# DIVISION 28 23 23 VT1101M-AC SERIES – FIBER OPTIC

**MINIATURE TRANSMITTER**

**ENGINEERING SPECIFICATIONS**

**PART 1 - GENERAL**

* 1. SUMMARY

A. Fiber Optic Miniature AM Video Transmitter

* 1. SECTION INCLUDES

A. VT1101M-AC Series AM Miniature Video Transmitter – Standalone

* 1. REFERENCES

1. Underwriters Laboratory (UL)
2. Underwriters Laboratory Canada (ULC)
3. European Union Compliance (CE)
   1. SYSTEM DESCRIPTION
4. Performance Requirements: Provide an AM Miniature Video Transmitter.
   1. The system shall utilize an 850nm optic

capable of video transmission on one multimode optical fiber. (VT1101M)

* 1. SUBMITTALS

1. Product Data: Manufacturer’s printed product data sheet for each type of Transmitter/Receiver

specified.

1. Detail Drawings: Electrical and optical connect drawings. Product mounting template.
2. Manufacturer’s Installation and Operating Manual: Printed installation and operating

information for each type of Transmitter/Receiver specified.

1. Test Reports: Manufacturer’s Printed Test Report via a Tektronics VM700A Video Test

Generator verifying product performance meets or exceeds the specified product performance

referenced in Part 2.

1. Warranty: Manufacturer’s Printed Warranty
   1. DELIVERY, STORAGE AND HANDLING
2. Deliver materials in unopened factory packaging with Manufacturer’s bar coding to the job site.
3. Inspect product upon delivery to assure that

specified products have been received.

1. Store in original packaging in a climate controlled environment. Storage Temperature

not to exceed: -40˚ C to +85˚ C

* 1. PROJECT/SITE CONDITIONS

1. Temperature Requirements: Products shall operate in an environment with an ambient

temperature range of –40˚ C to +74˚ C without

the assistance of fan-forced cooling.

1. Humidity Requirements: Products shall operate in an environment with relative humidity of 0% to 95% (non-condensing). If product is installed in condensation conditions, unit shall have conformal coating applied to the printed circuit

board.

* 1. WARRANTY

A. Standard International Fiber Systems Comprehensive Lifetime Warranty: IFS warrants the product to be free of factory defects

under manufacture’s Lifetime Warranty as submitted under article 1.05 (E)

# PART 2 - PRODUCTS

* 1. MANUFACTURER

1. Acceptable Manufacturer: International Fiber Systems, Inc.; 16 Commerce Road, Newtown,

CT 06470 USA; Telephone: 203-426-1180; Fax

203-426-3326; Email: sales@ifs.com; Internet:

[www.ifs.com](http://www.ifs.com/)

1. Substitutions: Not Permitted
2. Provide all fiber optic modules shall be supplied from a single manufacture.
   1. MANUFACTURED UNITS
3. Model Number Descriptions: Reference Table A: Product Number Descriptions
4. Model Compatibility Chart: Reference Table B: Product Compatibility Chart
   1. GENERAL SPECIFICATIONS

A. The AM Miniature Video Transmitter shall be an IFS VT1101M-AC series module. The module

shall be capable of transmitting full color video

in real time in NTSC, PAL or SECAM formats. The module shall require no in-field electrical or optical adjustments or in-line attenuators to ease installation. The module shall transmit the video using amplitude modulation of the optical signal. The module shall have an MTBF of >100,000 hours and operate in an environment of –40˚ C to

+74˚ C and relative humidity between 0% to 95% (non-condensing). The module shall be UL

and ULC listed and CE marked. The circuit

board shall be UL 94 flame rated and meet all PCI standards. All PC boards shall be designated with part number, PC board number and show appropriate revision number. The module shall have a lifetime warranty to reduce system life cycle cost in an event of a module failure.

* 1. VIDEO SPECIFICATIONS

1. Input Video: 1 volt pk-pk (75 ohms)
2. Bandwidth: 5 Hz – 10 MHz
3. Differential Gain: < 5 %.
4. Differential Phase: < 5 °.
5. Tilt: <1%
6. Signal/Noise Ratio: 60dB
   1. OPTICAL SPECIFICATIONS
7. IFS Model Number VT1101M
   1. Optical Fiber: 62.5/125 micron multimode
   2. Number of Fibers Required: 1
   3. Optical Wavelength: 850nm
   4. Optical Emitter Type: 850nm LED
   5. Transmitter Output Power: 25µw (-16 dB)
   6. Optical Attenuation: No manual adjustments required
   7. CONNECTORS
8. Optical: ST
9. Power: 20AWG wire
10. Video: Terminal Block to BNC (Gold Plated Center-PIN)
    1. ELECTRICAL SPECIFICATIONS

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1. Power: 24VAC
2. Voltage Regulation: Solid-state, Independent on each board
3. Circuit Board: UL 94 flame rated and meets all

PCI standards.

