

# A complete range of rugged solutions



# The MilDef Group

## **Many specialties. One partner.**

The MilDef Group brings together a complete range of rugged electronics expertise in one supplier. From compact computers to switches and monitors, MilDef has specialized experience in each of the key technologies needed for a powerful communications solution to perform in even the harshest conditions.

MilDef offers a comprehensive range of products that have been proven on land, at sea and in the air with international forces around the world. These products include high-performance modular computer systems, notebooks, PDAs, tablets, displays, power supplies and the groundbreaking 19"/2<sup>®</sup> form factor.

Since MilDef designs and manufactures all of their products, the company is highly flexible in both enhancing standard products and designing custom solutions for specific needs.

## **Service and support anytime, anywhere**

MilDef's presence spans the entire globe, either directly or through partners. This presence means MilDef can offer an unrivalled service and support package for rapid solutions any time they're required.

The MilDef service offer includes:

- A dedicated in-house service team
- Guaranteed product servicing up to 5 years after end of sale
- Free telephone and email support for the lifetime of all products
- A standard 5-year warranty on all products, which can be extended if required
- Repair and return of a product within 10 working days of arrival
- An extensive burn-in program before delivery to ensure quality and function match all requirements.









# Rugged computers



# Maintain good communication in difficult conditions

Military operations often take place in difficult conditions: in the desert heat or arctic cold; in tropical rain or humid jungles; and in arid sandy plains. Not only must computer equipment withstand such tough conditions, but also the shocks and vibration common in military situations.

MilDef is well aware of what defence forces have to face in various theatres of operation, and is dedicated to developing and supplying a variety of rugged computers that help military personnel maintain good communication wherever they are.

## **An extensive range**

We offer an extensive range of rugged computers and associated equipment as presented in this brochure. Most of the units are ideal for use by army, navy and air force personnel, although ground forces represent the biggest application area. MilDef units are found in ground vehicles such as tanks, armed personnel carriers and smaller road vehicles. They are also used in staff headquarters, field tents, and by all ground forces.

As we can satisfy virtually all of your computer equipment requirements, MilDef is the only contact that you need.

## **Mobile solutions**

MilDef products ensure maintaining high situational awareness and the tactical advantage in a combat zone. For example, our MilDef DE13 is a combat-rugged tablet built to be used in harsh conditions as a soldier device or in military vehicles and naval vessels, running military applications.

The MilDef DE13 is equipped with all the technology you need in such situations and can be customized to meet customer requirements. It has high brightness LCD multi-touch screen, and complies with several common standards, including MIL-STD-810G, MIL-STD-461G and IP67.

## **Customized units**

As MilDef is a flexible and very service-minded company, we respond quickly to customer demands. We can rapidly customize units to exacting standards

and deliver them within tight time frames, whether it only concerns a few tailored products or hundreds of units. Computers can be modified and equipment connectors changed to suit your complete system. In addition, our accessories enhance the performance of our computer equipment. Naturally, they are designed for tight integration with our products.

As you would expect, our development department uses the latest technology in the design, development and manufacture of our product range and in customizing computers for our customers.

We have our own EMI chamber where we can test products and verify their performance after modification or upgrades.

## **Compliance and Military Standards**

As we are familiar with the extreme conditions under which military computer equipment operates, we use only the high-quality designs and materials necessary to protect and maintain long-term functionality and reliability. We are certified according to ISO 9001:2015 regarding design, development and production. We are also ISO 14001:2015 certified, and our care for the natural environment forms an important part of our business strategy.

All our units are built to comply with tough military standards to further ensure their high performance over long equipment lifecycles. They are, at a minimum, true IP54 products as well as fulfilling MIL-STD-810 and MIL-STD-461.

## **Sustainable products**

A key consideration taken into account when designing new equipment is to make it sustainable and highly reliable. This satisfies the demand of defence equipment purchasers for the long-term stable supply of particular types of equipment. Such sustainability also matches the long lifecycles of most military vehicles and aircraft, and the need to continually update systems. Typical MilDef features that promote sustainability and cost-effectiveness are a form factor that remains the same even if computers are updated, a computer lifecycle of up to ten years, and lifetime support for all MilDef units.



# Handhelds

## MilDef DE13

### Specifications:

**CPU:** Intel® Core™ i7-7Y75  
(4M Cache, up to 3.60GHz)  
**Display:** 7" 1280 × 800, LED backlit  
**Display brightness:** 780 nits  
**Touch-screen:** Resistive multi-touch  
**Memory:** 16GB DDR3 1066MHz  
**Storage:** M.2 2280 M key SATA III SSD  
**Graphics:** Intel® HD Graphics 615  
**Battery:** 7.4V Li-ion (4400mAh)  
**Sensors:** Light sensor  
**Audio:** HD Audio and mono speakers, embedded digital mic  
**Operating System:** Windows 10  
**Temperature operational:** -20°C to +60°C (-4°F to 140°F)  
**Temperature storage:** -40°C to +70°C (-40°F to +158°F)  
**Dimensions (W × D × H):** 250 × 144 × 30.5 mm  
(11.0 × 5.67 × 1.20 in) w/ rubber bumpers  
**Weight:** 1.15 kg (2.54 lb) w/ battery  
**Compliant to:** CE, FCC, WEE, REACH, RoHS2.0, IP67,  
MIL-STD-810G and MIL-STD-461G



### Ports and connectors:

1× USB 3.1 Type C  
1× Docking connector  
(POGO)  
2× Ext ANT signals  
1× 3-pin DC-in (Fischer)

### Options and accessories:

1× USB 2.0 (Fischer)  
1× Display Port (Fischer)  
1× Giga LAN (Fischer)  
1× Serial RS232/422 (Fischer)  
1× Headset (Fischer)  
WLAN 802.11 a/b/g/n/ac  
BT 4.2  
GPS  
Invisible mode  
TPM 2.0  
-30°C/-22°F Operating Temperature  
Hot swappable 2nd battery 7.4V Li-ion  
(4400mAh)  
MIL-STD-461G – Ground Navy  
MIL-STD-461G – Ground Army

## MilDef DB7

### Specifications:

**CPU:** Intel® Atom™ E3825 (1M Cache, 1.33GHz)  
**Display:** 5" 800 × 480, LED backlit  
**Display brightness:** 340 nits  
**Touch-screen:** Resistive single-touch  
**Memory:** Up to 8GB DDR3L 1067 MHz  
**Storage:** mSATA II SSD up to 256GB  
**Graphics:** Intel® HD Graphics for Intel Atom®  
Processor Z3700 Series  
**Battery:** 3.7V Li-ion (3900mAh)  
**Audio:** HD audio codec and amplifier, Mono Speaker 0.5 W,  
Embedded Digital mic  
**Operating System:** Windows 7, 10 and Linux depending on  
configuration  
**Temperature operational:** -20°C to +60°C (-4°F to +140°F)  
**Temperature storage:** -40°C to +70°C (-40°F to +158°F)  
**Dimensions (W × H × D):** 202 × 98 × 40 mm  
(7.95 × 3.86 × 1.57 in) w/ bumper  
**Weight:** 760 g (1.68lb) w/ battery  
**Compliant to:** CE, FCC, WEEE, REACH, RoHS2.0, IP65,  
MIL-STD-810G and MIL-STD-461F



### Ports and connectors:

1× USB 2.0  
1× SD card  
1× SIM Card  
1× DC-in (built-in 12–32 V DC)  
1× Docking connector  
(1× USB 2.0  
Host: 1× VGA, 1× DC-in)

### Options and accessories:

1× Audio & mic (Hirose)  
1× USB (Hirose)  
1× Giga LAN (Hirose)  
1× RS232 (Hirose)  
1× Docking Connector  
Giga LAN, USB, RS232, RGB  
WLAN 802.11 a/b/g/n  
Bluetooth 4.0 (BLE)  
GPS  
TPM1.2  
Multi-battery charger  
Double capacity battery 7.4V  
(7800mAh)

## MilDef DF8A

### Specifications:

**CPU:** Freescale ARM Cortex-A9 i.  
MX6 Quad Core 1GHz  
**Display:** 5" 480 × 800, LED backlit  
**Display brightness:** 400 nits  
**Touch-screen:** Capacitive multi-touch  
(Optional: resistive single-touch)  
**Memory:** 2GB RAM, 32GB ROM  
**Battery:** 3.7V Li-ion (3520mAh)  
**Sensors:** Magnetic, Gravity, Gyro, Proximity & Light  
**Operating System:** Android™ (4.4.3 Jelly Bean or 7.1.1 Nougat)  
**Temperature operational:** -20°C to +60°C (-4°F to 140°F)  
**Temperature storage:** -40°C to +70°C (-40°F to +158°F)  
**Dimensions (W × H × D):** 90 × 169 × 24.5 mm (3.54 × 6.65 × 0.96 in)  
**Weight:** 505 g (1.11 lb) w/ battery  
**Compliant to:** CE, FCC, WEEE, REACH, RoHS 2.0, IP66,  
MIL-STD-810G and MIL-STD-461F



### Ports and connectors:

1× Micro SD  
1× DC-in 5V

### Options and accessories:

GPS  
WLAN 802.11 b/g/n  
Bluetooth 4.0  
1× Audio/RS232/USB/VGA/LAN (Fischer)  
1× GPS antenna (SMA)  
1× WLAN/BT antenna (SMA)  
1× Docking connector USB, RS232, LAN  
(POGO)  
1× DC-in 10–32V DC (Lemo)  
Double capacity battery 3.7V (7040mAh)

## MilDef Mobilite DT

### Specifications:

**CPU:** Intel® Core™ i7-7600U  
(4M Cache, up to 3.90GHz)  
**Memory:** Up to 32 GB DDR4 2133 MHz  
**Storage:** Removable M.2 2280 SATA III  
SSD 256 GB / 512 GB  
**Graphics:** Intel® HD Graphics 620  
**Battery:** 10.8V Li-ion (5800mAh)  
**Operating System:** Windows 10  
**Temperature operational:** -20°C to +50°C (-4°F to +122°F)  
**Temperature storage:** -40°C to +70°C (-40°F to +158°F)  
**Dimensions (W × D × H):** 250 × 190 × 45.2 mm  
(9.84 × 7.48 × 1.78 in) w/ bumpers  
**Weight:** ~2.3 kg (~5.07 lb) w/ battery  
**Compliant to:** CE, FCC, WEEE, REACH, WHLK, IP54,  
RoHS2.0, MIL-STD-810G and MIL-STD-461F



### Ports and connectors:

1× Serial (DB9)  
2× USB 3.1 Type A  
1× RJ45 Giga LAN  
1× Docking connector (COM2/3,  
USB2.0, Mic, Speaker, Line-in, VGA,  
PS2, DVI, Giga LAN)  
1× MIL DC-in 12–32 V  
1× 2nd battery connector  
Multibay w/ 1× ExpressCard Slot  
& 1× SIM Card/SD Card slot

### Options and accessories:

GPS  
Bluetooth 5.0  
WLAN a/b/g/n/ac  
Docking station (Docklite 10)  
Stand for vehicle mounting  
2nd battery 10.8V Li-ion  
(8700mAh)  
TPM2.0  
-30°C/-22°F Operating  
temperature

