



# ITT

*Unlimited Distribution*

## Image Intensifier, Generation 3 18-mm MX-11769 (F9815 Series)

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For more than 45 years, ITT Night Vision has provided the military with premier vision-enhancing solutions. As the world's leading manufacturer of Generation 3 (Gen 3) image intensification technology, ITT continues to work hand-in-hand with customers to expand night vision and vision-enhancing capabilities, technologies, and resources. ITT also provides technical support, service, training, and maintenance for our products to maximize customer benefits and usability.

ITT's Gen 3 F9815 Series (MX-11769) image intensifier tubes are designed for use in the AN/PVS-14 Monocular Night Vision Device. ITT offers a selection of tubes, providing different performance levels, to satisfy a wide range of customer specifications and to comply with the U.S. DoS and DoD guidelines for Gen 3 export.

**MX-11769  
(F9815  
Series)**



**AN/PVS-14  
(F6015)**

### **Description**

ITT's Gen 3 F9815 Series 18-mm image intensifier consists of a high-efficiency GaAs photocathode bonded to a glass input window, a microchannel plate (MCP) current amplifier, and a P-43 phosphor screen deposited on an inverting fiber-optic output window.

The Gen 3 photocathode is very sensitive to low-radiation levels of visible and, especially, near infrared light. It also provides very high signal-to-noise ratio (SNR) for extended detection ranges at very low light levels as well as variable gain to optimize performance in the AN/PVS-14. The 6-micron channel spacing in ITT's MCP provides exceptional resolution and extended detection ranges in low-light conditions. The MCP has an ion-barrier film that preserves photocathode sensitivity during operation, greatly extending the life of Gen 3 tubes compared to Gen 2.

### **Export Models**

ITT offers two F9815 models for export. A figure of merit (FOM) is an important consideration in determining the maximum performance level allowed for export. FOM is the product of resolution, in line pairs per millimeter (lp/mm) multiplied by SNR as measured by U.S. industry standards. Two important FOM thresholds are 1250 and 1600.

- The F9815P tube has 1600 FOM and meets the Omnibus IV specifications.
- The F9815J tube is similar to the F9815P, but has a reduced SNR to meet 1250 FOM.

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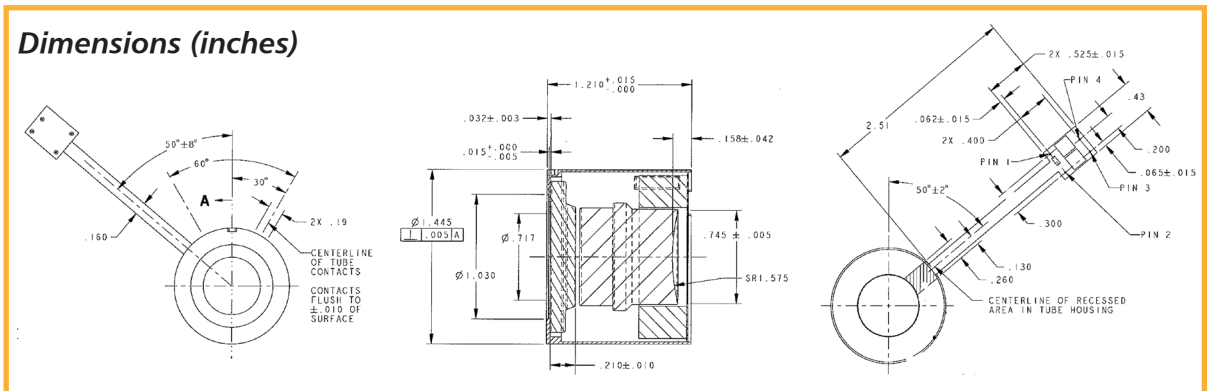
*Engineered for life*

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# Image Intensifier, Generation 3 18-mm MX-11769 (F9815 Series)

## Performance Levels

Tube Model	F9815J	F9815P
Resolution, lp/mm, (Minimum)	57	64
High-Light Resolution @ 20 fc (min) lp/mm	12	12
Photocathode Sensitivity (Minimum)		
2856 $\infty$ K, $\mu$ A/lm	1350	1500
@ 830nm, mA/W	135	155
Signal/Noise Ratio (Minimum)	18	19.2
FOM (Maximum)	1250	1600
EBI, X10 <sup>-11</sup> Im/cm <sup>2</sup> (Maximum)	2.5	2.5
Luminous Gain, fL/fc		
@2X10 -6 fc	40000 – 70000	40000 – 70000
@2X10 -4 fc	10000 – 20000	10000 – 20000
Output Brightness, fL @ 1 and 20 fc	2.0 – 4.0	2.0 – 4.0
Output Brightness Uniformity (Maximum)		
@2856 $\infty$ K and @880 nm	3.1	3.1
MTF (Minimum)		
@2.5 lp/mm	90%	92%
@7.5 lp/mm	70%	80%
@15.0 lp/mm	54%	61%
@25.0 lp/mm	27%	38%
Photocathode Diameter, mm (Minimum)	17.5	17.5
Reliability, Hrs. (Minimum)	10000	10000
Maximum Spots Allowed in Each Zone	Zone	Zone
Spot Size (in.)	1 2 3	1 2 3
>.015 or Larger	0 0 0	0 0 0
>.012 –.015	0 0 0	0 0 0
>.009 –.012	0 0 0	0 0 0
>.006 –.009	0 1 2	0 1 2
>.003 –.006	0 2 3	0 2 3



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Export of this product is regulated by the U.S. Dept. of State in accordance with guidelines of "International Traffic in Arms Regulations (ITAR)" per Title 22, Code of Federal Regulations, Parts 120-130.

Approved for unlimited distribution per 02-S-2448/A1.

Specifications subject to change without notice.  
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