

Acronyms and Abbreviations

Acronyms and abbreviations appearing in multiple parts of the book are listed here. A full list may be found on the accompanying DVD and all acronyms are defined on first use.

2-D	Two dimensional
3-D	Three dimensional
ADC	Analog-to-digital converter
ADR	Accumulated delta range
AGC	Automatic gain control
AGNSS	Assisted GNSS
AHRS	Attitude and heading reference system
AltBOC	Alternate binary offset carrier
AM	Amplitude modulation
ANN	Artificial neural network
AOA	Angle of arrival
ASF	Additional secondary factor
ATAN	Arctangent
ATAN2	Arctangent (four quadrant)
AUV	Autonomous underwater vehicle
baro	barometric altimeter
BLE	Bluetooth low energy
BOC	Binary offset code
BPSK	Biphase shift key
C/A	Coarse/acquisition
CD	Compact disc
CDMA	Code-division multiple access
CGCS	China Geodetic Coordinate System
CIRS	Conventional inertial reference system
CL	Civil long
CM	Civil moderate
CRPA	Controlled-reception-pattern antenna
CSAC	Chip-scale atomic clock
CVL	Correlation velocity log
CVN	Continuous visual navigation
DGNSS	Differential GNSS
DLL	Delay lock loop
DLoran	Differential long-range navigation
DME	Distance measuring equipment

DOP	Dilution of precision
DPP	Dot-product power
DR	Dead reckoning
DSRC	Dedicated short-range communication
DSSS	Direct-sequence spread spectrum
DVL	Doppler velocity log
ECEF	Earth-centered earth-fixed
ECI	Earth-centered inertial
EGNOS	European Geostationary Navigation Overlay System
EKF	Extended Kalman filter
ELE	Early-minus-late envelope
ELoran	Enhanced long-range navigation
ELP	Early-minus-late power
FDMA	Frequency-division multiple access
FDE	Fault detection and exclusion
FDI	Fault detection and isolation
FDR	Fault detection and recovery
FFR	Federated fusion-reset
FFT	Fast Fourier transform
FH	Frequency hopping
FLL	Frequency lock loop
FM	Frequency modulation
FOC	Full operational capability
FWHM	Full width at half maximum
GAGAN	GPS/GLONASS and Geo-augmented Navigation
GBAS	Ground-based augmentation system
GDOP	Geometric dilution of precision
GIS	Geographic information system
GLONASS	GLOBAL'naya NAVigatsionnaya Sputnikovaya Sistema
GNSS	Global navigation satellite systems
GPS	Global Positioning System
GSM	Global standard for mobile communications
GSM-R	Global standard for mobile communications—Rail
GTRF	Galileo Terrestrial Reference Frame
gyro	Gyroscope
HAIP	High-accuracy indoor positioning
HAL	Horizontal alert limit
HDOP	Horizontal dilution of precision
HPL	Horizontal protection level
IAE	Innovation-based adaptive estimation
ICD	Interface control document
ID	Identification
IERS	International Earth Rotation and reference systems Service
IF	Intermediate frequency
IFOG	Interferometric fiber-optic gyro
IGMAP	Iterative Gaussian mixture approximation of the posterior
ILS	Instrument landing system; iterated least squares

IMES	Indoor Messaging System
IMU	Inertial measurement unit
INS	Inertial navigation system
IOC	Initial operational capability
IRM	IERS reference meridian
IRNSS	Indian Regional Navigation Satellite System
IRP	IERS reference pole
IS	Interface standard
ISM	Industrial, scientific, and medical
ITRF	International Terrestrial Reference Frame
ITS	Intelligent transportation systems
JTIDS	Joint tactical information distribution system
KF	Kalman filter
KNN	K nearest neighbors
laser	Light amplification by stimulated emission and radiation
LADAR	Laser detection and ranging
LADGNSS	Local area differential GNSS
LBL	Long baseline
LBS	Location-based services
LHCP	Left-handed circular polarization
LEO	Low Earth orbit
LF	Low frequency
LIDAR	Light detection and ranging
LOP	Line of position
Loran	Long-range navigation
LOS	Line of sight
L1/2/3/5	Link 1/2/3/5
L1C	Link 1 civil
L2C	Link 2 civil
L5I	Link 5 in-phase
L5Q	Link 5 quadrature
M	Military
MAV	Micro air vehicle
MBOC	Multiplexed binary offset carrier
MEDLL	Multipath-estimating delay lock loop
MEMS	Microelectromechanical systems
MEO	Medium Earth orbit
MF	Medium frequency
MHKF	Multiple-hypothesis Kalman filter
MIDS	Multifunctional information distribution system
MMAE	Multiple-model adaptive estimation
MSAS	MTSat Satellite Augmentation System
NATO	North Atlantic Treaty Organization
NCO	Numerically controlled oscillator
NDB	Nondirectional beacon
NGA	National Geospatial-Intelligence Agency
NLOS	Nonline-of-sight

OFDM	Orthogonal frequency division multiplex
P	Precise
PDF	Probability density function
PDOP	Position dilution of precision
PDR	Pedestrian dead reckoning
PLL	Phase lock loop
PNT	Positioning, navigation, and timing
ppm	parts per million
PPP	Precise point positioning
PPS	Precise positioning service
PRN	Pseudo-random noise
PRS	Public regulated service
P(Y)	Precise (encrypted precise)
QPSK	Quadrature-phase shift key
QZSS	Quasi-Zenith Satellite System
radalt	radar altimeter
RAIM	Receiver autonomous integrity monitoring
RDSS	Radio determination satellite service
RF	Radio frequency
RFID	Radio-frequency identification
RHCP	Right-handed circular polarization
RLG	Ring laser gyro
RMS	Root mean square
RNP	Required navigation performance
ROV	Remotely operated vehicle
RSS	Received signal strength
RTK	Real-time kinematic
RTT	Round-trip time
SBAS	Space-based augmentation system
SBL	Short baseline
SD	Standard deviation
SDCM	System of Differential Corrections and Monitoring
SI	Système International d'unités
SLAM	Simultaneous localization and mapping
SNAS	Satellite Navigation Augmentation System
SOL	Safety of life
SOOP	Signal(s) of opportunity
SOP	Surface of position
SPS	Standard positioning service
TACAN	Tactical air navigation
TBD	To be determined
TCXO	Temperature-compensated crystal oscillator
TDM	Time-division multiplex
TDMA	Time-division multiple access
TDOA	Time difference of arrival
TDOP	Time dilution of precision
TOA	Time of arrival

TOF	Time of flight
TRN	Terrain-referenced navigation
TTFF	Time to first fix
VHF	Very high frequency
UAV	Unmanned air vehicle
UDA	Undefined acronym
UHF	Ultra-high frequency
UKF	Unscented Kalman filter
USBL	Ultra-short baseline
UTC	Coordinated Universal Time
UWB	Ultra-wideband
VAL	Vertical alert limit
VBA	Vibrating-beam accelerometer
VDOP	Vertical dilution of precision
VHF	Very high frequency
VOR	VHF omnidirectional radiorange
VPL	Vertical protection level
VRE	Vibration rectification error
V2I	Vehicle to infrastructure
V2V	Vehicle to vehicle
WAAS	Wide Area Augmentation System
WGS 84	World Geodetic System 1984
Wi-Fi	Wireless Fidelity
WLAN	Wireless local area network
WPAN	Wireless personal area network
WSS	Wheel speed sensor
Y	Encrypted precise
ZARU	Zero angular rate update
ZVU	Zero velocity update