# Tablets

## MilDef DS13

### Specifications:

**CPU:** Intel® Core™ i7-7Y75  
(4M Cache, up to 3.60GHz)  
**Display:** 10.1" 1920 × 1200, LED backlit  
**Display brightness:** 770 nits  
**Touch screen:** Resistive multi-touch screen  
**Memory:** 16GB DDR3 1866MHz  
**Storage:** mSATA III SSD up to 512GB  
**Sensors:** Light sensor, accelerometer/magnetometer/gyroscope  
**Graphics:** Intel® HD Graphics 615  
**Battery:** 11.1V Li-ion (4200mAh)  
**Audio:** HD Audio and mono speakers, embedded digital mic  
**Operating System:** Windows 10  
**Temperatures operation:** -20°C to +60°C (-4°F to 140°F)  
**Temperature storage:** -40°C to 70°C (-40°F to +158°F)  
**Dimensions (W × D × H):** 280 × 186 × 20 mm  
(11.0 × 7.3 × 0.8 in) w/o rubber bumpers  
**Weight:** 1.39 kg (3.06 lb)  
**Compliant to:** CE, FCC, WEE, REACH, RoHS2.0, IP65,  
MIL-STD-810G and MIL-STD-461F



<b>Ports and connectors:</b>	1 × GLAN/Mini DisplayPort/USB 3.0
1 × RJ45 Gbit LAN (trade-off DisplayPort)	1 × USB 2.0 (Fischer)
1 × Mini DisplayPort	1 × VGA (Fischer)
2 × USB 3.0	2 × COM (Fischer) (RS232 x2 or RS232 x1/RS422 x1)
1 × Docking connector (POGO)	1 × GLAN (Fischer)
1 × Micro SD	1 × Audio (Fischer)
1 × SIM Card Slot	1 × Sealed Headset (Fischer)
1 × DC in 12–32 V	TPM 2.0

<b>Options and accessories:</b>	-30°C Operating Temperature
WiFi 802.11 a/g/n	-40°C Operating Temperature
BT 4.0	Dual GLAN Card
GPS	Double capacity battery
Invisible mode	11.1 V Li-ion (8400mAh)
AMG sensor	

## MilDef DT13

### Specifications:

**CPU:** Intel® Core™ i7-7600U  
(4M Cache, up to 3.90 GHz)  
**Display:** 9" 1280 × 768 LED backlit  
**Display brightness:** 700 nits  
**Touch screen:** Resistive multi-touch  
**Memory:** Up to 32 GB DDR4 2133 MHz  
**Storage:** Removable M.2 2280 SATA III SSD 256 GB / 512 GB  
**Keyboard:** 62 keys with LED backlight  
**Graphics:** Intel® HD Graphics 620  
**Battery:** 10.8V Li-ion (5800mAh)  
**Operating System:** Windows 10  
**Temperatures operational:** -30°C to +50°C (-22°F to +122°F)  
**Temperature storage:** -40°C to +70°C (-40°F to +158°F)  
**Dimensions (W × D × H):** 250 × 190 × 45.2 mm  
(10.2 × 7.5 × 1.7 in)  
**Weight:** ~2.5 kg (~5.50 lb) w/ battery  
**Compliant to:** CE, FCC, WEEE, REACH, WHLK, IP65, RoHS2.0,  
MIL-STD-810G and MIL-STD-461F



<b>Ports and connectors:</b>	<b>Options and accessories:</b>
1 × Serial (DB15)	GPS
(COM1: RS232/422/485 BIOS Selectable + COM3 RS232)	Bluetooth 5.0
2 × USB 3.1 Type A	WLAN a/b/g/n/ac
1 × USB 3.1 Type C	Docking station (Docklite 10)
1 × RJ45 Giga LAN	Stand for vehicle mounting
1 × Docking connector (120 pins)	2nd battery 10.8 V Li-ion (8700mAh)
1 × MIL DC in 12–32 V	Night vision
2nd battery connector	TPM 2.0
Multibay w/ 1 × ExpressCard Slot & 1 × SIM Card/SD Card slot	MIL-STD-461G Ground Army

## MilDef DR13

### Specifications:

**CPU:** Intel® Core™ i7-7600U  
(4M Cache, up to 3.90GHz)  
**Display:** 8.4" 1024 × 768 LED backlit  
**Display brightness:** 730 nits  
**Touch screen:** Resistive single-touch  
**Memory:** Up to 32 GB DDR4 2133 MHz  
**Storage:** Removable 2.5" SATA III SSD  
**Graphics:** Intel® HD Graphics 620  
**Battery:** 10.8V Li-ion (5800mAh)  
**Operating System:** Windows 10  
**Temperature operational:** -20°C to +50°C (-4°F to +122°F)  
**Temperature storage:** -40°C to +70°C (-40°F to +158°F)  
**Dimensions (W × D × H):** 250 × 190 × 45.2 mm  
(9.84 × 7.48 × 1.78 in) w/ bumpers  
**Weight:** ~2.3 kg (~5.07 lb) w/ battery  
**Compliant to:** CE, FCC, WEEE, REACH, WHLK, IP54, RoHS2.0,  
MIL-STD-810G and MIL-STD-461F



<b>Ports and connectors:</b>	<b>Options and accessories:</b>
1 × Serial (DB9)	GPS
2 × USB 3.1 Type A	Bluetooth 5.0
1 × RJ45 Giga LAN	WLAN a/b/g/n/ac
1 × Docking connector (COM2/3, USB 2.0, Mic, Speaker, Line-in, VGA, PS2, DVI, Giga LAN)	Stand for vehicle mounting
1 × MIL DC-in 12–32 V	2nd battery 10.8V Li-Ion (8700mAh)
1 × 2nd battery connector	TPM2.0
Multibay w/ 1 × ExpressCard Slot & 1 × SIM Card/SD Card slot	Night vision
	Invisible mode
	-30°C/-22°F Operating temperature
	ViaSat Encryption SSD

## MilDef DK13

### Specifications:

**CPU:** Intel® Core™ i7-7600U Processor  
**Display:** 12.1" XGA (1024 × 768) with optical bonding  
**Display brightness:** 650 nits  
**Touch screen:** Resistive Single-Touch  
**Memory:** Up to 32 GB DDR4 2133 MHz  
**Storage:** 2.5" SATAIII SSD (removable)  
**Graphics:** Intel® HD Graphics 620  
**Battery:** 10.8V / 5800 mAh Li-Ion (standard)  
10.8V / 8700 mAh Li-Ion (optional)  
**Operating System:** Windows 10  
**Temperature operational:** -20°C to +50°C (-4°F to +122°F)  
**Temperature storage:** -40°C to +71°C (-40°F to +158°F)  
**Dimensions (W × D × H):** 310 × 255 × 54 mm  
(12.20 × 10.04 × 2.13 in)  
**Weight:** 2.8 kg (6.17 lb)  
**Standards:** IP65, MIL-STD-810G and MIL-STD-461F



<b>Ports and connectors:</b>	<b>Options and accessories:</b>
2 × USB 3.1 Gen 1	GPS
1 × Giga LAN	Bluetooth / Wifi
1 × Docking connector (incl. VGAm DVI, GLAN, 2x COM, USB, Lini In, Mic, etc)	2nd battery 10.8V Li-Ion
1 × MIL DC-in 12–32 V	TPM2.0
1 × 2nd battery connector	Night vision
ExpressCard & SIM Card/SD Card slot	Invisible mode
Function buttons on front	Extended temperature range
	-30°C/-22°F
	Docking stations, stands etc
	ViaSat Encryption SSD

# Notebooks

## MilDef RS13

### Specifications:

**CPU:** Intel® Core™ i7-7600U (4M Cache, up to 3.90 GHz)

**Display:** 13.3" 1920 × 1080 LED backlit

**Display brightness:** 400 nits, High brightness: 800nits (option)

**Memory:** Up to 32 GB DDR4 2133 MHz

**Storage:** 2.5" SATA III SSD (removable)

**Graphics:** Intel® HD Graphics 620

**Battery:** 11.1V Li-Polymer (6040mAh)

**Input devices:** 83-key backlit keyboard, resistive single-touch touchpad

**Audio:** HD Audio and stereo speakers, embedded digital mic

**Operating System:** Windows 10

**Temperatures operational:** -20°C to + 60°C (-4°F to +140°F)

**Temperature storage:** -40°C to +70°C (-40°F to +158°F)

**Dimensions (W × D × H):** 338 × 265 × 31.5 mm (13.31 × 10.43 × 1.24 in) w/ bumpers

**Weight:** 2.5 kg (5.51 lb) w/ battery

**Compliant to:** CE, FCC, WEEE, REACH, IP65, WHLK, RoHS2.0, MIL-STD-810G and MIL-STD-461G



### Ports and connectors:

1 × Display port or VGA port

1 × SIM Card Slot

1 × Serial port (DB9)

1 × USB 3.1 (USB-IF BC V1.2 for

1.5 A fast charger)

1 × USB 3.1

1 × RJ45 Giga LAN

1 × MIL DC in 12–32 V

### Options and accessories:

1 × 2nd RJ45 Giga LAN

1 × Giga LAN (Fischer)

1 × VGA (Fischer)

1–2 × Serial I/O RS232/RS422 (Fischer)

1 × Audio (Fischer)

1 × USB 2.0 (Fischer)

ViaSat Encryption SSD

1 × Docking connector (POGO)

TPM2.0

WLAN 802.11 a/b/g/n/ac

Bluetooth 4.2 (BLE)

Resistive touch panel display

-30°C/-22°F Operating Temperature

## MilDef RW14

### Specifications:

**CPU:** Intel® Xeon® E-2176M

**Display:** 15.6" FHD LCD (1920x1080) with Optical Bonding

**Display brightness:** Standard: 270 nits, High brightness: 850nits (option)

**Memory:** RAM Up to 64GB DDR4 2400 MHz (ECC or non-ECC)

**Operating System:** Windows 10 and Server 2016/2019

**Graphics:** Intel® UHD Graphics P630

**Storage:** Up to 4x Removable SSD (SATAIII)

**Input devices:** 83-key with Backlight, resistive single-touch touchpad

**Audio:** HD Audio and stereo speakers, embedded digital mic (optional)

**Power:** DC-in 12–32V with BVA & Surge Protector

**Temperature:** -20°C to +60°C (-4°F to +140°F) (-30°C/-22°F option available)

**Temperature storage:** -40°C to +71°C (-40°F to +160°F)

**Dimensions (W × D × H):** 392 × 302 × 43 mm (15.43 × 11.89 × 1.69 in) w/ bumpers

**Weight:** 4.9 kg (incl wifi, 2x battery, 1x SSD)

**Compliant to:** CE, FCC, IP65, MIL-STD-810H and MIL-STD-461G, REACH, RoHS



### Ports and connectors:

4 × SSD Bay (SATA III)

2 × USB 2.0

1 × RJ45 GigaLAN

2 × USB 3.0

3 × Audio (Mic, Line-in, Audio out)

1 × Display port

1 × VGA

2 × RS232/422/485

1 × MIL DC in

1 × Docking connector

### Options and accessories:

Self-encrypting SSD

1 × GLAN (additional)

2 × RS232/422/485 (additional)

GPS

WLAN/Bluetooth

Capacitive touch screen

Smart Card reader

1 × Mini HDMI

1 × Mini-Flex bay (trade-off with 3rd–4th SSD)

NVIDIA GeForce® GTX1050 4GB

MIL-STD-461F – Ground Army

Hot-swappable batteries

ViaSat Encryption SSD

More options please contact local MilDef sales office.



