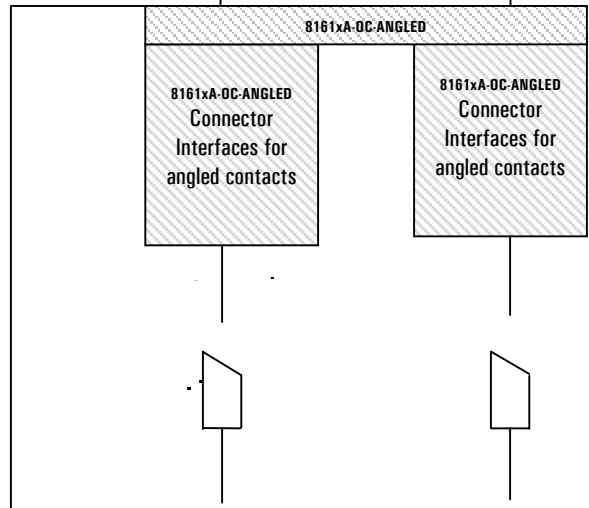
Return Loss Modules

OPTIONAL

For Laser Safety see page 13



- 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.



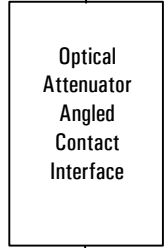
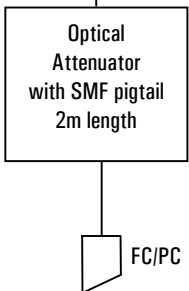
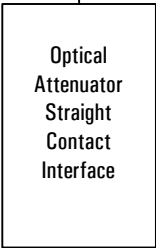
Optical Attenuator Modules

OPTIONAL



Optical Attenuators for Straight Contact Interface

- 81560A (single slot)
- Optical Attenuator
- 81570A (single slot)
- Optical Attenuator for high power
- 81566A (dual slot)
- Optical Attenuator with Power Control
- 81576A (dual slot)
- Optical Attenuator with Power Control for high power



Optical Attenuator with SMF pigtail

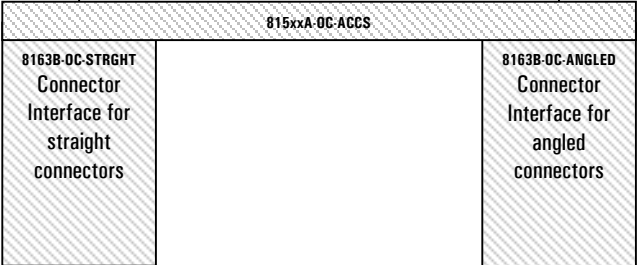
- 81573A (single slot)
- Optical Attenuator for high power

Optical Attenuators for Angled Contact Interface

- 81561A (single slot)
- Optical Attenuator
- 81571A (single slot)
- Optical Attenuator for high power
- 81567A (dual slot)
- Optical Attenuator with Power Control
- 81577A (dual slot)
- Optical Attenuator with Power Control for high power

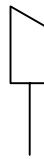
Connector Interfaces

- 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 Interfaces

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



Optical Switch Modules

MANDATORY AND MUTUALLY EXCLUSIVE



Optical Switches for Straight Contact Connectors

- 81591S Optical switch 1x2
- 81592S Optical switches
2 independent 1x2 in one module
- 81594S Optical switch, 2x2 non-blocking (crossover)
- 81595S Optical switch, 1x4

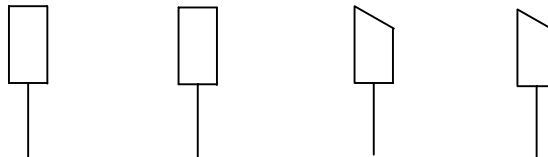
Optical Switch for Straight Contact Connectors

Optical Switches for Angled Contact Connectors

- 81591A Optical switch 1x2
- 81592A Optical switches
2 independent 1x2 in one module
- 81594A Optical switch, 2x2 non-blocking (crossover)
- 81595A Optical switch, 1x4

Optical Switch for Angled Contact Connectors

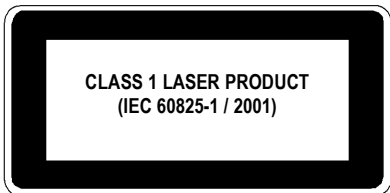
8159xA/S-OC-CONIFC			
8159xS-FCI Fixed FC / PC / SPC connector interfaces	8159xS-SCI Fixed SC / PC / SPC connector interfaces	8159xA-FCI Fixed FC / APC connector interfaces	8159xA-SCI Fixed SC / APC connector interfaces



Laser Safety Information

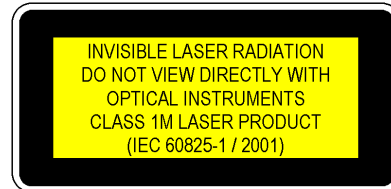
81611A 1310nm RL
81612A 1550nm RL
81613A 1310/1550nm FP
81614A 1550/1625nm RL
81650A 1310 nm FP
81651A 1550 nm FP
81652A 1550/1625 nm FP
81654A 1310/1550 nm

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
81600B All-band TLS
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

All laser sources specified by this data sheet 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>

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."

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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.

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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

Product specifications and descriptions in this document subject to change without notice.

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5988-1571EN

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



Agilent Technologies