



AWR Technology - Price List 2024

www.awrtech.co.uk

PRICE LIST for UK

THIS LIST SUPERCEDES PRICES IN INDIVIDUAL PAGES

Our products may not be the cheapest but we aim to provide rugged units that last .. and last. We do not have mass produced items and so we can tailor specific products to meet your needs. We also provide excellent after sales service to solve any problems you may have. Some systems are extremely complex but we endeavour to leave you a competent user. Continuing support on Intelligent Drive Systems includes firmware upgrades.

COMPLIANCE: All our products have been tested and comply with UKCA mark, European Directives for CE marking (EMC and Safety), RoHS and WEEE. The EMC and safety tests are more stringent than FCC regulations (USA) so we are happy to supply units throughout the world.

If you wish to dispose of your product contact AWR Technology for re-use of the items.

PAYMENT. We can accept cheque, Bank Transfer or PayPal, credit / debit cards which work from any country.

ALL PRICES ARE IN UK POUND STERLING AND INCLUDE 20% UK VAT.

For EXPORT prices we will quote you.

CHOOSING: A DRIVE SYSTEM for a telescope needs MOTORS, a DRIVE BOX and a HANDSET. Select as desired from the range listed here. Next supply the information requested and send to AWR TECHNOLOGY. It is best to send photos and then talk to us. A sheet on [installing drive systems](#) is sent with the Drive System.

ALL OUR PRODUCTS (MECHANICAL AND ELECTRICAL) ARE RUGGED AND WILL STAND MISUSE.

They will not stop working if a lead is pulled out when powered.

If there is something you need but not listed, give us a call, we may be able to help.

SYNCHRONOUS MOTOR DRIVE SYSTEM These units comprise a low power mains inverter(DRIVE BOX) and a HANDSET for driving the RA axis with Synchronous motor (230V or 110V at 50 or 60 Hz). Input power is 12V DC. The units have a VFO section with 5% rate adjust knob and SLOW FAST fine adjust buttons on the handset. Options are available for DEC drive (Synchronous or DC motors) and AUTOGUIDER input. Sidereal rate is quartz crystal derived.

SYSTEM 3	RA drive for Synchronous motor 10 Watts max This includes a HC20 handset.	£280.00
OPT 7	Dec axis drive for Reversible Synchronous motor	ADD £40.00
OPT 13	Dec axis drive for 12V DC motor	ADD £50.00
	AUTOGUIDER remote control interface can be fitted to all handsets.	

HIGH PERFORMANCE STEPPER MOTOR SYSTEM 5 To provide high torque across the whole range of motor speeds, for use with smaller stepper motors (such as STEP2,3,5 motors). 50x sidereal rate is achieved on some telescopes with accelerating high speed. 3 speed adjust rate. Low consumption from battery. The LED on the handset indicates the status of options 3 and 12 if fitted. Sidereal rate is also Quartz locked. Vixen steppers MT-1 (5 pin or 8 pin) can be powered directly

SYSTEM 5	Handset and drive box for DUAL axis with crystal	£295.00
SYS5/VIX	Handset/control for VIXEN SP,GP motors DUAL axis, crystal. (VFO switch and knob for Lunar/Solar rates, 3 speeds INCLUDED).	£245.00
METEOR	Rotating Meteor Shutter drive box and motor complete.	£180.00
	AUTOGUIDER remote control interface can be fitted to all handsets.	

MOTOR ASSEMBLIES for ABOVE SYSTEMS (Motor, gearbox, electrical connector). [MOTOR DRAWINGS](#)

STEP2	Stepper motor etc. Up to 80Ncm output torque, max 240 step/s	£105.00
STEP3	Stepper motor etc. Up to 400Ncm output torque, max 600 step/s	£160.00

COUPLING	Oldham type 13mm diameter	£20.00
COUPLING	Oldham type 19mm diameter	£55.00
COUPLING	Oldham type 25mm diameter	£75.00
BALANCE	Spring balance for measuring motor torques photo	£10.00

REMOTE CONTROL OPTIONS (For ALL SYSTEMS) We have an adapter that can be fitted to ours and third party DRIVE SYSTEMS with handsets which allows remote devices to press the buttons. This is used by CCD AUTOGUIDERS and other guiding equipment. The 6 pin input is a standard configuration used by SBIG ST7/8, MEADE PICTOR and requires ACTIVE LOW signals from the CCD. [Further details.](#)

