

## Specifications

Mounting:	35mm DIN Rail
Weight:	< 9 oz (250g)
Power Requirements:	7.5 to 9.5Vdc @ 200mA Supplied from an EOTec 2000 Power Supply via the integrated BUS interconnections
Data Rates:	9.6K to 12Mbps
Optical Output Device:	Class 1, LED Product
Optical Wavelength:	1300nm
Fiber Compatibility:	62.5/125 $\mu$ m, Multi-mode
Optical Connections:	ST* Compatible
Optical Activity Indicators	
RX:	Amber LED
TX:	Green LED
Optical Dynamic Range:	12dB, 62.5/125 $\mu$ m Fiber
Diagnostic Output:	4 to 20mA loop signal, internally powered, controlled by the receive optical signal power level
Loop Resistance:	275 Ohms maximum
Accuracy:	1%, typical
Connector:	Pluggable, cage-clamp, screw terminal block, accepts 12 to 24AWG
Operating Conditions	
Temperature:	-40 to 85°C
Relative Humidity:	0 to 95% (non-condensing)
Flammability:	UL 94V-0

\*ST is a trademark of AT&T

## Safety and Warning Information



Connect the DIN Rail via the End Clamp (2A09) to protective earth ground with low impedance. The modules are grounded to PE when they are snapped onto the DIN Rail.



When in operation, do not look directly into the transmit optical port or use magnification or focusing equipment to view optical output.

IEC 60825-1, Class 1 LED Product  
FDA 21 CFR 1040.10 & 1040.11

**CAUTION:** Use of controls and/or adjustments or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

*Important Notice* - Before utilizing the product, the user should determine the suitability of the product for its intended use. The user assumes all risk and liability in connection with such use. WEED INSTRUMENT'S WRITTEN WARRANTY FOR THE PRODUCT IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. The user's exclusive remedy for breach of Weed Instrument's written warranty shall be the repair or replacement of such quantity of product which is proven to be defective. In no case shall Weed Instrument be liable for any special, incidental, or consequential damages based upon breach of contract, negligence, strict liability or other legal theory.

For additional information contact:

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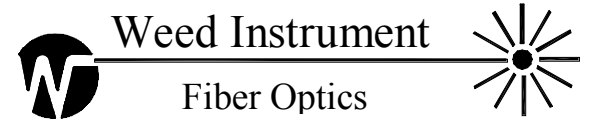
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Weed Instrument

Fiber Optics

**2D09**

EOTec 2000 Optical Module  
with Diagnostics

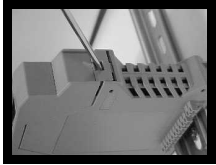
**Installation Instructions**



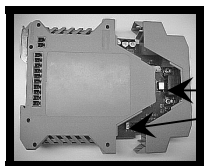
**For use with Multi-mode Glass Fiber  
ST\* Compatible Fiber Connections  
1300nm Optical Wavelength  
Data Rates from 9.6k to 12Mbps  
with  
Optical Diagnostic 4-20mA Output**

## Operational Settings

Use a small screwdriver to press on the latches (indentations) at the top and bottom of the housing. *Partially* slide the housing open.



The transmit optical power level default jumper position setting is "H" (High). Select position "L" (Low) in overdriving conditions.



Jumper Locations

Each module of the modem must be configured based on the network topology to be used. This is accomplished by positioning a single jumper in each module.

Standard (Point-to-Point, Daisy Chain, Star):

Electrical Module	M
Optical Modules (as added)	1,2,3,4

Self-Healing Ring (Fiber Media Redundancy):

Self-Healing Ring Module	1
Electrical Module	1
1 <sup>st</sup> Optical Module	2
2 <sup>nd</sup> Optical Module	3

Repeater (Multiple Optical or Electrical Modules):

1 <sup>st</sup> Module	M
Additional Modules (as added)	1,2,3,4

Additionally, each Optical Module must be configured for the protocol being used. This is accomplished by positioning a single jumper (J3).

