

# MTBF - Security Products

Mean Time Between Failures

## MTBF Figures – Security Products – Mar. 2012

Model	Hours
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### SuperLoLux2 Box Cameras

TK-C9200E(EX)	93,000
TK-C9201EG(EX)	93,000
TK-C9300E(EX)	93,000
TK-C9301EG(EX)	93,000
TK-C9510E	77,000
TK-C9511EG	78,000
TK-C8301RE	90,000

### SuperLoLux2 Dome Cameras

TK-C2201E(EX)	90,000
TK-C2201WPE(EX)	90,000
TK-C2301WPRE	90,000

### SuperLoLux Dome Cameras

TK-C685E	57,000
TK-C685WPE	52,000
TK-C686E	57,000
TK-C686WPE	52,000

### LoLux Box Camera

TK-T8101WPRE	30,000
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### LoLux Dome Camera

TK-T2101RE	30,000
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### Monitors LCD

GD-171	50,000
GD-191	50,000
GD-W192	30,000
GD-W232	30,000
GM-F420S(B)	41,000
GM-F470S(B)	41,000
GM-F520S	40,000

Model	Hours
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### SuperLoLuxHD Box Cameras

VN-H37U	90,000
VN-H57U	90,000
VN-H137U	90,000
VN-H157WPU	90,000

### SuperLoLuxHD Dome Cameras

VN-H237U	90,000
VN-H257VPU	90,000

### LoLuxHD Box Camera

VN-T16U	30,000
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### LoLuxHD Dome Cameras

VN-T216U	30,000
VN-T216VPRU	30,000

### VNETWORKS Box Cameras

VN-V25U	44,000
VN-V26U	42,000
VN-X35U	43,000

### VNETWORKS Dome Cameras

VN-V225U	90,000
VN-V225VPU	90,000
VN-X235U	90,000
VN-X235VPU	90,000
VN-V685U	52,000
VN-V686BU(A)	52,000
VN-V686WPBU(A)	48,000

### VNETWORKS NVR

VR-X1600U	49,000
VR-X3200U	49,000
VR-N900U	30,000
VR-N1600E(A)	30,000

### Controller

RM-P2580E	44,000
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The MTBF is calculated based on MIL-HDBK-217F.

# MTBF - Explained

## MTBF numbers are stated in terms of hours

Used as a guide on value by designers. Decrease in MTBF number will equal increased cost of maintenance. The figures listed below represent a statistical approximation of how long devices should last before failure, but not determining when a specific device will fail.

## Environmental Effects

MTBF statistics can be altered by environmental effects such as non-balanced power supplies, or lowered by excessive vibration such as use on a train.

## Defining Time

The time used in MTBF may not be actual clock time, it may be the time during which the system is actually in use. It means a camera which is operated 8 hours a day may last three times as long as an identical one which is operated 24 hours a day. The MTBF for these cameras would be the same, because they both experienced the same number of working hours

## Calculating MTBF

When a product has an estimated MTBF of one million hours that does not mean that the product was tested for one million hours. MTBF numbers are generally created by estimating the MTBF of individual components and by past experience with similar products.



## Note:

1. The MTBF is calculated based on MIL-HDBK-217F
2. Dome Cameras PTZ mechanism is excluded from MTBF
3. VR-X1600U, VR-X3200U. VR-N900U and VR-N1600E's MTBF excludes HDD part.

MTBF Stands for "*Mean Time Between Failures*"

The criteria to indicate reliability.

It is a theoretical value based on calculation between the time when a repair is implemented and the time when next failure occurs.

(Even brand new unit for calculation, we assume that it is the condition after repair)

Higher number of hours relates to higher the reliability.