OPT 2	SBIG ST4 autoguider input connector 9 pin D connector on a short lead wired into the handset	£45.00
OPT 14	SBIG, PICTOR: 6 pin RJ11 interface wired into handset	£50.00
REMOTE	Autoguider interface relay box for CCD remote guiding (6 pin TTL RJ11 INPUT, OPTOCOUPLED and wired into handset suitable for many manufacturers handsets).	£75.00
SEEKER	Spiralling controller device to fit in AUTOGUIDER socket	£59.00
CCDTEST	AUTOGUIDER input TESTER and CCD Simulator (For DRIVE and CAMERA) This is essentially a break-out box with controls (RJ12)	£45.00
PA2	PULSE ANALYSER for autoguider signals Pulse length and directions pressed.	£59.00

INTELLIGENT HANDSET & MICROSTEP DRIVE SYSTEM

MICROSTEPPING DRIVEBOX allows direct mechanical connection of Stepper Motor to any slow motion drive including retrofits, although we now favour pulley reduction around 2:1. The MICROSTEP features extremely smooth acceleration between drive speeds with fully programmable rates at all speeds. Step size of the order of 0.3 arcsec using microstepping of the stepper motor. [\(MOTOR DRAWINGS\).](#)

MOTORS achieve normal slew rates about 0.8 degrees per second depending on motor type and telescope torque requirements. At least 0.5 degree per second achievable on the large telescopes. Motor power range on slow motion shaft from at least 1Nm with gearing by pulleys and timing belts. The complete system needs 12V DC from 2.5 Amps for 32Ncm motors to 4.5 Amps required for larger motors. More power and torque running to higher stall speeds using 24V supply can be provided at extra cost. We can do very large motors (5Nm output torque before gearing).

INTELLIGENT HANDSET with GOTO and computer connection. This provides coordinate calibration, programmable drive rates, position readout, GOTO facility, tube reversal procedure etc. Design aim of 20 arc seconds accuracy depending on telescope configuration. SIMPLE HANDSET has GUIDE, 2x and SLEW adjust rates in all directions. The Intelligent Handset is normally powered through Drive Box.

The DRIVEBOX is a STANDARD or an ADVANCED version with extra features which can be substituted when supplied with the KITS. The **ADVANCED** includes extra connectors - AUXILLIARY to provide 3 relay outputs, an OVERRIDE STOP input, a connector for INDEX PULSE for worm wheel periodic error correction. These advanced features need the Intelligent Handset to perform the functions.

All driveboxes have a remote control input from autoguiders TTL 6 pin type or SBIG ST4 type.

FRGEN DRIVEBOX supplies two axis STEP and DIRECTION signals that can be used for other proprietary drive units. It has the same Intelligent Handset interface and operates with the same motor profiles etc. Can also be supplied STANDARD or ADVANCED.

A range of accessories and upgrades complete the lineup. We can also interface to [HEIDENHAIN](#) digital encoders (see link).

PLEASE DISCUSS YOUR ORDER WITH US to get the CORRECT CONFIGURATION

SUPPORT	User Support Package FREE when purchasing an Intelligent Drive System from AWR. Essential if you buy a system second hand. We work with you to get the best out of the system for your application.	£50.00
HANDBOOK	Intelligent Drive System handbook 42pp. See DOWNLOADS	
MICROSTEP	Drive box to control two motors in microstepping mode (This has AUTOGUIDER, IH and SIMPLE HANDSET sockets)	£290.00
USTEP/ADV	ADVANCED MICROSTEP plus additional AUXILLIARY, INDEX, TTL or opto isolated autoguider input	£355.00
FRGEN	Alternative Drivebox with STEP/DIRECTION wires two axis also available in Standard and Advanced versions.	from £200.00

