

# ((( COMPANY PROFILE )))





# COMROD

## COMMUNICATION GROUP

Comrod Communication is a multinational group of companies, headquartered in Tau, Norway, with subsidiaries in France, Sweden, Hungary and the United States. Comrod origins stretch back to 1946 and the experience and technology base of our group has enabled us to become a world leader in the design and manufacture of antennas, antenna systems, tactical masts, and power supplies for the military and commercial markets.

Comrod Norway has evolved from a manufacturer of fishing rods to today's advanced antenna systems and lightweight mast solutions. Based on its knowledge of fiber composite manufacturing, the company develops and manufactures antennas and masts for extreme environments. In 1960, the company started production of whip antennas for commercial fishing vessels. Since the early 1970's the company has focused on the development and manufacture of sophisticated antennas for the defense, commercial and maritime markets.

Comrod France is a leading manufacturer of integrated mast and antenna solutions for the defense market. The Company was started in 1946 in Paris and has a very similar history to Comrod Norway, also evolving from fishing rod manufacture to today's product range. Comrod France is the group's main design and manufacturing facility for sectional and telescopic masts, using both composite and aluminum materials. Tens of thousands of masts and accessories are in service across the world, utilized by military, paramilitary, emergency services, first responders, civil and commercial organizations.

Comrod France is also a supplier of manpack, vehicle and remote antennas.

Comrod power division designs and manufactures power supplies and battery chargers to meet the most demanding environmental and electrical standards, and have become our customers preferred choice for use with communication, radar and missile systems. The ComPact series of power supplies and battery chargers provide class leading power density in a fully ruggedized small form factor.

Comrod Inc, located in Cleveland, Ohio USA, was opened in 2010 to serve the US market. Comrod Inc has full access to the entire Comrod Group of products as well as the support of the design, engineering and manufacturing teams.

# VEHICLE ANTENNAS

The Comrod range of vehicle antennas are designed for use on all in-service military platforms including armored or soft skin, metal chassis or composite, wheeled or tracked. All Comrod antennas are fully ruggedized to withstand the demanding environments in which they operate.

**Our range of antennas** cover the HF, VHF and UHF frequency bands. There are band specific, wideband and multi band multi-port options. Most of the antennas, depending on the mounting arrangement, can have L1 or L1/L2 GPS modules added into the base. Antennas are either monopole construction, which require a ground plane, or dipole construction, which is ground plane independent. The wider bandwidth multi-band antennas can use a combination of both monopole and dipole construction.

fast tuning electronics supporting both 3G ALE and frequency hopping requirements.

The VHF antenna range comprises many frequency combinations suitable for the frequencies being utilized in today's modern communication systems. Antennas are available covering 30-2700 MHz in various frequency combinations. Comrod's range of wideband and multiband solutions allow the user to select an antenna to support the latest SDR radios and waveforms.

HF whip antennas are available in lengths up to 10 meters with a power handling up to 1 kW across the 1.6-30 MHz frequency range. These antennas have an option of being supplied with an angle adjuster to allow users to tie down and secure the antenna while mobile. The whip elements are manufactured in sections to allow the user to select the most suitable electrical length. HF antennas can be mounted on vehicles, buildings or shelters and can be used in static or mobile applications.

The UHF antenna range is available in different lengths and gains. Most of the UHF antenna range is of a dipole construction. UHF antennas can be used remotely from the vehicle on a telescopic mast or other structure to increase the operating range of the system and also to clear any buildings or obstructions.

### Tri-band Antennas

Our extensive range of Tri-Band Antennas are particularly suited to the latest network centric multi-band environments, minimizing the antenna footprint on a platform. The current tri-band range of antennas cover the legacy VHF 30-88 MHz and UHF 225-450 MHz frequency bands, as well as the latest L/LTE 1200-2600 MHz frequency bands. High isolation between bands ensure efficient operation with superior pattern and gain characteristics. Tri-band antennas are available with L1 or L1/L2 GPS built into the base.