## MilDef RK12

### Specifications:

**CPU:** Intel® Core™ i7-6822EQ (8M Cache, up to 2.80 GHz)

**Display:** 15" XGA 1400 × 1050 LED backlit

**Display brightness:** 470 nits, High brightness: 900nits (option)

**Memory:** Up to 32 GB DDR4 2133 MHz

**Storage:** Removable 2.5" SATA III HDD / SSD

**Operating System:** Windows 7/10

**Graphics:** Intel® HD Graphics 530

**Battery:** 10.8V Li-ion (8700mAh)

**Input devices:** 83-key backlit keyboard, resistive touchpad

**Audio:** HD Audio and Stereo Speakers

**Temperatures:** -20°C to +55°C (-4°F to +131°F)

**Temperature storage:** -40°C to +70°C (-40°F to +158°F)

**Dimensions (W × D × H):** 351.6 × 294.2 × 78.7 mm (13.84 × 11.58 × 3.10 in) w/ bumpers

**Weight:** 5.5 kg (12.13 lb)

**Compliant to:** CE, FCC, WHQL, WEEE, REACH, IP65, MIL-STD-810G and MIL-STD-461G



### Ports and connectors:

1 × Flex Bay

(2nd HDD/DVD/Battery)

1 × PS/2

2 × USB 3.0

1 × USB 2.0

(USB fast charge)

3 × 3.5 mm

(Mic, Line-in/earphone)

1 × RJ45 Giga LAN

1 × Express card (PCIe)

2 × Serial port DB9

(COM1 & COM2)

1 × Display Port

1 × DVI

1 × VGA

1 × MIL DC in 12–32 V

1 × Docking connector

### Options and accessories:

2 × Serial port DB9

1 × PCMCIA II

ViaSat Eclipt Self encrypting SSD

GPS

Removable 3.5" DVD-RW 2nd SATA

High brightness display 1000 nits

Resistive touch screen

HDD with heater or secondary

battery.

Flex bay with DC, PCIe, USB, LAN,

SATA and serial signals for customer specific modules

WLAN 802.11 a/b/g/n/ac

Bluetooth 4.2

TPM2.0

2<sup>nd</sup> battery 10.8V Li-ion (8700mAh)

Multi battery charger

-30°C/-22°F Operating Temperature

Surge protector/BVA module

## MilDef RB14

### Specifications:

**CPU:** Intel® Xeon® E-2176M

**Display:** 17.3" FHD LCD (1920 x 1080)

**Display brightness:** 1000 nits (typical)

**Memory:** Up to 64 GB DDR4 2400 MHz (4x SO-DIMM) ECC / non ECC

**Storage:** Up to 4 x SATA III SSD Intel RAID 0, 1, 5, 10 support

**Graphics:** Intel® UHD Graphics P630

**Battery:** 2x Removable 10.8V Li-ion (6900 mAh)

**Input devices:** 83-key with Backlight, resistive single-touch touchpad

**Audio:** HD Audio and stereo speakers, embedded digital mic (optional)

**Power:** DC-in 19V

**Operating System:** Windows 10 and Server 2016/2019

**Temperature:** -20°C to +60°C (-4°F to +140°F) (-30°C/-22°F option available)

**Temperature storage:** -40°C to +71°C (-40°F to +160°F)

**Dimensions (W × D × H):** 436 x 328 x 52 mm (17.2 x 12.9 x 2 in) w/ bumpers

**Weight:** ~ 7 kg (15 lbs)

**Compliant to:** CE, FCC, IP65, MIL-STD-810H and MIL-STD-461G, REACH, RoHS2.0



### Ports and connectors:

4 × SSD Bay (2.5" SATA III)

2 × USB 3.1

1 × RJ45 Giga LAN

2 × USB 3.1 Gen 2 (of one is 1.5A

fast charge)

3 × Audio 3.5mm (Mic, Line-in,

Audio out)

1 × Display port

1 × VGA

2 × Serial DB9 (RS232/422/485 BIOS

selectable)

1 × MIL DC in

1 × Docking connector

### Options and accessories:

Touchscreen

Smart Card Reader

TPM2.0

ViaSat Encryption SSD

1x GLAN (additional)

2x RS232/422/485 (additional)

GPS

WLAN/Bluetooth

1 × Mini-Flex bay (trade-off with 3rd~4th SSD bay)

NVIDIA GeForce® GTX1050 4GB

Surge Protector & built-in vehicle

adapter 12-32V DC-in

MIL-STD-461G – Ground Army

-30°C/-22°F Operating Temperature

More options please contact local MilDef sales office.

# Accessories

Here you'll find a selection of accessories to compliment your MilDef computer. Please contact your local MilDef office to discuss your needs and requirements.

## Flex Bay

Available for all MilDef 10/12-series notebooks (RT, RK and RF)

### Specifications:

2×Gbit LAN  
2×COM-ports  
1×Full RS232/RS485  
1×Tx / Rx  
USB  
PCIe  
SATA  
Power in/out  
2nd HDD/SSD: SATA & Heater  
2nd Battery: 7200 mAh Lithium Ion  
DVD±RW: 3.5" CD/DVD SATA



## IP54 Keyboard

### Specifications:

89 key layout (emulates 101 /102 keys)  
Windows keys, Elastomer keys (backlight)  
**Operating force:** 60 +/-20 g  
**Full travel:** 2 mm  
**Life:** > 1 million times  
**Weight:** 1.2 kg (2.6 lb), 1.7 kg (3.7 lb) with rubber plate (option)  
Size of the key caps part: 275×100 mm (10.8×3.9 in)  
Size of the keyboard:  
325×172 mm (12.8×6.7 in) (W×D)  
**Designed to meet:** IP54, MIL-STD-461D (option)  
**Temp operating:** -20 to +50 °C (-4°F to +122°F)  
**Temp storage:** -30 to +70 °C (-22°F to +158°F)



## DB7 Mini KBD

### Specifications:

USB, 66 keys, backlight, right/left click, stickpointer, Magnesium

**Designed to meet:** IP54

**Certifications:** CE/FCC

**Temp operating:** -20 to +50 °C (-4°F to +122°F)

**Temp storage:** -40 to +70 °C (-40°F to +158°F)

**Dimensions:** 190×90×12 mm (7.5×3.5×0.5 in) (W×D×H)

**Weight:** 170 g (0.4 lb)



## KBD301 Keyboard

### Specifications:

Backlit Keyboard with 87 key layout + numpad, integrated trackpad (including buttons).

CNC milled Aluminum

**Weight:** 0.8 kg (1.7 lb)

**Designed to meet:** IP54, MIL-STD-810G, MIL-STD-461F

**Temp operating:** -40 to +71 °C (-40°F to +160°F)

**Temp storage:** -40 to +71 °C (-40°F to +160°F)



## DR Keyboard KBD211

### Specifications:

66 key B/L, Elastormer keys (backlight), USB

**Designed to meet:** IP54, MIL-STD-810G

**Temp operating:** -30 to +55 °C (-22°F to +131°F)

**Temp storage:** -40 to +70 °C (-40°F to +158°F)

**Dimensions:** 235 × 200 × 15.5 mm (9.3×7.9×6.1 in) (W × D × H)

**Weight:** <0.7 kg (<1.5 lb)





## DockLite Standard

(option for DK, DR and DT)

### Connections:

1×RJ45 GigaLAN  
2×USB 2.0  
2×Sealed MIL USB 2.0  
1×VGA (DB15)  
2×RS232(DB9)  
1×MIL DC in with surge protection  
1×Audio Out  
1×Mic



## DockLite Fiber

(option for DK, DR and DT)

### Connections:

1×100 Mbit 1310 nm MultiMode LC  
2×USB 2.0  
2×Sealed MIL USB 2.0  
1×VGA (DB15)  
2×RS232 (DB9)  
1×MIL DC In with surge protection  
1×Audio Out  
1×Mic



## DockLite DS

(option for MilDef DS Series)

### Connections:

1×VGA (DB15)  
1×MLAN  
2×USB 2.0  
1×RS232(DB9)  
1×MIL DC in with surge protection



## BMS Docking station

### Specifications:

Docking station for DR/DT Series

### Signals:

1×COM2 (RS232)  
1×COM3 (RS232)  
1×VGA  
1×Video  
1×GPS-Antenna (optional)  
1×USB  
1×COM4 = USB > RS232  
1×GPS (Military or Industrial)  
1×LAN/FiberLAN  
5 V out

**Designed to meet:** IP54, MIL-STD-810F, MIL-STD-461E and MIL-STD-1275 1×DC

**Dimensions:** 250×80×216 mm (9.8×3.1×8.5 in)



## 19"/6 MC701

### Media converter

#### Specifications:

Converts between Ethernet copper and fiber (Minic Tyco connector)  
Also available with LC connector

**Temp operating:** -40 to +55°C (-40°F to +131°F)

**Temp storage:** -40 to +70°C (-40°F to +158°F)

**Dimensions:** 73×140×44 mm (2.9×5.5×1.7 in) (W×H×D)

**Ports:** 1×LAN RJ45 (1000 Mbps)

1×LAN Fiber MiniTyco, Single Mode (1000 Mbps, 1310 nm)

1×DC In 5 V (Binder)

1×DC In 10–32 V DC (ITS)



Copper LAN can be configured to 10/100/1000 Mbps.  
Variants with Multimode fiber is available.

## 19"/6 MC702

### Media converter

#### Specifications:

Converts between Ethernet copper and fiber (LC connector)

**Temp operating:** -40 to +55°C (-40°F to +131°F)

**Temp storage:** 40 to +70°C (-40°F to +158°F)

**Dimensions:** 1×LAN RJ45 (1000 Mbps)

1×LAN Fiber LC, Single Mode (1000 Mbps, 1310 nm)

1×DC In 5 V (Binder)

1×DC In 10–32 V DC (ITS)



Copper LAN can be configured to 10/100/1000 Mbps.  
Variants with Multimode fiber is available.

## Adjustable stand DR/DT

### Specifications:

Stand for our MilDef DR/DT Series

Adjustable in all directions.

The joint consists of a rubber ball, which acts as a vibration damper.

**Dimensions:** 244×312×165 mm

(9.6×12.3×6.5 in) (W×H×D)

**Weight:** 2.3 kg (5 lb)



## Adjustable stand DS Series

### Specifications:

Stand for our MilDef DS Series

Adjustable in all directions.

The joint consists of a rubber ball, which acts as a vibration damper.

**Dimensions:** 244×312×165 mm

(9.6×12.3×6.5 in) (W×H×D)

**Weight:** 2.2 kg (4.8 lb)



# 19"/2<sup>®</sup> Product range

## Save up to 75% of space or add more functionality

Our innovative approach to product design can be seen with our new modular 19"/2<sup>®</sup> units. Being only 50% of the size of the existing 19" form factor, they create up to 75% more space in racks. This makes it possible to mount more units and hence add functionality. Smaller units are particularly valuable for use in cramped spaces, such as found in ground vehicles and aircraft.

This is a perfect example of where we are truly reshaping your communication power.

### Endless configuration possibilities

The ability to readily combine communication units of the 19" form factor with units of MilDef's 19"/2<sup>®</sup> form factor gives the practical benefits of integrated solutions and endless configuration possibilities to quickly build the communication system you want.

### More important benefits - SWaP

The smaller size of our 19"/2<sup>®</sup> modules provides you with the additional important benefits of:

- Less weight
- Less energy consumption
- Less heat generation

### Sustainable form factor

A key consideration taken into account when designing our 19"/2<sup>®</sup> form factor was to make it sustainable. This satisfies the demand of defence

equipment purchasers for the long-term stable supply of particular types of equipment. Such sustainability also matches the long lifecycles of most military vehicles and aircraft, and the need to continually update systems.

Moreover, we assure you of lifetime support for all MilDef equipment.