* 1. MECHANICAL SPECIFICATIONS

1. Surface Mount Dimensions: 2.5” x 1.6” x 1.0”

(6.35 cm x 4.06 cm x 2.54 cm)

1. Finish: none
2. Weight: <2.0 lbs./1.0kg
   1. ENVIRONMENTAL SPECIFICATIONS
3. MTBF: >100,000 Hours
4. Operating Temp: –40˚ C to +74˚ C
5. Storage Temp: -40˚ C to +85˚ C
6. Relative Humidity: 0% to 95% (non- condensing). If product is installed under condensation conditions, unit shall have conformal coating applied to the printed circuit board. (Add –C to model number for conformal coated printed circuit board)
   1. REGULATORY AGENCIES/APPROVALS AND LISTINGS
7. Underwriters Laboratory (UL) Listing Number:

I.T.E. 6D16

1. Underwriters Laboratory Canada (ULC) Listing Number: I.T.E. 6D16
2. UL 94-flame rated PCB board: 94VO
3. Conformity for Europe (CE)
   1. ACCESSORIES

# PART 3 - EXECUTION

* 1. EXAMINATION

1. Inspect modules before installation.
2. Modules shall be free of any cosmetic defects or damage.
3. All optical connectors shall be covered with dust

caps and remain on the module until installing cable connectors to module.

1. Shipping box shall include the module, power supply and operations manual.
   1. PREPARATION
2. Standalone Module (Surface Mount)
   1. Shall be mounted on a properly prepared surface adequate for the size and weight of module. The placement of the unit shall allow provision for cable installation and maintenance as indicated on the approved detail drawings and in compliance with the

IFS mounting template and installation manual.

1. Optical Fibers
   1. Caution: NEVER look into the end of an active optical fiber when using laser light

output. Eye damage can occur. Wear eye

protection when cleaving, terminating, and splicing fiber.

* 1. The number and type (multimode or single- mode) of optical fiber shall meet the

requirements of the IFS model number in article 2.05 used in the installation.

* 1. All optical fiber cables shall be properly installed and terminated with the mating

optical connectors as submitted in article

2.07 (A).

* 1. The optical link shall be tested with either a power meter, at a minimum, or OTDR to ensure the link budget (overall path loss) plus an added 3dB of optical safety margin does not exceed the optical power budget as submitted in article 2.05.
  2. All optical connectors on cable shall be cleaned in compliance to optical connector manufactures specifications and covered with dust caps until connection to the fiber optic module.
  3. INSTALLATION

A. General: Locate fiber optic modules as indicated on the approved detail drawings and install module in compliance with the IFS installation and operations manual.

* 1. TESTING

1. Testing the Fiber Optic Video Link.
   1. Verify that the coax and optic fibers are properly connected.
   2. Make sure that power is applied to all fiber optic modules, camera, and video monitor or

other equipment used in the system.

* 1. Successful video link operation should be visible at this point as witnessed by a good

quality video picture on the monitor.

* 1. CLEANING

1. Follow all instructions for proper use of solvents and adhesives used for termination and splicing.
2. At completion of the installation, dispose of all

fiber scraps properly.

Section Title 00000 - 2 Project name/project number/date (Optional information, e.g., owner, A/E)

# MANUFACTURED UNITS REFERENCE TABLES

Table A: Product Number Descriptions

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **VT1101M SERIES** | **DESCRIPTION** |  | **MAX. DISTANCE\*** |  |
| VT1101M -AC | MM Video – 850 > 1 Fiber | 2.5 Miles (4km) | | |

\* Maximum distance is limited to optical loss of the fiber and any additional loss by connectors, splices and patch

panels.

Table B: Product Compatibility Chart

# TRANSMITTER COMPATIBLE RECEIVERS

VT1101M-AC VR1000, VR1001, VR1001-R3, VR1100, VR1100-R3, VR2100, VR2100-R3

# END OF SECTION

Project name/project number/date 00000 - 3 Section Title (Optional information, e.g., owner, A/E)