The HF loop antenna gives omni-directional ground wave and near vertical incidence skywave (NVIS) performance for communications on the move. The Comrod loop antenna covers the difficult communication distance from 0 to 500 km, but greater distances can be achieved with correct frequency selection to suit the prevailing ionospheric conditions. The antenna connects directly into the radio coupler and covers frequencies from 1.6-30 MHz with its unique,

## SAMPLE PRODUCT RANGE

BAND	FREQUENCY RANGE	PRODUCT RANGE
HF	1.6-30 MHz	5-10 Meter Monopole Whips
	1.6-30 MHz	HF Loop Antenna
VHF	30-88 & 30-108 MHz	Monopoles & Dipoles
	30-108 MHz	Low Profile Whip
	30-88 MHz	Low Profile Tunable
UHF	225-450 MHz	Dipole
	840-2500 MHz	Dipole
	710-960 MHz	LTE Dipole
	243-380 MHz	MUOS/UHF Satcom
Dual-Band	30-88 & 225-512 MHz	Monopole/Dipole
	30-88 & 225-450 MHz	Monopole/Dipole
	30-512 & 1200-2600 MHz	Monopole/Dipole
Tri-Band	30-88, 225-450 & 1200-2600 MHz	Monopole/Dipole
	30-88, 225-450, 1200-2600 & GPS	Monopole/Dipole/GPS
Wide-Band	30-512 MHz	Monopole/Dipole
	27-512 MHz	High Power Monopole/Dipole
	30-2700 MHz	Wideband Monopole/Dipole UHF
	1200-2700 MHz	LTE Dipole
	700-2700 MHz	LTE Dipole
	690-960/1700-2700 MHz	LTE Dipole



## HANDHELD AND MANPACK ANTENNAS

Comrod has a wide range of tactical antenna products suitable for handheld and man-portable applications covering HF, VHF and UHF frequency bands 1.6 MHz to 2700 MHz.

Antennas can be supplied in helical, tape/blade or folding whip construction. All the manpack

antennas can be supplied with flexible adaptors or spring assemblies to enable positioning and shock protection. Antenna matching networks (AMU) optimize the antenna to the radio and can be rated to handle up to 25 W. L1 and L1/L2 GPS modules can be incorporated between the gooseneck and antenna.

### SAMPLE PRODUCT RANGE

BAND	FREQUENCY RANGE	PRODUCT RANGE
HF	1.6-30 MHz	Folding Whips
VHF	30-88 MHz	Helical
	30-88 MHz	Tapes (Blades)
	30-88 MHz	Folding Whips
	30-88 MHz	Wire Dipole
UHF	225-450 MHz	Helical
	225-450 MHz	Tape (Blade)
	225-450 MHz	Dipole Blade
Wide-Band	30-512 MHz	Tape (Blade)
	225-2000 MHz	Dipole
	500-2500 MHz	Dipole
	450-470, 698-960, 1710-2170, 2500-2700 MHz	Multi-band LTE
	698-960, 1710-2170, 2500-2700 MHz	Multi-band LTE
	30-2500 MHz	Wideband Dipole
	225-2000 MHz	Wideband Dipole
GPS	L1 & L1/L2	Helmet/Magnet Mounted/ Body Worn

# TACTICAL GROUND MOUNTED ANTENNAS

Comrod has a large range of tactical ground and remote antennas covering the HF, VHF, UHF and SHF frequency bands operating up to power ratings of 1 kW. HF folded dipoles and wideband dipoles are suitable for medium and long range circuits. When supplied with a Comrod telescopic or sectional mast, it can significantly increase the operating range of the system. The 1 kW HF folded dipole is ideally mounted between two 9 meter masts and, subject to frequency and ionospheric conditions, will provide reliable long distance communications. The 1 kW ground mounted omni directional whips are best suited for low angle radiation and will give extended ranges for shore to ship communications. Other HF wire antennas are available for use with manpack and vehicle mounted radios from tunable wire antennas with a dipole center

junction, to wideband antennas supplied with balun transformers and terminating loads. Comrod VHF and UHF vehicle antenna sections can be removed from the vehicle and used remotely on top of a telescopic or sectional mast. Ground plane kits are available for elevating monopole antennas using either ground whips or conductive upper guys. Line-of-Sight (LOS) antennas used in wide area networks and point to point communications, cover the 1350-2690 MHz (Band 3+) and 4400-5000 MHz (Band 4) frequency bands. These LOS antennas give a high gain and narrow beam width and, when mounted on a Comrod mast with rotator tilter can improve the link budget significantly. The Band 3+ antenna can be provided either with a single piece reflector or a split reflector which allows for easier stowage and transportation.