### Typical application segments

The various communication units of the MilDef 19"/2<sup>®</sup> product series are typically used within the following military segments:

- Ground platforms
- Deployed forces
- Special forces
- Air force platforms
- Naval platforms

### Customized units or special electronics

Our 19"/2<sup>®</sup> communication units are supplied as Military Off-The-Shelf (MOTS) products, but MilDef can complement these with our hardware according to customer specifications. In addition, if there are no MOTS products that suit your needs, we can design special electronic units based on your particular specifications.



19" rack installation



Two or more modules can be stacked on top of each other



Two modules can be mounted together in a 19" rack



Stand-alone installation



The possibilities are endless



# Computers and storage

## 19"/2"® CS1100 series

A rugged server based on the Intel® Xeon® platform (8 or 16 core).  
Up to 128 GB RAM, a hardware RAID and with removable disks.  
**MIL Standards:** MIL-STD-810G, MIL-STD-461F, MIL-STD-1275D & IP65  
**Temp operating:** -40 to +55°C (-40°F to +131°F)  
**Temp storage:** -40 to +71°C (-40°F to +160°F)  
**Dimensions:** 220 × 400 × 88 mm (8.7×15.7 ×3.5 in)  
**Weight:** 8 kg (17.6 lb)

### Interfaces (front):

1× KPT  
1× DC in 16-32 V  
1× Dual USB  
2× USB-A 3.0  
2× HMC  
1× ETH (1000BASE-SX, OM2)  
1× 38999  
1× VGA  
1× Audio In / out  
2× USB 2.0  
1× RS232  
3× SSD Caddy  
1× 2.5" SATAIII

### Interfaces (back):

1× Binder  
1× Service port (serial)  
1× 38999  
3× USB 2.0  
1× Remote Power on  
2× RS232



CS1100 series are available in different configurations, either with MIL connectors or rugged industrial connector.  
Configuration above is based on the CS1101.

## 19"/2"® CS2100 series

A rugged computer based on the Intel® Xeon® E3-1505L V5 CPU, supporting up to 32GB RAM and M.2 SSD for storage.  
**MIL Standards:** MIL-STD-810F, MIL-STD-461F, MIL-STD-1275D & IP65  
**Temp operating:** -40 to +71°C (-40°F to +160°F)  
**Temp storage:** -40 to +71°C (-40°F to +160°F)  
**Dimensions:** 220 × 341 × 65 mm (8.7×13.4 ×2.6 in)  
**Weight:** 3.5 kg (7.7 lb)

### Interfaces (front):

1× 38999  
1× DC in 12-32V DC  
1× 38999  
3× USB2.0  
3× RS232  
1× 38999  
4× ETH (1000BASE-T)  
1× 38999  
1× VGA  
1× Remote Power On  
1× AUDIO in/out

### 1× ODU

1× DVI  
2× ODU  
1× USB3  
**Interfaces (back):**  
1× Binder  
1× Service port (serial)



CS2100 series are available in different configurations, either with MIL connectors or rugged industrial connector.  
Configuration above is based on the CS2101.

## 19"/2"® CS300 series

A rugged server based on the Intel® Xeon® platform, up to 32GB RAM and a hardware RAID with removable disk (optional).  
**MIL standards:** MIL-STD-810G, MIL-STD-461F, MIL-STD-1275D & IP54  
**Temp operating:** -40 to +55°C (-40°F to +131°F)  
**Temp storage:** -40 to +71°C (-40°F to +160°F)  
**Dimensions:** 220 × 332 × 88 mm (8.7×13 ×3.5 in)  
**Weight:** 5.4 kg (11.9 lb) without disk

### Interfaces (front):

1× ITS  
1× DC in 10-32 V  
1× 38999  
1× VGA  
1× RS232  
1× Audio in/ out  
2× USB 2.0  
1× 38999  
4× ETH (1000BASE-T)  
3× SSD Caddy  
1× 2.5" SATAII

### 1× 38999

1× DVI  
3× USB 2.0  
2× RS232 (COM3/COM4)\*  
1× Remote power on  
**Interfaces (back):**  
1× Binder  
1× Service port (serial)



CS300 series are available in different configurations, either with MIL connectors or rugged industrial connector.  
Configuration above is based on the CS371. \*Rx/Tx/RTS only

## 19"/2"® CS9100 series

A rugged computer based on the Intel® Core™ i7- 6822EQ CPU, supporting up to 32 GB RAM and a built in M.2 SSD.  
**MIL standards:** MIL-STD-810G, MIL-STD-461F, MIL-STD-1275D & IP65  
**Temp operating:** -40 to +55°C (-40°F to +131°F)  
**Temp storage:** -40 to +71°C (-40°F to +160°F)  
**Dimensions:** 220 × 360 × 44 mm (8.7×14.2 ×1.7 in)  
**Weight:** ≤5 kg (≤11 lb)

### Interfaces (front):

1× ITS  
1× DC in 10-32 V  
8× RJ45  
1× ETH (1000BASE-T)  
2× RJ45  
1× ETH w. PoE (1000BASE-T)  
1× Dual USB  
2× USB-A 3.0

### Interfaces (back):

1× Binder  
1× Service port (serial)  
1× Dual USB  
2× USB-A 2.0  
1× HDMI  
1× DSUB HD15  
1× VGA



## 19"/2"® ST1100 series

A Storage Computer that can be used either stand alone or as a NAS with iSCSI. Support up to 5 removable 2.5" SSDs.  
**MIL standards:** MIL-STD-810G, MIL-STD-461F, MIL-STD-1275D & IP65  
**Temp operating:** -40 to +55°C (-40°F to +131°F)  
**Temp storage:** -40 to +71°C (-40°F to +160°F)  
**Dimensions:** 220 × 372 × 88 mm (8.7×14.6 ×3.5 in)  
**Weight:** 8 kg (17.6 lb)

### Specification:

**CPU:** Intel® Xeon® E3-1505L v5  
**Memory:** Up to 32RAM  
**RAID:** 0, 1, 4, 5, 6 & 10

### Interfaces (front):

5× 2.5" SSD SATAIII  
1× ETH 1000BASE-T (RJ45)  
1× ETH 10GBASE-T (RJ45)  
1× RS232 Console (RJ45)  
1× System Button

### Interfaces (back):

1× ETH 1000BASE-LX (LX)  
2× USB 3.0 (Dual USB-A)  
1× DC in 16-32V DC (ITS)  
1× Service (Binder)



# Displays, KVM & gateways

## 19"/2® KSW400 series

A seven port KVM switch with possibility to daisy chain up to 3 units.

**MIL standards:** MIL-STD-810G, MIL-STD-461F, MIL-STD-1275D & IP54

**Temp operating:** -40 to +55°C (-40°F to +131°F)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 220 × 183 × 44 mm (8.7×7.2 ×1.7 in)

**Weight:** 2 kg (4.4 lb)

### Interfaces (front):

1×ITS  
1×DC in 10-32 V  
1×DSUB HD15 (output)  
1×VGA  
1×Dual USB-A (KBD/Mouse)  
2×USB 2.0 host  
1×Dual USB-A (USB2.0)  
2×USB 2.0 host

### Interfaces (back):

1×Binder  
1×Service port (serial)  
7×DSUB HD15 (computer)  
1×VGA  
1×USB  
1×DSUB HD15 (Link out)  
Link out

KSW400 series are available in different configurations. configuration above is based on the KSW402.



## 19"/2® KSW1100 series

KVM switch for DVI and USB input, allows up to 6 computers to share the use of a one console with DVI and USB (kbd/mouse). Input can be done either using pushbuttons on the switch or by an external switch.

**MIL Standards:** MIL-STD-810G, MIL-STD-461F, MIL-STD-1275D & IP65

**Temp operating:** -40 to +71°C (-40°F to +160°F)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 220 × 222 × 44 or 88 mm (8.7×8.7 ×3.5 in)

**Weight:** 2 or 4 kg (4.4 or 8.8 lb)

### Interfaces (front):

1×Remote (38999)  
2×USB 2.0 Console (USB A)  
1×DVI Console (DVI-D)  
1×Service (Binder)  
1×Power (ITS)

### Interfaces (back):

4×or 6×DVI Computer  
6×USB 2.0, Computer 1 to 6



## 19"/2® SSW1100 series

A USB Network Hub to is built to share up to 5 USB devices over the LAN.

**MIL Standards:** MIL-STD-810G, MIL-STD-461F, MIL-STD-1275D & IP65

**Temp operating:** -40 to +60°C (-40°F to +140°F)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 220 × 261 × 44 mm (8.7×10.3 ×1.7 in)

**Weight:** 2,4 kg (5.3 lb)

### Interfaces (front):

5×38999 (USB source)  
1×USB 2.0  
1×HMC (LAN)  
1×ETH (100Base-FX)  
1×38999  
1×DC in 10-32V  
1×Binder  
1×MilDef Service port



## 19"/2® SSW2100 series

The USB switch shall allow any combination of USB inputs to be connected to any combination of USB outputs at any given time (e.g. USB Input X1/X2 and X3/X4 are routed simultaneously to USB Output X7 through X10).

**MIL Standards:** MIL-STD-810G, MIL-STD-461F, MIL-STD-1275D & IP65

**Temp operating:** -40 to +55°C (-40°F to +131°F)

**Temp operating:** -40 to +55°C (-40°F to +131°F)

**Dimensions:** 220 × 199 × 44 mm (8.7×7.8 ×1.7 in)

**Weight:** 1,8 kg (4 lb)

### Interfaces (front):

4×USB 2.0 input (38999)  
1×Remote control RS422 (38999)  
1×DC in 10-32V (38999)

### Interfaces (back):

4×USB2.0 output (38999)  
1×Service (Binder)



## 19"/2® SSW200 series

Share serial devices in an IP-network. Individual IP addressing to each serial port. Software switchable between RS232, RS422 and RS485.

**MIL Standards:** MIL-STD-810F, MIL-STD-461F, & IP54

**Temp operating:** -40 to +55°C (-40°F to +131°F)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 220 × 182 × 44 mm (8.7×7.2 ×1.7 in)

**Weight:** 2 kg (4.4 lb)

### Interfaces (front):

6×ITS  
1×DC out  
1×PT02  
1×Serial port  
1×38999  
1×ETH (100Base-TX)



SSW200 series are available in different configurations, either with MIL connectors or rugged industrial connector. Configuration above is based on the SSW211.



# Switches & time servers

## 19"/2® ESW1100 series

A rugged unmanaged gigabit ethernet switch, with option for Power over Ethernet and fiber.

**MIL standards:** MIL-STD-810G, MIL-STD-461F, MIL-STD-1275D & IP65

**Temp operating:** -40 to +65°C, +71°C optional

(-40°F to +150°F, +160°F optional)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 220 × 200 × 44 mm (8.7×7.9 ×1.7 in)

### Connectors (front):

1× ITS

1× DC in 10–32 V

8× RJ45

1× ETH (1000BASE-T)

2× LC

1× ETH (1000BASE-LH)

### Connectors (back):

1× Binder

1× Service port (serial)



ESW1100 series are available in different configurations, including PoE and fiber options. Configuration above is based on the ESW1123.

## 19"/2® ESW2100 series

A rugged layer 3 Cisco switch, based on the Cisco 3560CX platform.