DeviceNet	D
Profibus-DP	P
Profibus-DP Self-Healing Ring only	PR
ControlNet Self-Healing Ring only	CR
All remaining protocols	E
(Future expansion - undefined)	F

Close the housing by sliding it back together until both the top and bottom latches "click" into place.

## DIN Rail Mounting

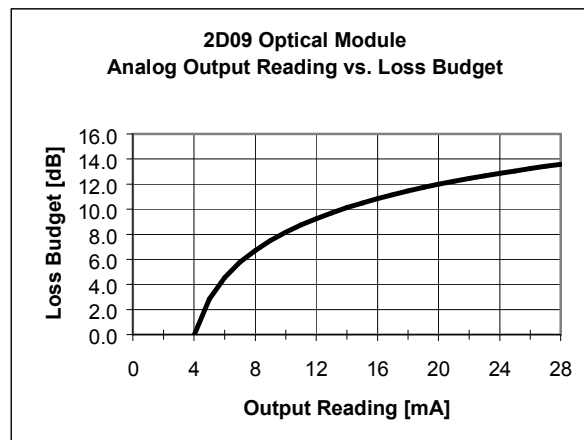
### Installation on DIN rail:

Place the top lip of the module's DIN rail mounting channel onto the DIN rail. Push the lower portion of the module towards the mounting surface until it "clicks" and locks into place. Firmly slide the modules together ensuring a good connection of the integrated BUS interconnection at the rear of the modules. Install End Clamps (Model 2A09) to both sides of the module bundle to prevent accidental disconnection of the BUS interconnections. The End Clamps also provide convenient screw terminals for connecting the DIN rail to Protective Earth (PE) ground.

### Removal from DIN rail:

Remove the End Clamps from the module bundle. Disconnect the BUS interconnections by sliding the modules at least 1/2" apart on the DIN rail. Insert a screwdriver into the rectangular hole in the metal mounting latch at the bottom of the module. Pushing up on the screwdriver's handle causes the latch to move downward and disengages it from the DIN rail. Tilt the module up and lift it off of the DIN rail.

## Output Graph



This graph indicates the optical loss budget available based on the output current indicated. Example: An 8mA output indicates that 7dB of additional optical power loss will be required before the optical signal will no longer be received.

## 4 to 20mA Diagnostic Output

The internally powered 4 to 20mA diagnostic output provides an indication of the received optical power level (light intensity) from the fiber. The output is calibrated such that the receive sensitivity threshold (the minimum optical power level needed for operation) corresponds to the 4mA point. The 20mA point corresponds to the guaranteed minimum optical power output (on the high "H" jumper setting) available directly at the transmit optical port of any 2D09. Adjustments to the factory settings are NOT recommended.

Connections to the diagnostic output are made via the pluggable screw terminal block at the bottom-front of the module and are as follows (numbered from left to right):

- Terminal 1 4-20mA loop positive (+)
- Terminal 2 4-20mA loop return (-)
- Terminal 3 make no connection
- Terminal 4 Shield (Protective Earth ground)

The fiber link should operate properly until the diagnostic output reaches the 4mA point. Below the 4mA point, the light loss on the fiber is so high the module can no longer function. A reading of 20mA or greater indicates that the fiber losses are very low. By comparing the analog reading of the diagnostic output to the Output Graph, the amount of optical loss budget remaining before failure occurs can be determined.

**NOTE:** The diagnostic output will only indicate the optical signal strength if there is optical data being transmitted over the fiber. If data transmissions over the fiber cease (as with no network input to the modem, a disconnected or broken fiber), the diagnostic output will drop to 4mA or below.

### Important Optical Characteristics:

2D09 Optical Dynamic Range  
(Optical Power Loss Budget): 12dB minimum

Typical loss at 1300nm for  
62.5/125µm Multi-mode Fiber: 1.5dB/km  
(0.46dB/1000ft)

Typical Loss at a Fiber/Fiber  
Junction (Fiber Patch Panel): 1dB