## SAMPLE PRODUCT RANGE

BAND	FREQUENCY RANGE	PRODUCT RANGE
HF	1.6-30 MHz	Tactical Wire Antennas
	1.6-30 MHz	Broadband Wire Dipoles
	1.6-30 MHz	Omni-directional Monopoles
	30-108 MHz	Omni-directional Dipoles
VHF	30-108 MHz	Omni-directional Monopoles
	225-450 MHz	Tape (Blade)
	30-88 MHz	Log Periodic
	30-88 MHz	Log Periodic
UHF	225-450 MHz	Omni-directional Dipoles
	225-450 MHz	Tape (Blade)
	240-400 MHz	Tactical Satellite (Tac-Sat) Dish
	100-400 MHz	Discone
	1350-2690 MHz	Band 3+ Line-of-Sight Grids
Wide-Band	4.4-5.0 GHz	Band 4 Line-of-Sight Dishes
	225-450 MHz	Log Periodic
Tri-Band	108-1500 MHz	VHF/UHF Broadband Antennas
	30-88, 225-450, 1200-2600 MHz	Elevated Tri-Band

# SHIPBOARD ANTENNAS & SYSTEMS

Comrod's marine antennas are in use around the world on naval ships, merchant ships and leisure craft of all types. In addition to the commercial marine products, Comrod has a range of antennas that have been specifically designed and constructed for use on military marine craft ranging from rigid inflatables to larger naval vessels. VHF and UHF antennas are available with different height and gains options, together with deck, bulkhead or mast mounting flexibility.

HF antennas are available in lengths up to 10 meters with power ratings up to 1kW. The Comrod HF modular

series allows interchangeable options to suit customer requirements. All the marine antennas are available with a number of mounting options and most can be supplied with either base feed or side feed points. The HF naval loop antenna is designed for shipboard operations across the 1.6-30 MHz frequency band. Combined with an in-service coupler, the antenna is a highly efficient, ruggedized magnetic loop that gives excellent NVIS performance for ship-to-ship and ship-to-shore communications. The HF Naval Loop is power rated up to 500 W.

## SAMPLE PRODUCT RANGE

BAND	FREQUENCY RANGE	PRODUCT RANGE
HF	1.6-30 MHz	5-10 Meter Monopole Whips
	1.6-30 MHz	HF NVIS Naval Loop Antenna
VHF	30-108 MHz	Monopole Whips
	30-108 MHz	Dipole Whips
UHF	220-405 MHz	Log Periodic
	225-450 MHz	Dipole Antenna
	200-400 MHz	Discone Antenna
Wide-Band	225-1500 MHz	Broadband Panel
	108-1500 MHz	VHF/UHF Broadband Antenna



# SUBMARINE ANTENNAS & SYSTEMS

Comrod designs and manufactures antennas and antenna switching system for the entire tactical frequency range 1.8-3000MHz. Products include a fast tuning HF (1.8-30MHz) antenna and multi-function (30-3000 MHz) antenna array. The antennas are enclosed inside ruggedized radomes designed for the desired depth requirements and specific mechanical mast integration.

A typical multi-function antenna can include modules for active VLF-HF Receive, VHF, UHF, V/UHF-SATCOM, L-band SATCOM, and Cellular functionality. The design is a customizable solution designed to maximize the communications capability on submarines with very limited space.