1Gbps access ports and 1 or 10 Gbps uplinks (optional)

**MIL standards:** MIL-STD-810G, MIL-STD-461F, MIL-STD-1275D & IP65

**Temp operating:** -40 to +65°C, +71°C optional

(-40°F to +150°F, +160°F optional)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 220 × 400 × 44 mm (8.7×15.7 ×1.7 in)

**Weight:** 4,2 kg (9.3 lb)

### Connectors (front):

1× ITS

1× DC in 12–32 V

6× RJ45

1× ETH (1000BASE-T)

2× Tyco PRO BEAM® mini

1× ETH (1000BASE-LX/LH)

### Connectors (back):

1× Binder

1× Service port (serial)

8× RJ45

1× ETH (1000BASE-T)



ESW2100 series are available in different configurations, including PoE and different fiber options. Configuration above is based on the ESW2123.

## 19"/2® ESW400 series

Managed switch with static routing with 10Gbps uplinks (optional)

**MIL Standards:** MIL-STD-810G, MIL-STD-461F, MIL-STD-1275D & IP65

**Temp operating:** -40 to +55°C (-40°F to +131°F)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 220 × 290 × 44 mm (8.7×11.4 ×1.7 in)

**Weight:** 2.4 kg (5.3 lb)

### Connectors (front):

5× 38999

2× ETH (1000BASE-T)

### Connectors (back):

3× 38999

2× ETH (1000BASE-T)

1× 38999

1× Cisco Console (Serial)

1× ITS

1× DC in 10–32 V

1× Binder

1× Service port (serial)



ESW400 series are available in different configurations, either with MIL connectors or rugged industrial connector. Configuration above is based on the ESW453.

## 19"/2® ESW9200 series

Rugged Cisco fiber switch, based on the Cisco IE4000 series switch.

**MIL Standards:** MIL-STD-810G, MIL-STD-461F, MIL-STD-1275D & IP65

**Temp operating:** -20 to +55°C (-4°F to +131°F)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 220 × 400 × 88 mm (8.7×15.7 ×3.5 in)

**Weight:** 7 kg (15.4 lb)

### Interfaces (front):

4× HMC

2× ETH (1000BASE-SX)

1× LC

1× ETH (1000BASE-SX)

1× RJ45

1× Cisco Console (serial)

1× ITS

1× DC in 10–32 V

### Interfaces (back):

1× Binder

1× Service port (serial)



## 19"/2® SSW500 series

Based on a Meinberg LANTIME module.

**MIL Standards:** MIL-STD-810G, MIL-STD-461F, & IP54

**Temp operating:** 0 to +55°C (32°F to +131°F)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 220 × 366 × 44 mm (8.7×14.4 ×1.7 in)

**Weight:** 3.5 kg (7.7 lb)

### Interfaces (front):

1× ITS

1× DC in 10–32 VDC

1× RJ45

ETH (100Base-TX)

1× RJ45

Console (Serial)

1× USB

Console

1× USB

Host USB

1× BNC

1× Antenna

1× BNC

1× PPS out

1× BNC

1× PPS input

1× DB9

NMEA (RS232)

### Interfaces (back):

1× Binder

1× Service port (serial)



# Router

## 19"/2® RM200 series

Fully rugged router based on the Cisco 5915 ESR card.

**MIL Standards:** MIL-STD-810G, MIL-STD-461F, MIL-STD-1275D & IP65

**Temp operating:** -40 to +71°C (-40°F to +160°F)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 220 × 202 × 44 mm (8.7×8 ×1.7 in)

**Weight:** 2.4 kg (5.3 lb)

### Connectors (front):

1×38999 (WAN)  
2×ETH (100BASE-TX)  
1×38999 (LAN)  
2×ETH (100BASE-TX)  
1×38999 (LAN)  
1×ETH (100BASE-TX)  
1×KPT  
1×DC in 10-32 V  
1×38999 (WAN)  
1×ETH (100BASE-TX)

### Connectors (back):

1×Binder  
1×Service port (serial)



RM200 series are available in different configurations, either with MIL connectors or rugged industrial connector. Configuration above is based on the RM212.

## 19"/2® RM1100 series

A firewall based on the Cisco ASA 5506H-X including:

- Next-generation firewall (NGFW)
- Next-generation intrusion prevention system (NGIPS)
- Advanced malware protection (AMP)
- Virtual private network (VPN)

**MIL Standards:** MIL-STD-810G, MIL-STD-461F, MIL-STD-1275D & IP65

**Temp operating:** -40 to +55°C (-40°F to +131°F)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 220 × 360 × 44 mm (8.7×14.2 ×1.7 in)

**Weight:** 3.1 kg (6.8 lb)

### Connectors (front):

1×DC in 10-32V (ITS)  
1×ETH MGMT 1000BASE-T (RJ45)

1×ETH 1000BASE-T (RJ45)  
1×ETH 1000BASE-SX (HMC)  
1×RS232 Service (Binder)



## 19"/2® RM3100 series

A gigabit router based on the Cisco ISR-1100 series router including:

- Cisco IOS XE Software
- Dynamic Routing (BGP, OSPF, IGMP v3, etc)
- Encapsulation (GRE, 802.1Q, Etc)
- QoS
- Access control
- VPN (IP Sec, etc.) SEC SW needed
- Zone based Firewall SEC SW needed

**MIL Standards:** MIL-STD-810G, MIL-STD-461F, MIL-STD-1275D & IP65

**Temp operating:** -40 to +55°C (-40°F to +131°F)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 220 × 360 × 44 mm (8.7×14.2 ×1.7 in)

**Weight:** 5 kg (11 lb)

### Connectors (front):

1×Power (38999)  
4×ETH 1000BASE-T LAN (RJ45)  
1×ETH 1000BASE-T WAN (RJ45)  
1×USB 2.0 (USB-A)  
1×USB Console (USB-B)



## 19"/2® RM6100 series

Rugged Cisco 4G router with built in switch, based on the Cisco 809 router and the Cisco 2020 switch.

**MIL Standards:** MIL-STD-810G, MIL-STD-461F, MIL-STD-1275D & IP65

**Temp operating:** -40 to +55°C (-40°F to +131°F)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 220 × 400 × 44 mm (8.7×15.7 ×1.7 in)

**Weight:** 4.3 kg (9.5 lb)

### Interfaces (front):

2×RJ45  
2×ETH (100BASE-TX)  
1×RJ45  
1×ETH (100BASE-T)  
1×R45  
1×Cisco Console Router (serial)  
1×RJ45  
1×Cisco Console Switch (serial)  
1×N-type  
1×MAIN antenna  
1×N-type  
1×DIV antenna  
1×SMA  
1×GPS  
1×USB  
1×Cisco Console  
1×SIM card

### Interfaces (back):

1×Binder  
1×Service port (serial)  
1×ITS  
1×DC in 12-32 V  
2×RJ45  
1×ETH (100BASE-TX)  
1×USB  
1×Cisco Console



## 19"/2® SRM200 series

The Satellite Router is based on the iDirect ICONNEX e850mp Satellite Router card

**Temp operating:** -20 to +50 °C (-4°F to +131°F)

**Temp storage:** -40 to +71 °C (-40°F to +160°F)

**Dimensions:** 220 × 360 × 44 mm (8.7×14.2 ×1.7 in)

### Interfaces (front):

1×ITS  
1×DC in 10-32 VDC  
1×N-type  
1×Rx  
1×N-type  
1×Tx  
1×N-type  
1×Rx Simple  
1×N-type  
1×GPS  
1×Mighty Mouse  
1×ETH

### Interfaces (back):

1×Mighty Mouse  
1×Console Port





# Power

## 19"/2® PWR1100 series

A power distribution unit with AC-input and built in UPS.

**MIL Standards:** MIL-STD-810G, MIL-STD-461F, & IP65

**Temp operating:** -40 to +55°C (-40°F to +131°F)

**Temp storage:** -40 to +70°C (-40°F to +158°F)

**Dimensions:** 220 × 400 × 88 mm (8.7×15.7 ×3.5 in)

**Weight:** 9.3 kg (20.5 lb)

### Connections on front:

**9× ITS**

1×DC out. 28 V DC (Normal mode)

**1×RJ45**

1×Ethernet SNMP

1×Ethernet SNMP port (RJ45)

1×System button

1×Mute button

1×Load button

PWR1100 series are available in different configurations. Configuration above is based on the PWR1121.

### Connections on back:

1×Power in 110/230 VAC

1×Service port



## 19"/2® PWR2100 series

A power distribution unit with AC-input and built in UPS.

**MIL Standards:** MIL-STD-810G, MIL-STD-461F, & IP65

**Temp operating:** -40 to +55°C (-40°F to +131°F)

**Temp storage:** -40 to +70°C (-40°F to +158°F)

**Dimensions:** 220 × 400 × 44 mm (8.7×15.7 ×1.7 in)

**Weight:** 5.6 kg (12.3 lb)

### Interfaces (front):

**4×ITS**

1×DC out 28 VDC

**1×RJ45**

1×Eth SNMP port

**1×System button**

**1×Mute button**

**1×Load button**

PWR2100 series are available in different configurations. Configuration above is based on the PWR2121.

### Interfaces (back):

**1×EU Plug**

1×AC in 110/230 VAC

**1×Binder**

1×Service port (serial)



## 19"/2® PWR100 series

A 19"/2® AC/DC converter, provide 28 VDC, with an input of 110 or 230 V AC.

**MIL Standards:** MIL-STD-810G, MIL-STD-461F, & IP54

**Temp operating:** -40 to +55°C (-40°F to +131°F)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 220 × 202 × 44 mm (8.7×8 ×1.7 in)

**Weight:** 3 kg (6.6 lb)

### Interfaces (front):

**2×ITS**

1×DC out 28 VDC

PWR100 series are available in different configurations. Configuration above is based on the PWR101.

### Interfaces (back):

**1×EU Plug**

1×AC in 110/230 VAC

**1×Binder**

1×Service port (serial)



## 19"/2® PWR300 series

6 port power distribution unit, with fuse on each output.

**MIL Standards:** MIL-STD-810G, MIL-STD-461F, & IP54

**Temp operating:** -40 to +55°C (-40°F to +131°F)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 220 × 182 × 44 mm (8.7×7.2 ×1.7 in)

**Weight:** 1.5 kg (3.3 lb)

### Interfaces (front):

**6×ITS**

1×DC out

**1×ITS**

1×DC in 10-32 V DC

PWR300 series are available in different configurations. Configuration above is based on the PWR301.



## 19"/2® PWR500 series

A power distribution unit with DC-input.

**MIL Standards:** MIL-STD-810G, MIL-STD-461F, & IP65

**Temp operating:** -40 to +55°C (-40°F to +131°F)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 220 × 214 × 133 mm (8.7×8.4 ×5.3 in)

**Weight:** 6 kg (13.2 lb)

### Interfaces (front):

**1×38999**

1×DC in, 24-32 V, max 60 A

**1×38999**

1×DC out, 12 V, max 20 A

**9×38999**

1×DC out. 24-32 V DC

(Pass through), max 25A

**1×On/Off toggle switch**



# Special electronics

MilDef can offer our customers a complete realization of any product idea or concept. Our creative, experienced and well-motivated personnel understand what is required to convert a customer's idea into a finished product – keeping cost, quality and time in full focus.

Below are examples of custom special electronics, all of which were tailored for customers' specific requirements and needs.

## 19" ESW9110

Switch based on the Cisco 2020 Switch.

