DYMEC Series DY-5016 INSTALLATION PROCEDURE

1. The Optical Star Series 5016 can either be shelf mounted, or horizontally mounted in a 19" rack. Mounting brackets and screws are provided for installation on the front corners of the DY-5016 for a 19" Rack Mount installation. Unscrew and remount.

2. Before connecting power, secure an earth ground wire to the ground lug on the face of the unit. (Screw - Top Right Corner) The ground screw has a lock washer attached**.** Place the ground wire between the screw and washer and tightened securely!

DYMEC Installation WARNING

WHEN INSTALLING ANY DYMEC MODEL DY-5016, AN EARTH GROUND (CHASSIS GROUND) MUST BE ATTACHED TO THE GROUND SCREW ON THE FACE OF THE CASE BEFORE CONNECTING POWER. FAILURE TO FOLLOW THIS PROCEDURE MAY RESULT IN ELECTRICAL SHOCK TO PERSONNEL.

3. Connect a Dual Fiber Optic Cable between any of the Master ports of the DY-5016 Optical Star to the DYMEC Serial Link /Fiber Optic Modem which is connected to the system's Master IED. Connect the DY-5016 Optical Star's Master "T" port to the Master IED Link/Repeater's "R" port. Connect the Optical Star's "R" port to the Master IED Link/Repeater's "T" port. In other words - ""Frog the fiber optic cable - receive to transmit and transmit to receive.
Connect Fiber Optic Cables from each Optical Star Slave port to the DYMEC Link/Repeater or embedded 850 nano-meter port on the corresponding Slave IED. Connect the Optical Star Slave 1 "T" Port to the "R" optical port of IED Slave 1. Connect the Optical Star's Slave 1 "R" Port to the "T" optical port of IED Slave 1. Continue this connection procedure for all of the remaining IED Slaves. Make sure you use compatible fiber optic patch cables. (Single-mode or Multi-mode)

4. ATTENTION: The FOC must always connect a "T" optical port of one device to the "R" optical port of the other device and vice versa. The use of duplex fiber id highly recommended.

➔**Note:** <u>If any of the DY-5016 Optical Star's Slave Ports are not used or connected with fiber, the protective cap must remain covering the unused optical port to avoid physical contamination and prevent stray light sources entering.</u>

5. Connect the power source to the DYMEC DY-5016 Optical Star.

- Check the voltage rating stamped on the label on top of the unit - above the power connector - verify that it matches the power source
- Strip back 1/4" off the insulation of the wires that will connect the unit to the power source
- Release each wire port retaining clamp with a small flat blade screwdriver and insert a conductor into each wire port of the power block.
- Visually inspect that no strands of wire are straying out of the hole, potentially shorting to ground or to the other conductor.

6. Connect the power leads to the source. The unit is now powered and the "Power On" LED should illuminate. The Optical Star is now operational.

7. When the Master IED polls a Slave IED through the Optical Star, observe the LED on the Optical Star. The Optical Star's Master's LED, labeled "R", and <u>ALL</u> Slave LEDs, labeled "T", should flash. When the polled Slave IED responds, <u>ONLY</u> one Slave "R" LED, the responding Slave, and the Master's LED should flash.

➔**Note:** The Optical star can be used in a Master/Slave or Peer-to-Peer operation. All connected slaves or peers must be addressable devices in within the communication protocol and controlled by the communication software. If more than one slave or peer communicates at the same time, then data collisions will occur

➔**Note:** The "T" and "R" LEDs only illuminate when data is passing through the Optical Star and remain off at all other times.

DYMEC
AMERICAN INDUSTRIAL

DYMEC 5016 Series OPTICAL STAR - 16 Port



FRONT / 1 RU



REAR

OPERATION

1. In Master/Slave mode, a DYMEC DY-5016 Optical Star simply receives an optical signal on the Master's receive port and rebroadcasts that signal at a full 18dB optical budget out of each slave transmit port. The data is not buffered nor reformatted. When the addressed Slave IED responds, the optical signal is received at the corresponding Optical Star Slave Port and rebroadcasts out of the Master's transmit port to the System's Master. All Slaves hear the Master's poll, but only the Master can hear a Slave - Slaves cannot hear each other.

2. The Optical Star is optically compatible with Dymec Models DY-5878M, DY-5877M, or DY-5844MA-ST. Any of these Models or any combination of these models may be used at the IEDs to convert the electrical signals to light for transmission.
3.
4. The Optical Star may be connected to other manufacturers' optical ports. Some OEM devices have an embedded optical port in their control. If the wavelength of the optical signal is a multi-mode 850 nanometers or single mode 1310 nanometers, digital and non-encoded, it will be compatible for use with the Optical Star.

5. The voltage ranges listed for the Optical Stars are nominal ratings. The actual minimum / maximum voltage ranges are as

follows: High Voltage RATING
84 ~ 265 Volts AC
110 ~ 370 VOLTS DC

Low Voltage Rating (for 24 Volt / and 48 Volt Plant)
18 ~ 72 Volts DC

Uses <1 Watt

ALWAYS Measure and Check your Power Input level and insure you have the device properly grounded!

5. Optical stars may be cascaded by connecting a slave port of the first Optical Star to the Master Port of the next down stream Optical Star. The ports are connected T to R optically

TROUBLESHOOTING

If the DYMEC DY-5016 Optical Star does not appear to be operating properly, use the following checklist:

1. Is the unit powered properly? - Is the "POWER ON" LED illuminated?

2. Is the Master's receive LED flashing when the Master IED is polling?
   - No
     - Check the FOC connections between the Master port and the Master IED. - Are both fibers connected "T" to "R" - not "T" to "T" nor "R" to "R"?
     - Are the TE & TO LEDs on the Master IED Link/Repeater flashing?
       - YES - check the FOC and terminations --- NO - check the Master IED
     - Consult factory

3. Are all Slave green transmit LEDs flashing at the same time that the Master's receive LED is flashing?
   - YES
     - Check the FOC connections between each Slave port and the Slave IEDs.
       - Are both fibers connected "T" to "R" - not "T" to "T" nor "R" to "R"?
       - Are the RO / RE LEDs on the Slave IED Link/Repeater flashing?
         - YES - check the Slave IED --- NO check the FOC and terminations
   - NO - Consult factory

4. Are all the IEDs set at the same baud rate? Is more than one Slave responding to the Master's poll? (More than one amber slave LED flashing at the same time) - Check Slave addressing, there may be duplicates.

DO NOT DISASSEMBLE OPTICAL STARS AS THERE ARE NO SERVICEABLE PARTS WITHIN.
THIS ACTION WILL VOID THE WARRANTY.

www.DYMEC.com

1107 SE Willow Pl • Blue Springs, MO 64014
Phone 816.988.7861
Email: Sales@DYMEC.com