## HF Antenna System

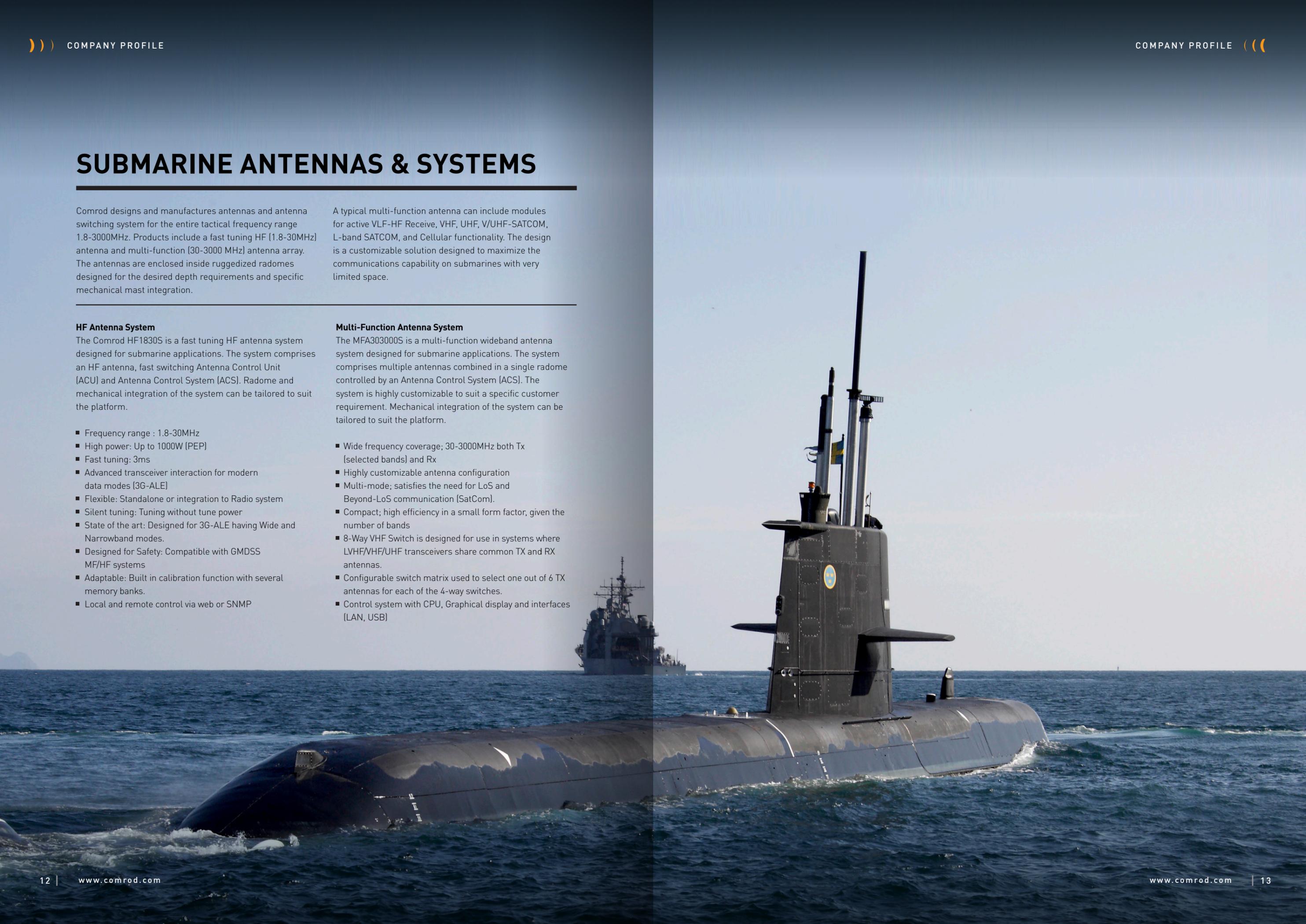
The Comrod HF1830S is a fast tuning HF antenna system designed for submarine applications. The system comprises an HF antenna, fast switching Antenna Control Unit (ACU) and Antenna Control System (ACS). Radome and mechanical integration of the system can be tailored to suit the platform.