**MIL Standards:** IP65, MIL-STD-810G, MIL-STD-461F & MIL-STD-1275D

**Temp operating:** -40 to +55°C (-40°F to +131°F)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 440 × 230 × 44mm (17.3 × 9.1 × 1.7 in)

**Weight:** 4,6 kg (10.1 lb)

**Interfaces front:**  
10 × LAN Fiber (100 Mbps, 1300 nm)  
1 × VGA (DSUB HD15)

**Interfaces (back):**  
2 × LAN 38999 (100 Mbps)  
2 × LAN Fiber (100 Mbps, 1300nm)  
2 × LAN Fiber (1000 Mbps, 850 nm)  
1 × Cisco Console Serial RJ45  
1 × Service port



## Batt Pack MSP105

Battery Pack compatible with Harris battery box, 10513-4800-02. The Battery Pack MSP105 will give you several different power out options to power mobile devices, e.g. radios, computers, mobile phones etc.

**MIL Standards:** MIL-STD-810G, MIL-STD-461F, & IP55

**Temp operating:** -40 to +55°C (-40°F to +131°F)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 270 × 75 × 200mm (10.6 × 3 × 7.9 in)

**Weight:** 1,2 kg (2.6 lb)

**Interfaces front:**  
1 × 12/24V DC out  
1 × 19V DC out  
1 × Dual USB Power  
1 × MilDef system button with status indicator  
1 × Service port



## Disk Clone Station CSP114

Clone one master disk to up to 8 disks simultaneously. Clone station can be used with both 19"/2 caddies and DR8/DR10 disk caddies.

**MIL Standards:** MIL-STD-810G

**Temp operating:** 0 to +40°C (32°F to +104°F)

**Temp storage:** -40 to +71°C (-40°F to +160°F)

**Dimensions:** 440 × 400 × 88 mm (17.3 × 15.8 × 3.5 in)

**Weight:** 8 kg (17.6 lb)

**Interfaces front:**  
1 × LAN Master disk bay  
1 × USB 3.0 (ISO file loading, Single A)  
1 × Display  
4 × Navigation button  
1 × System button with status indication  
8 × Clone disk bay

**Interfaces (back):**  
1 × Power input, 110/240 VAC  
1 × VGA (DSUB HD15)  
2 × USB 2.0 (Dual A)  
1 × Service port



## RC2100 series, HID Joystick Controller

Lightweight, ergonomic and mobile – the RC2121 features a HID controller platform designed to be used with MilDef DS11/13. With 32 backlit programmable buttons, 4 thumbwheels and 2 joysticks, it has the ability to suit most controller needs.

**MIL Standards:** MIL-STD-810G, MIL-STD-461F, & IP65

**High temperature - Operating:** MIL-STD-810G, method 501.5, Procedure II - Operation 60°C (140°F)

**High temperature - Storage:** MIL-STD-810G, Method 501.5, Procedure I - Storage 71°C (160°F)

**Dimensions:** 445 × 55 × 204mm (17.5 × 2.2 × 8 in)

**Weight:** < 1000 g (2.2 lb)

**Interfaces:**  
1 × Pass through – ETH 1000BASE-T  
1 × ETH cable to tablet  
1 × Pass through – Power input tablet  
1 × Power cable to table  
1 × USB 2.0 cable to table  
1 × USB 2.0 Host interface









# Rugged Displays



# Forged in the thick of battle

Every MilDef RD display was inspired by action in the field. Each design was developed in cooperation with armed forces to meet the ongoing communication challenges of their armored vehicles and command posts. The range we have today is the result of 10 years of such in-depth collaboration.

We push display technology forward by finding the critical areas of improvement as revealed by on the ground use. That's why MilDef displays are not only some of the toughest on the market, but adapted to the finer points of military operations like the need for stealth, to save space in tight quarters and to be easily integrated with other equipment.

Today, the RD range is a staple of military operations with thousands in use by armed forces around the world.

## Performance where it matters most

You can count on our RD displays even in the harshest conditions. They are combat proven to withstand severe shocks, function in extreme temperatures and to be moisture resistant. We build them according to MIL-STD-810 and MIL-STD-461 and put them through an extensive burn-in program before they leave our facilities to guarantee each unit can take everything that's thrown at it.

## Hi-res and multifunctional

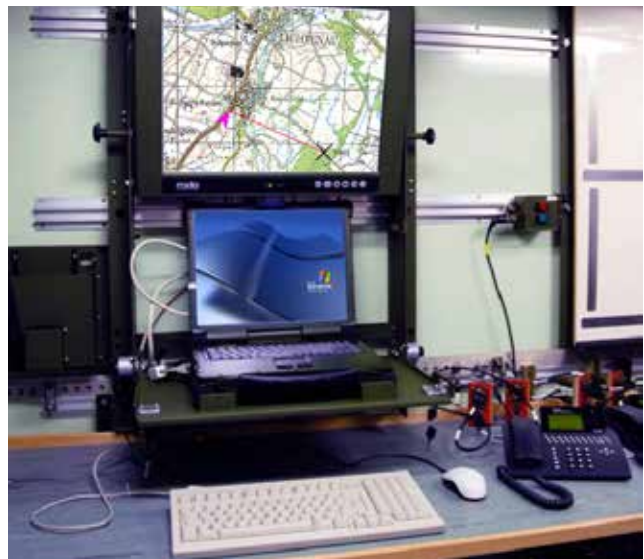
Your displays need to keep up with modern computing power. We offer hi-res screens with up to 20 megapixel resolution and options like PIP functionality to run multiple programs simultaneously, infrared touch screens and programmable hotkeys.

## Plays well with others

The RD displays are compatible with most equipment thanks to their wide range of input and output options and flexible mounting solutions. They also have a long "form, fit, and function" period so you don't have to worry about upgrading any time soon. And no matter how long your displays are in use, you can count on efficient service as we offer lifetime support.

## Endless customization options

We specialize in customizing our displays to your needs. Creating your own unique solution is a quick process with rapid prototyping and a short time to production. These projects usually include customized mounting systems, selecting functionality from our wide range of options and tailoring in- and outputs.



## Operational advantages that give you an edge

- Wide storage and operating temperature ranges
- Optional infrared touch screen
- Night vision (NVIS) compatible
- PIP functionality
- Invisible Mode automatically dims backlight in stealth situations
- Wide range of inputs and outputs including DVI, USB, composite, serial port, resistive touchscreen, etc.
- On site service is available in many countries
- All MilDef computers can be remote controlled by RD displays over a distance up to 5m
- Designed, developed, produced and maintained according to ISO 9001 and AQAP standard
- Built according to MIL-STD-810, MIL-STD-461 and Ingress Protection standards

# Armored vehicle displays

The RD10 and RD15 resist the punishment of the road with rugged metal housings designed specifically for use in armored vehicles. They are multi-functional with features like NVIS, PIP and Invisible Mode. And custom mounting systems are available for smooth integration with your equipment.

The RD10 enhanced temperature range has been designed according to the GVA standard for use inside armored vehicles. With the enhanced temperature range, operations are possible even within the harshest environmental conditions are possible. The high brightness display and the keyboard with backlight allow easy use in bright and dark surroundings. The connectors can be customized according to your specific requirements.

## RD10 series

### Specifications:

XGA 1024×768, typ. 500 cd/m<sup>2</sup>, 400:1 contrast  
Invisible Mode, NVIS, PIP, Heater, Speaker, F1–F13 keys  
Key backlight, USB hub, Touch screen, Remote ON/OFF (with DP-DVI), Built In Vehicle adapter 18–32 V

**Compliant to:** MIL-STD-810F, IP65, MIL-STD-461E

**Temp operating:** –32 to +55°C (–26°F to +131°F)

**Temp storage:** –46 to +70°C (–51°F to +158°F)

**Dimensions:** 293×62×235 mm (11.5×2.4×9.3 in) (W×D×H)

**Weight:** 3 kg (6.6 lb)

### Interfaces on back:

1×Earth stud M8

1×DC-in 18–32 V (MIL)

1×Composite Video In, RS232 (MIL)

1×DP-DVI (DVI, ON/OFF, USB) (MIL)

1×VGA (MIL)

2×USB 1.1 (MIL)

\*Interfaces also available with rugged industrial connectors

### Options and accessories:

Connecting cables

AC/DC adapter

Stylus pen

Nightvision

Stealthmode



## RD15 series

### Specifications:

XGA 1024×768, typ. 300 cd/m<sup>2</sup>

1000:1 contrast, Invisible Mode, NVIS, PIP, Speaker, F1–F8 keys,  
Key backlight, USB hub, Mouse stick with Left/Right mouse buttons,  
Touch screen, Remote ON/OFF (with DP-DVI or Combo cable), Built In Vehicle adapter 18–32 V

**Compliant to:** MIL-STD-810F, IP65 (front), MIL-STD-461E, VG95373, EN61000-4-2, EN61000-4-3

**Temp operating:** –31 to +63°C (–24°F to +145°F)

**Temp storage:** –40 to +85°C (–40°F to +185°F)

**Dimensions:** 351×63×300 mm (13.8×2.5×11.8 in) (W×D×H)

**Weight:** 4.2 kg (9.3 lb)

### Interfaces on back:

1×Earth stud M8

1×DC-in 18–32 V (MIL)

1×Composite Video In, RS232 (MIL)

1×DP-DVI (DVI, ON/OFF, USB) (MIL)

1×VGA (MIL)

2×USB 1.1 (MIL)

\*Interfaces also available with rugged industrial connectors

### Options and accessories:

Connecting cables

AC/DC adapter

Stylus pen





## RD15 HD

### Specifications:

HD 1080 × 1920, typ. 1200cd/m<sup>2</sup>

750:1 contrast, Invisible Mode, NVIS, Heater, Speaker, F1-F8 keys, Key backlight, Touch screen, Remote ON/OFF (with DP-DVI), Joystick with Left/Right mouse buttons.

**Compliant to:** MIL-STD 810G, IP65, MIL-STD 461F/G on request

**Temp operating:** -32 to +65°C (-26°F to +149°F)

**Temp storage:** -32 to +80°C (-26°F to +160°F)

**Dimensions:** 435 × 66 × 314 mm (17.1 × 2.6 × 12.4 in) (W × D × H)

**Weight:** 6 kg (13.2 lb)

### Interfaces on back:

1 × 3G-SDI

1 × VGA (MIL)

1 × DP-DVI (DVI, ON/OFF, USB) (MIL)

1 × DC-In (MIL)

\*Interfaces also available with rugged industrial connectors

### Options and accessories:

Connecting cables

Additional SDI or CVBS inputs

Front USB port

Stylus pen



## RD19 series

### Specifications:

SXGA 1280 × 1024, typ. 350 cd/m<sup>2</sup>

1000:1 contrast, Invisible Mode, USB hub, Heater, Remote ON/OFF (with DP-DVI)

**Compliant to:** MIL-STD-810F, IP65 (front),

MIL-STD-461F, VG96916 T5, CE

Built In Vehicle adapter 18-32 V

**Temp operating:** -20 to +55°C (-4°F to +131°F)

**Temp storage:** -40 to +60°C (-40°F to +140°F)

**Dimensions:** 480 × 77.5 × 405 mm (18.9 × 3 × 15.9 in) (W × D × H)

**Weight:** 10.7 kg (23.6 lb)

### Interfaces on back:

1 × Earth stud M8

1 × DC-in 18-32 V (MIL)

1 × DP-DVI (DVI, ON/OFF, USB) (DVI-D)

1 × VGA (DSUB)

1 × Invisible Mode (MIL)

2 × USB 2.0 (MIL)

1 × Circuit Breaker

\*Interfaces also available with rugged industrial connectors

### Options and accessories:

Connecting cables

AC/DC adapter

Stylus pen

Touch screen

EMI glass and qualification



# Command center displays

Optimize control of your command center communications with the hi-res RD19 and RD40. They are fully ruggedized with an IP65 rating and can be equipped with a heater for operations down to  $-20^{\circ}\text{C}$ . They also come with options like PIP, touch screen functionality

and remote control to give you an operational edge. Available mounting solutions also allow use in tactical vehicles.