- Frequency range : 1.8-30MHz
- High power: Up to 1000W (PEP)
- Fast tuning: 3ms
- Advanced transceiver interaction for modern data modes (3G-ALE)
- Flexible: Standalone or integration to Radio system
- Silent tuning: Tuning without tune power
- State of the art: Designed for 3G-ALE having Wide and Narrowband modes.
- Designed for Safety: Compatible with GMDSS MF/HF systems
- Adaptable: Built in calibration function with several memory banks.
- Local and remote control via web or SNMP

## Multi-Function Antenna System

The MFA303000S is a multi-function wideband antenna system designed for submarine applications. The system comprises multiple antennas combined in a single radome controlled by an Antenna Control System (ACS). The system is highly customizable to suit a specific customer requirement. Mechanical integration of the system can be tailored to suit the platform.

- Wide frequency coverage; 30-3000MHz both Tx (selected bands) and Rx
- Highly customizable antenna configuration
- Multi-mode; satisfies the need for LoS and Beyond-LoS communication (SatCom).
- Compact; high efficiency in a small form factor, given the number of bands
- 8-Way VHF Switch is designed for use in systems where LVHF/VHF/UHF transceivers share common TX and RX antennas.
- Configurable switch matrix used to select one out of 6 TX antennas for each of the 4-way switches.
- Control system with CPU, Graphical display and interfaces (LAN, USB)





## ACTIVE ANTENNA COMBINERS

The Comrod range of active antenna combiners allow multiple transceivers to utilize one or two antennas. Minimizing the number of antennas on a platform reduces the visual impact and can improve the radiation pattern due to the decreased effect of co-site interference.

- HF, VHF & UHF models.
- Intended for use with four, five or eight transceivers together with one or two common antennas.
- When used with two antennas, simultaneous transmission and reception is possible.
- Priority can be given to one transmitter.
- For fail-safe operation in case of power failure, one transmitter is connected directly to the antenna.

### SAMPLE PRODUCT RANGE

MODEL	FREQUENCY RANGE	PRODUCT RANGE
ACS007K	1.6-88 MHz	HF/VHF TX/RX Antenna Switch – 5 transceivers to 1 or 2 antennas
ACS005K	30-430 MHz	VHF/UHF TX/RX Coupling Unit – 9 transceivers to 3,4 or 5 antennas
ACS004	30-430 MHz	VHF/UHF TX/RX Coupling Unit – 4 transceivers to 1 or 2 antennas

## PASSIVE ANTENNA COMBINERS

Comrod's passive antenna combiners allow up to four transceivers to be connected to a single antenna. Minimizing the number of antennas on a platform reduces the visual impact and can improve the radiation pattern due to the decreased effect of co-site interference.

- 30-88 MHz tactical VHF band passive combiners enable the use of multiple transceivers on the same antenna
- Improvement in radiation pattern due to reduced number of antennas, even allowing for the slight loss in the combiner.
- System behaves like separate antennas; no special frequency planning is required.

### SAMPLE PRODUCT RANGE

MODEL	FREQUENCY RANGE	PRODUCT RANGE
S2	30-88 MHz	Connects two transceivers to one antenna
S2-512	30-512	Connects two transceivers to one antenna
S4	30-88 MHz	Connects four transceivers to one antenna

# POWER SUPPLIES & BATTERY CHARGERS

Comrod has a long tradition of supplying power products to demanding customers worldwide. The product range includes custom-made battery chargers for portable military applications and the ComPact family of power supplies and battery chargers. The ComPact family of products are suitable for vehicle and shelter installation, typically powering tactical radio communication systems, mobile C4 military applications, missile and radar systems.

ComPacts are designed and manufactured to meet the most stringent environmental and electrical demands set by our customers. ComPacts are fully software defined enabling the user to easily monitor status and alarms, enable/disable features and configure a wide range of parameters.

The ComPact series of AC/DC products can be used as power supply, battery charger and combined

power supply and battery charger. Compacts allow for charging of all types of Lead Acid and Li-Ion battery technologies. Configurable features such as 3-stage and temperature compensated charging ensure optimized charging in even extreme temperatures.

**ComPact highlights:**

- High efficiency
- Ultra-rugged
- Power factor corrected and suitable for challenging power sources
- Soft switching technology
- Ingress protected IP67
- RS-485 and/or CAN J1939 Bus
- Fully software defined
- Firmware can be field-upgraded to support new battery technologies and new features.

MODEL	INPUT	PRODUCT RANGE	ORDER NUMBER
ComPact 2400 AC/DC	99-276V AC	2400 W (28V/80A)	P600360
ComPact 1200 AC/DC	99-276V AC	1200 W (28V/40A)	P600380
ComPact 1200 Dual Input (12V)	9-16V DC, 99-276V AC	1200 W (28V/40A)	P600320
ComPact 1200 Dual Input (24V)	18-32V DC, 99-276V AC	1200 W (28V/40A)	P600420
ComPact 2400 AC/DC (48V)	99-276V AC	2400 W (48V/40A)	P600610
ComPact 2000 DC/AC	20-34V DC	2000 W (120/230V AC, 60/50 Hz)	P600430

**ComPact 2400 AC/DC**

Highly efficient 28V DC 80A power supply and battery charger with four times the power density of competing products, IP67 sealed, temperature compensated charging, rack mount or stand-alone mounting. Active load sharing when several ComPacts are connected in parallel for more power output. Communication port for setup, control and monitoring.

**ComPact 1200 Dual Input**

Provides the power density performance of the ComPact 1200 AC/DC with an integrated 12V to 24V DC/DC converter to allow the use of 24V military equipment in 12V vehicles. When connected to an AC source, the ComPact 1200 Dual Input can simultaneously charge both the 12V vehicle start battery and an optional 24V battery bank.

**ComPact 2000 DC/AC**

Highly efficient inverter for powering products requiring standard 240V AC input such as commercial routers and computers. Communication port for control, monitoring and setup and detailed status and statistics can be retrieved. The ComPact 2000 DC/AC can be software configured according to customer specification.



ComPact 2400 AC/DC



ComPact 1200 Dual Input



## COMPOSITE SECTIONAL & TRIPOD MASTS

Comrod's composite sectional masts are used to elevate top loads such as antennas, cameras, sensors, lighting, etc. Sectional masts have excellent resistance to sand and dirt, are unaffected by low temperatures and can withstand bullet damage. If a single section is damaged the mast is still usable at a slightly reduced height. Man-portable sectional masts are quick to deploy, cost effective solutions for elevating light top loads such as omni-directional and wire antennas up to heights of 9 meters. The ULM-48 sectional tripod mast is a very light-weight solution for elevating top

loads up to 15 kg (33 lbs) at heights up to 15 meters (50 ft). The complete mast kit packs down into two man-portable bags for easy transportation. The larger ULM-92 and MLV-125 sectional tripod masts are primarily ground mounted systems used to elevate heavier top loads up to 34 meters. Masts can either be deployed by hand or motorized depending on the height and top load weight. Centralized guying systems reduce the number of personnel required to deploy the mast and keep the top load stable during deployment in high winds.

### SAMPLE PRODUCT RANGE

#### SECTIONAL MASTS

Application	Type /Series	Tube Diameter	Heights	Maximum Headload
Manpack	MUL	Tapered	9 m	0.7 kg
Manpack	MP	31-47 mm	6-9 m	7 kg
Manpack	MV	31-47 mm	9 m	7 kg
Manpack	AMX	32-50 mm	5.4-9 m	15 kg

#### SECTIONAL TRIPOD MASTS

Application	Type /Series	Tube Diameter	Heights	Maximum Headload
Light Duty	ULM	48 mm	10 - 15 m	15 kg
Medium Duty	ULM	92 mm	10 - 24 m	40 kg
Heavy Duty	MLV	125 mm	10 - 34 m	130 kg

# COMPOSITE TELESCOPIC MASTS

Comrod's composite telescopic masts can be either ground mounted or vehicle/shelter integrated. Masts are manufactured from either glass fiber or carbon fiber composite sections for exceptional strength and light weight. Metal fittings are painted aluminum or stainless steel.

MT series masts are lightweight telescopic push up masts that can be ground deployed or vehicle mounted. The mast is light, compact, easy to deploy and ideally suited for elevating light headloads such as omni-directional and wire antennas up to heights of 9 meters.