## RD22 series

### Specifications:

FHD 1920×1080,  
typ. 850 cd/m<sup>2</sup>  
5000:1 contrast, Invisible Mode  
(wire), Heater

### Compliant to:

MIL-STD-810G, IP54,  
MIL-STD-461F, CE  
Built In Vehicle adapter 18–32 V

**Temp operating:**  $-20$  to  $+50^{\circ}\text{C}$   
( $-4^{\circ}\text{F}$  to  $+122^{\circ}\text{F}$ )

**Temp storage:**  $-20$  to  $+60^{\circ}\text{C}$   
( $-4^{\circ}\text{F}$  to  $+140^{\circ}\text{F}$ )

**Dimensions:** 580×80×375 mm  
(22.8×3.1×14.8 in) (W×D×H)

**Weight:** 13 kg (28.6 lb)

### Interfaces on back:

1×DC-in 18–32 V (MIL)  
1×DP-DVI  
(DVI, ON/OFF, USB) (MIL)  
1×VGA (MIL)  
1×Invisible Mode (MIL)  
2×USB 2.0 (MIL)  
\*Interfaces also available with  
rugged industrial connectors

### Options and accessories:

Connecting cables  
AC/DC adapter  
Stylus pen  
Nightvision



## RD24 series

### Specifications:

FHD 1920×1080,  
typ. 300 cd/m<sup>2</sup>  
5000:1 contrast,

### Designed to meet:

MIL-STD-810G, IP65,  
MIL-STD-461F, CE EN55022  
and EN55024

Built In Vehicle adapter 18–32 V

**Temp operating:**  $-20$  to  $+70^{\circ}\text{C}$

( $-4^{\circ}\text{F}$  to  $+158^{\circ}\text{F}$ )

**Temp storage:**  $-30$  to  $+80^{\circ}\text{C}$

( $-22^{\circ}\text{F}$  to  $+176^{\circ}\text{F}$ )

**Dimensions:** 614×76×370 mm  
(24.2×3×14.6 in) (W×D×H)

**Weight:** 20 kg (44 lb)

### Interfaces on back:

1×DC-in 18–32 V (MIL)  
1×DP-DVI  
(DVI, ON/OFF, USB) (MIL)  
1×VGA (MIL)  
2×USB 2.0 (MIL)  
\*Interfaces also available with  
rugged industrial connectors

### Options and accessories:

Connecting cables  
AC/DC adapter  
Stylus pen  
 $-30^{\circ}\text{C}$  ( $-22^{\circ}\text{F}$ ) Operating  
Temperature with heater



## RD40 series

### Specifications:

HD1080 1920×1080,  
typ. 700 cd/m<sup>2</sup>  
1000:1 contrast, Invisible Mode,  
USB hub, Heater,  
Remote ON/OFF (with DP-DVI),  
Built In Vehicle adapter 18–32 V

**Designed to meet:** MIL-STD-  
810G, IP54, MIL-STD-461E,  
VG96916 T5, CE

**Temp operating:**  $-20^{\circ}$  to  $+40^{\circ}\text{C}$   
( $-4^{\circ}\text{F}$  to  $+104^{\circ}\text{F}$ )

**Temp storage:**  $-20$  to  $+60^{\circ}\text{C}$   
( $-4^{\circ}\text{F}$  to  $+140^{\circ}\text{F}$ )

**Dimensions:** 1009×120×617 mm  
(39.7×4.7×24.3 in) (W×D×H)

**Weight:** 40 kg (88.2 lb)

### Interfaces on back:

1×Earth stud M8  
1×DC-in 18–32 V (MIL)  
1×DP-DVI  
(DVI, ON/OFF, USB) (MIL)  
1×VGA (MIL)  
1×Invisible Mode (MIL)  
2×USB 2.0 (MIL)  
1×Circuit Breaker  
\*Interfaces also available with  
rugged industrial connectors

### Options and accessories:

Connecting cables  
AC/DC adapter  
Stylus pen  
Touch screen  
PIP  
Pedestal



# Full rugged monitoring system

The high-resolution electronic large-screen (HEL) display is the ideal solution for conveying mission critical data in a command post or situation room. It gives you up to 8K resolution (4k per display) and powerful split graphics computing so you can connect multiple sources for real time viewing.



Highly mobile with demountable parts, the HEL 4.0 display is tough enough to withstand harsh environments where dust, humidity and vibrations are ever present.

The HEL 4.0 is available in both 1x1, 2x1 and 2x2 versions. During ISAF mission some HELs were in duty 24/7 for mission planing and situation report.

## HEL 4.0

### Specifications:

UHD 4k, 3840 x 2160 per display.  
Typ. 450 cd/m<sup>2</sup>, 4000:1 contrast.  
Intel® Xeon® processor D-1541, 32 GB DDR4 RAM.  
2x SATA III SSD RAID 0/1 supported.  
Support for Windows 10 64 Bit.  
6x USB2.0, 2x Gigabit LAN LWL,  
4x HEL fibre display interface

**Compliant to:** MIL-STD-810F, IP54, EN61000-3-3

**Temp operating:** -19 to +49 °C (-2 °F to +120 °F)

**Temp storage:** -21 to +71 °C (-6 °F to +160 °F)

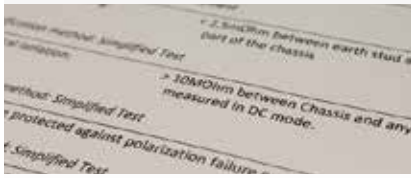
**Dimensions:** 1453 x 93,4 x 834 mm (57.2 x 3.7 x 32.8 in)  
(W x D x H) per display

**Weight:** ca. 59 kg (130 lb) per display





# From concept to creation



## Specification

Upon receipt of a customer order a development specification is produced. This specification will ensure that both MilDef and the customer have a common understanding of the required deliverables.

The agreed specification is also the key document on commencement of a detailed design. The development specification is the backbone of the project and will be referred to and reviewed throughout the R&D process.



## Design

After the development specification has been approved by the customer, the detailed design work may commence for the mechanical, electronic and software elements. All drawings, layouts, and specifications needed to produce the prototype are prepared

in-house with the support of the latest available systems, such as 3D CAD and PCB layout. Potential design solutions are continuously evaluated with a practice of "Upstream Design" ensuring that MilDef prototypes are in accordance with customer expectations.



## Suppliers

MilDef works with both local sub-contractors and global vendors. Key suppliers include CNC (Computer Numerical Control) service suppliers, who machine chassis from single billets of aluminium,

SMA (Surface Mounted Assembly) suppliers, conducting the assembly of PCBs and selected vendors, supplying inter-connectivity solutions especially developed for the defence industry.



## Prototype builds

Once suppliers have delivered the parts to MilDef requirements, these are processed through the R&D lab and prototypes are built. The prototypes are always assembled in co-operation

between the R&D engineers and production personnel. This ensures that a volume production perspective is gleaned from an early phase.



## Prototype Verification and Validation

MilDef has its own test standard called the MilDef Verification Handbook, which details the minimal tests that are carried out on all prototypes. After prototype assembly, verification

and validation consist of functional, environmental and EMC tests, allied with inspection activities (more extensive testing can be provided on request).



## Test Certificate

All tests and inspection activities that are conducted when verifying and validating prototypes are referenced from the requirements laid down in the development specifications.

After verification and validation, a report will be issued proving compliance with the development specification and customer expectations.



## Finished Product

For short production runs or custom solutions, MilDef delivers the customer requirement after the prototype has been successfully verified and validated.

For volume products to be built by MilDef the development will continue until the item is verified for serial production.

# Designing the solutions of the future

Not every challenge has an off-the-shelf solution. Many of the innovations forces around the world rely on today started out as customization initiatives. Whether it's a few tailored products or hundreds of units, MilDef can help convert a concept for a better solution into reality with speed and efficiency.

Such projects generally involve modifying computers and connectors, designing a space-saving setup and enhancing units with a huge range of accessories. MilDef is also capable of integrating data security solutions and tempest requirements. Every new unit is tested in an EMI chamber to ensure it meets all the required standards.

## Innovation at work

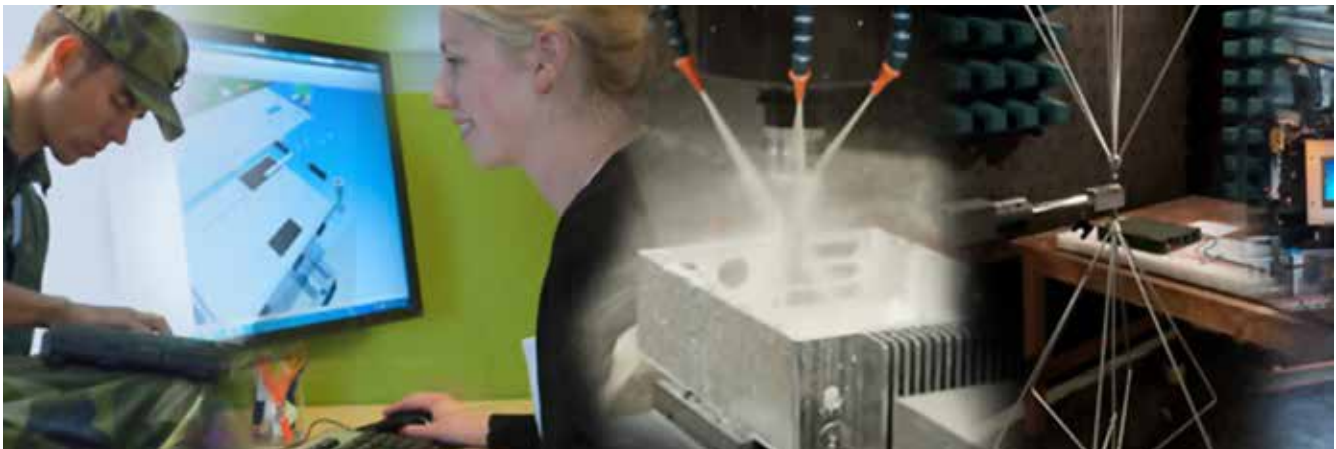
Thousands of MilDef solutions are in operation around the world. The German Army is using 2,500 customized MilDef units in their FüInfoSys Heer battle management system. Airbus in France have equipped all of their A400 military transporters with portable maintenance access terminals (PMATs) built from MilDef III and RK886s. And MilDef recently helped the Norwegian Armed Forces create a compact and mobile communication solution using 19"/2 units for their CV90's.



To help the Norwegian Armed Forces take control of the sprawling equipment in their CV90's, we created a compact solution based on 19"/2 units. The solution houses all critical tech like computers, switches, UPS, etc. in one mobile unit.

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## Custom built solutions



## MilDef Design House

MilDef offers its customers complete realisation of their product ideas or concepts. This is achieved by experienced and well-motivated personnel, who have

a clear understanding of what is required to convert a customer's idea into a finished product. MilDef focuses on cost, quality and time for both high and low volume products and solutions.

# Efficient beyond line-of-sight (BLOS) blue force tracking



As military, police and government forces find themselves conducting operations across greater distances and with more autonomy from their higher commands, reliable and efficient blue force tracking is becoming a critical requirement for effective operations. By implementing the TITAN system, commanders gain access to a complete and seamless operational picture, which allows them to quickly and precisely manage unfolding events. TITAN provides a solution to lost or no communications at the tactical level.