IDTM series masts are operated using either a hand cranked or motorized winch. The IDTM range of masts are capable of

elevating top loads up to 100 kg up to heights of 24 meters. The IDTM series of masts are particularly suited to being integrated onto vehicles and shelters.

LMT series masts are motorized heavy duty masts manufactured from carbon composite tube sections. Masts are deployed using an internal motorized belt system that can be operated remotely from a vehicle or shelter. When fully deployed the mast sections lock together to maintain a rigid platform that can be used on-the-move. LMT series masts are typically used for elevating heavy headloads that require a high level of pointing accuracy such as electro-optical and infra-red (EO/IR) equipment.

## SAMPLE PRODUCT RANGE

### COMPOSITE TELESCOPIC MASTS

Application	Type/Series	Base Tube Diameter	Max Heights	Maximum Headload
Light Duty - Push Up	MT	76-100 mm	5-9 m	10 kg
Composite - Crank Up	IDTM	100-184 mm	6-24 m	100 kg
Composite Heavy Duty - Motor Driven	LMT	208-460 mm	2-16 m	250 kg





## ALUMINUM TELESCOPIC MASTS

Comrod's range of aluminum telescopic masts offer a cost effective, time proven design that has been fielded for more than 60 years. These masts provide exceptional performance, reliability, and safety and outperforms other technologies in arctic or sand-filled environments. The unique and proven all-weather design featuring space between sections allows the masts to be raised or lowered, even with a build-up of ice, sand or dust. The mast design allows easy and quick raising or retracting using a manual or electrically driven winch. Thousands of masts are currently deployed in harsh environments that include the deserts and mountains in the Middle-East, hot and humid

jungles in South America and Asia, and the arctic regions of Alaska and Scandinavia.

Masts can be supplied with ground mounting kits for field deployment or can be integrated onto vehicles and shelters. A range of fixed and tilting brackets allow for horizontal or vertical stowage. Larger masts can be deployed from vehicles and shelters using specially designed Pull-Out-Assist (PAM) brackets. These brackets support the full weight of the mast during deployment. An electrically operated version is also available for heavy duty masts and headloads.

### SAMPLE PRODUCT RANGE

#### ALUMINIUM TELESCOPIC MASTS

Application	Type/Series	Base Tube Diameter	Max Height	Maximum Headload
Lightweight – Guyed	TM 100/128	100/128mm	9-18m	50kg
Heavy Duty – Guyed	TM 150/170/210/230/250	150/170/210/230/250mm	15-30m	250kg
Heavy Duty – Un-Guyed	TM170/210/230/250	170/210/230/250mm	4.7-18m	350kg

# CAPAS® COMROD AUTOMATIC PAYLOAD ALIGNMENT SYSTEM

Comrod Automatic Payload Alignment Systems are designed to quickly and precisely elevate and direct a payload to the correct height and optimal direction. Single rotator, dual rotator and rotator/tilter systems enable quick and effective deployment of communication or sensor assets without exposing personnel to unnecessary danger.

The CAPAS-DR dual-rotator systems enables independent 360 degree azimuth rotation of two separate payloads, while the CAPAS-RT automatic rotator/tilter system provides control of both azimuth

and elevation of a single payload. All CAPAS systems can be controlled via the CAN, RS232, RS485 or Ethernet interfaces. The powerful drive system allows fast positioning of payloads demanding high pointing accuracy. When connected to a supported radio transceiver, the system can optimize the direction from received signal strength or bit error rate within a fraction of a degree. Comrod heavy duty TM and LMT series telescopic masts can be supplied with CAPAS-MC (Mast Control). This allows the mast and alignment system to be networked, enabling full height and positional control over the payload.

## SAMPLE PRODUCT RANGE

### COMROD AUTOMATIC PAYLOAD ALIGNMENT SYSTEMS

Application	Type / Series	Function
Single Automatic Rotator	CAPAS-SR	360 azimuth rotation of a single payload
Double Automatic Rotator	CAPAS-DR	360 degree azimuth rotation of two separate payloads
Automatic Rotator/Tilter	CAPAS-RT	360 degree azimuth rotation and ±10 degree elevation

### ELECTROMECHANICAL TELESCOPIC MASTS – CAPAS CONTROLLED

Application	Type / Series	Base Tube Diameter	Max Height	Maximum Headload
Heavy Duty – Motor Driven Composite	LMT Series	208-460mm	2-16m	250kg
Heavy Duty – Motor Driven Aluminium	TM 170/210/230/250 Series	170, 210, 230, 250mm	4.7-18m	350kg



# COMROD MISSION SYSTEMS

Establishing reliable communications can pose a great challenge, whether on the battlefield or on the site of a natural disaster. Network Centric Operations depends on communication networks keeping pace with the maneuver elements, and preferably staying ahead of them. Meanwhile, when disaster strikes, first responders require efficient deployment of critical radio systems.

reducing the planning time. TCT's dynamic planning can quickly adapt to changes in operational circumstances, while its sophisticated radio propagation analysis ensures accurate simulation of every communication link. A powerful map engine supports a wide range of geospatial formats, including DTED elevation data, vector-based road maps as well as several formats for raster-based maps and satellite imagery.

TCT (Tactical Communication Tool) allows organisations to leverage their communication assets, while dramatically

### Key Features

- Time based planning
- Radio net planning
- Radio path calculations
- Frequency planning
- Possible links calculation
- Radio coverage calculation
- Planning of gateway and transit connections
- Configurable equipment
- Frequency conflict calculations for radio links
- Concurrent multi-user planning
- Order creation
- Plan status management
- Equipment resources management
- Supports a broad range of geographical data formats

### Types of communication equipment supported

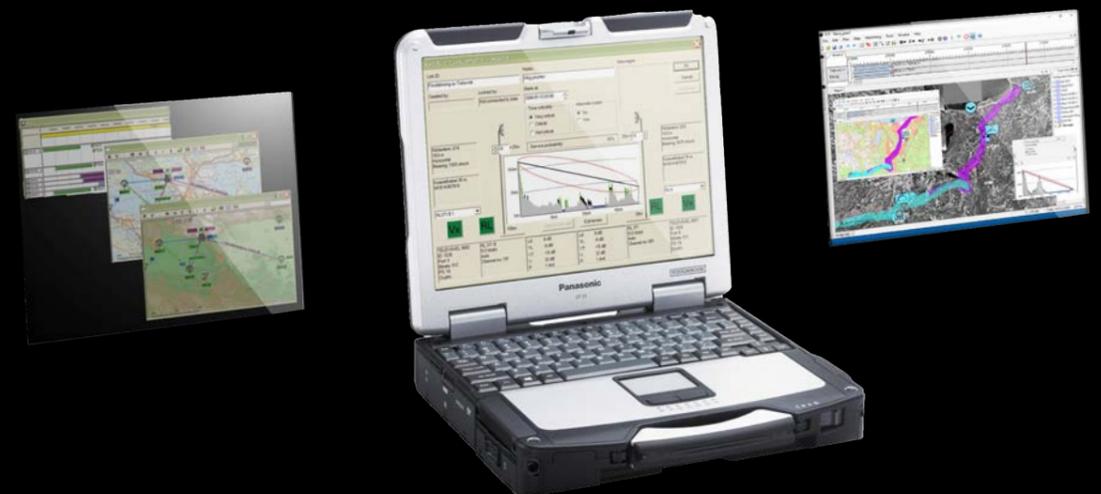
- Analogue VHF and UHF radio
- HF radio
- TETRA
- Fixed frequency digital radio link
- Frequency hopping radio link
- Digital VHF radio

### Comrod Automated Payload Alignment Systems (CAPAS)

- Latest generation of Comrod electronic rotators and alignment systems
- CAPAS-SR - Single rotator
- CAPAS-DR - Dual independent rotator
- CAPAS-RT - Rotator / tilter

### CAPAS-MC Mast Control

- CAPAS-MC mast control for Comrod electromechanical telescopic masts enables full height control within the TCT Communication Mission Planning System



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