TITAN does not replace Battlefield Management Systems (BMS/C4i platforms) which are, in the main, radio based. It is a Beyond Line of Sight (BLOS) bolt-on that augments existing national systems and cost-effectively resolves the potential deficiency of lost or no communications at the tactical level in every military communications infrastructure and therefore guarantees Situational Awareness and Command and Control.

The TITAN solution provides 2-way messaging functionality and consists of four components: the TITAN Platform, TITAN Tactical software, TITAN Mobile hardware and MilDef rugged computers and special electronics. These components can operate independently, but when combined they provide an interoperable, affordable, beyond line-of-sight blue force tracking (BFT) solution with powerful configuration options.

All communications use a secure virtual private network and unique AES256 encryption into a standalone server solution. Satellite data is sent via a secure network offering no-weak-link, point-to-point encryption. By enabling the transmission and receipt of important information, simple but structured military reports, geospatial display of deployed assets at the tactical level, TITAN ensures that Situational Awareness (SA) and Command and Control (C2) are maintained when tactical voice radio is unavailable. This ensures that commanders have the information they need to act intelligently whatever the voice communications situation.



### **TITAN Platform**

The TITAN Platform is a secure server solution that enables full BFT for military, police and government organizations. It includes situational awareness, operational command and control, emergency response and the ability to provide comprehensive post operation debriefing.

Providing a single, shared tactical Common Operational Picture (COP) for up to 10,000 separate assets on land, in air and at sea, it allows commanders to conduct synchronized planning, control movement and rapidly respond to changing conditions.

By giving access to near real-time situational data it facilitates making faster and better decisions. Secure web protocols, password encryption and satellite communication links using the highest commercial point-to-point encryption ensure complete data security.

### **TITAN Tactical**

TITAN Tactical is ideal for commanders observing the battlefield, and for a developing operational scenario. TITAN Tactical enables assets to be easily identified with blue and red forces easily plotted. When TITAN Tactical is linked with Mobile (the Wave and the Echo devices), geo-fences can be viewed. TITAN Tactical enables messaging, to help plot events, with the aid of a tablet keyboard, or Wave keyboard, which is on the device. TITAN Tactical updates the TITAN Platform with key details. When there is no infrastructure in place, in the depths of a jungle, or in the middle of a city, TITAN Tactical provides clarity in each operating environment. By understanding what is in the vicinity, the client can plan, attack, and defend a position with a high degree of certainty. TITAN Tactical provides interactive maps, and weather applications tools, that assists the client plan the mission.

### **TITAN Mobile**

TITAN Mobile is designed to be used in the field for asset tracking and basic C2. The primary Mobile device is the Wave which can be used in conjunction with personnel and vehicles. When combined with the TITAN Platform and TITAN Tactical, TITAN Mobile enables commanders to view their positions, in near real time, and pass this data into the COP.

The Wave Iridium® tracking device displays Situational Awareness information at the handheld level. The compression technology used to achieve this is currently

patent pending. Wave SA will enable deployed users to view near real time positional and emergency alerts at the Tactical level directly on their Wave device. This powerful tool will enable faster response times and increased situational awareness at the mobile level. The Wave provides two-way chat messaging between the device and the TITAN Platform, device to asset group, and device to device. Free text, pre-defined canned messages, and email are all supported.

In addition to the Wave, the Echo Iridium® tracking device is the ideal dismounted device for soldiers and police forces, with basic functionality: on-off, emergency, check-in, and predefined message capabilities.

The encrypted smartphone application, POCKET complements the capabilities of the Wave and Echo device. The POCKET application sends accurate, AES 256 encrypted position updates, and text messages back to the monitoring software. For personal privacy, tracking can be easily switched off, when it is not required. When the emergency alarm is activated, the near real time notification will be an audible and visual alert, on the TITAN Platform. An individual's location will update every 15 seconds, and their status can be rapidly assessed, and an effective response initiated. Notification of an alarm is also automatically forwarded by SMS and e-mailed to nominated recipients in the client's organization.

### **MilDef logistics system**

Our logistics system includes tracking devices that increase your situational awareness by giving logistics the same mapping capability, operational picture and messaging possibilities as manoeuvre forces. Keep track of your cargo no matter how remote the journey with the Shadow and our tracking gateway and sensor.



# Tracking solutions for personnel and vehicles anywhere in the world

## Wave

### Specification:

**Operating Frequency (Iridium):** 1616 to 1626 MHz

**Iridium Modem:** 9603

**GPS frequency:** 1575.42 MHz (L1 carrier)

**GPS Receiver:** UBlox MAX-M8Q

**Battery:** 2200 mAh Lithium Ion

**Security:** AES 256 encryption

**Rating:** IP67

**Operating temp:** -20°C to +60°C (-4°F to +140°F)

**Operating humidity:** < 90% RH

**Storage temp:** -20°C to 50°C (-4°F to +122°F)

**I/O and power interface:** USB-C connector (wired for USB 2.0, RS-232, and two GPIO's)

**Communication interface:** RS232 interface, Bluetooth

**Screen:** 4" LCD touch screen

**Dimensions:** 125 mm x 68 mm x 28 mm (4.9 in x 2.7 in x 1.1 in)

**Weight:** 300 g (0.7 lb)

**Software upgrade:** Cable upgrade

**Mounting:** Ram mount with 1/4" screw

**Part number:** T24-0001459-WAV

**NATO stock No (NSN):** 5895-20-011-3263



## Echo

### Specifications:

**Operating Frequency (Iridium):** 1616 to 1626 MHz

**Iridium Modem:** 9603

**GPS frequency:** 1575.42 MHz (L1 carrier)

**GPS Receiver:** Fastrax iT530

**Battery:** 1800 mAh Lithium-ion

**Security:** AES 256 encryption

**Rating:** IP68 Waterproof to 1 meter

**Operating temp:** -20°C to +55°C (-4°F to +131°F)

**Operating humidity:** < 95% RH

**Storage temp:** -20°C to 50°C (-4°F to +122°F)

**I/O and power interface:** Standard mini

**Communication interface:** Class two, Bluetooth

**Screen:** N/A

**Dimensions:** 108 mm (152 mm at the antenna) x 57 mm x 25 mm

4.3 in (6 in at the antenna) x 2.2 in x 1 in

**Weight:** 150 g (add 8.5 g for belt clip) 0.3 lb (add 0.02 g for belt clip)

**Software upgrade:** Cable upgrade

**Mounting:** X-grip mount

**Part number:** T24-0001457-ECHO

**NATO stock No (NSN):** 5895-99-216-4223



## Shadow

### Specifications:

**Operating Frequency (Iridium):** 1616 to 1626 MHz

**Iridium Modem:** 9603

**GPS frequency:** 1575.42 MHz (L1 carrier)

**GPS Receiver:** Fastrax iT430

**Battery:** 6900 mAh Lithium-Ion

**Security:** AES 256 encryption

**Rating:** IP67

**Operating temp:** -20°C to +55°C (-4°F to +131°F)

**Operating humidity:** < 90% RH

**Storage temp:** -20°C to 35°C (-4°F to +95°F)

**I/O and power interface:** 3 Digital I/O 2 Analogue I/O

**Communication interface:** WiFi, Bluetooth, RS232

**Screen:** N/A

**Dimensions:** 30 mm x 320 mm x 105 mm (1.2 in x 12.6 in x 4.1 in)

**Weight:** 0.71kg (1.6 lb)

**Software upgrade:** Cable upgrade

**Mounting:** Magnet mount or bolt

**Part number:** T24-0001458-SHD

**NATO stock No (NSN):** 5895-99-324-0340



## MilDef Tracking System TGW102

### Specifications:

**Mesh radio network:** Runs on the ISM 2.4 GHz band

**Range:** 500 m (1640 ft) range between nodes  
(free line of sight and 5dBi antenna)

**Sensors:** 3-axis shock sensor (max 50 g readout), temperature sensor -40 °C to 85 °C (-40°F to +185°F), humidity sensor (0 % RH to 100 % RH) , positioning sensor (GPS)

**Power consumption:** <500 mW (max), <5 mW (typical)

**Alarm:** Selectable alarm threshold via SAT, GPRS or service interface

**Satellite network:** Iridium

**Interfaces (front):** 1 × service port, 1 × system button with status indicator, 1 × battery compartment

**Interfaces (left):** 1 × door sensor interface (binder), 1 × satellite interface (compatible with Whisper)

**Interfaces (top):** 1 × mesh radio antenna (SMA), 1 × GPS antenna (SPA), 1 × GPRS antenna (SMA), 1 × SAT antenna (SMA)

**Interfaces (back):** 4 rubberized magnetic fasteners

**Interfaces (internal):** 1 × SIM card compartment

**Battery:** 3 × 3.6 V / 2000 mA Lithium-Ion battery

**Power input:** DC 3.6 V (external power optional)

**Case:** Aluminium alloy

**Dimensions:** 153 mm × 48 mm × 98 mm (6 in × 1.9 in × 3.9 in)  
(W × D × H with connectors and magnetic fasteners)

**Weight:** ≤1300 g (≤2.9 lb)

**Security:** AES 256 encryption

**Certifications:** IP64



## MilDef Tracking System TST101

### Specifications:

**Mesh radio network:** Runs on the ISM 2.4 GHz band

**Range:** 500 m (1640 ft) range between nodes  
(free line of sight and 5dBi antenna)

**Sensors:** 3-axis shock sensor (max 50 g readout), temperature sensor -40 °C to 85 °C (-40°F to +185°F), humidity sensor (0 % RH to 100 % RH) , positioning sensor (GPS)

**Power consumption:** <100 mW (max), <1.6 mW (typical)

**Alarm:** Selectable alarm threshold via SAT, GPRS or service interface

**Interfaces (front):** 1 × service port, 1 × system button with status indicator, 1 × battery compartment

**Interfaces (top):** 1 × mesh radio antenna (SMA), 1 × GPS antenna (SPA)

**Interfaces (back):** 2 rubberized magnetic fasteners

**Interfaces (internal):** 1 × SIM card compartment

**Battery:** 3.6 V / 2000 mA Lithium-Ion battery

**Power input:** DC 3.6 V

**Case:** Aluminum alloy

**Dimensions:** 81 mm × 48 mm × 98 mm (3.2 in × 1.9 in × 3.9 in)  
(W × D × H with connectors and magnetic fasteners)

**Weight:** ≤500 g (≤1.1 lb)

**Rating:** IP64



# Accessories

**MilDef can also supply accessories for example:**

- External antennas
- Connecting cables, adapters and batteries
- Mounts
- Pouches
- Spares
- Etc.

Please contact your local MilDef office to discuss your needs and requirements.



# Enhancing military communication



MilDef is an international company at the forefront of designing, developing and manufacturing combat-rugged computers and special electronics for communication in extreme environments where reliability, robustness and high performance are crucial.

Our offer includes a battle-field 19"/2<sup>o</sup> standard military form factor that saves significant space and enables more functionality, customized communication units of this form factor, and special electronics based on your own specifications and dedicated to your particular needs.

We also supply the MilDef Crete range of communication products, including notebooks, tablets and PDAs. Our equipment complies with IP54, IP65, MIL-STD-810 and MIL-STD-461. We are certified according to ISO 9001:2015 regarding design, development and production. Naturally, we provide all the service required for individual units and provide them with lifetime support. Our environmental program is guided by our ISO 14001:2015 certification.

In close cooperation with you, MilDef is dedicated to reshaping your communication power.

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