HANDSET	Simple handset GUIDE,CENTRE,SLEW photo	£50.00
IH2	Intelligent Handset MK2 with coordinate readout, full calibrations and GOTO operation.	£450.00
DATABASE	Database upgrade	£65.00
	GPS option for IH2	£70.00
	MOTORS and brackets pricing see MOTORS	
	Motors are supplied with connectors and gearbox reductions are extra.	
MOTOR/32	Stepper motor 32Ncm 1.2A/phase	£70.00
MOTOR/80	Stepper motor 80Ncm for microstepping (max 60Ncm usable)	£100.00
MOTOR/210	Stepper motor 210Ncm for microstepping (max 140Ncm usable)	£160.00
IH/BASE	IH Home Station with power supply and USB connection	£95.00
	Example picture	
SERIAL/IH	PC to IH (9 pin 'D' to 6 pin RJ12) converter lead (2 mtr)	£20.00
SERIAL/DR	PC to Drivebox serial lead converter 2 metre	£20.00
USB/RS232	USB to serial converter, FTDI chips. This one works! photo	£22.00
	Works on W7 / W10 / XP / Win98 / Vista / Linux / Apple MAC. Drivers updateable.	
PC-EXTEND	Serial extender cable 2 metres to 20 metres available	CALL
RJ45	IH to Drivebox cable 3 metres to 50 metres available	CALL
INDEX	Index cable and 'Top Hat' pulse gen for periodic error	£40.00
PSU5	Power supply 85-240V ac input, 12V DC output 5 Amps	£65.00
PSU9	Power supply 85-240V ac input, 24V DC output 8.4 Amps	£200.00
RESBOX/12	Resistor box with for use with 12V 2 amp motors	£140.00
RESBOX/24	Resistor box with fan cooling for use with 24V 2 Amp	£180.00
BALANCE	Spring balance for balancing the telescope - photo	£10.00
QUADBOX	Quadrature decoder box for external encoders	£150.00
SEEKER	Spiralling controller device to fit in AUTOGUIDER socket	£59.00
AD100	ASTRO DISPLAY UNIT of parameter(SERIAL in and OUT)	£160.00
LIGHTS	Lights Box to show VIRTUAL ENCODER information flow photo	£40.00

KITS for COMMERCIAL TELESCOPES - USER FITTING

We can service worm brackets and fit motors brackets if required.

EQ5/BASE	NON-GOTO Microstepping system for user fitting to EQ5 (CG5, SP, GP, GP DX, GPE) mount COMPLETE KIT	£500.00
EQ5/KIT	EQ5 complete GOTO system	£850.00
FS/BASE	NON-GOTO Microstepping system for user fitting to FS MK IV	£550.00
FS/WORMS	Service for Fullerscope MK IV worm brackets attending to bearings, side play, end float etc	FROM £70.00
FS/KIT	Full GOTO System and fitting motor brackets	£1050.00
LX200/KIT	GOTO Upgrade for CLASSIC LX200 or LX200 GPS or LX200 ACF	£1200.00
	FOR OTHER KITS SEE INDIVIDUAL PAGES for each mount.	
	Quite a few motor bracket types are illustrated on our MOTORS page	
	- all suitable for microstepping.	

All purchasers will be kept up to date with software upgrade information. Keep an eye on the website for information about software upgrades. The latest information is on the [DOWNLOADS](#) page. There may be nominal charges depending what is involved. Certain upgrades may involve extra hardware to fit on your telescope.

PORTABLE ENGLISH MOUNT (PEM)

This new design mount has been developed by us and [ASTROMOUNT](#) to provide a very capable ultra stable mount with a larger payload capacity than most mounts in the market. The price tag reflects its ability to carry 100kg OTA plus balance weights. There are Polar axle bearings either side of the Declination shaft. It is precision machined stainless steel with 45mm diameter thick walled axles with three bearings per axis. We can do the wheel sets in brass/Dural or Phosphor Bronze/Stainless Steel. Either 6 inch or 8 inch wheel sets. Gear Guards of stainless steel and Nylon. The smallest assembly weighs 30kg and 10kg for the adjuster base. [SEE the MANUAL](#). Vinyl coated balance weights on 25mm solid shaft. We will install FOC if you are within 100 miles of BANBURY or DEAL (UK ONLY).

PEM/6	AWR Portable English Mount, 6 inch PB wheels, AWR IDS GOTO and Base Adjuster to fit atop a pier (8 inch dia recommended). All leads and balance weights supplied.	£7700.00
BASE/ADJ	The base adjuster fits on top of a pier and provides a tilting platform to put your own mount on, available separately. AZ and ALT adjustments are 0.2 degrees per turn of the screw. Made to fit your pier.	£1000.00

SIDEREAL CLOCKS

SC110mk3	DUAL TIME Sidereal / UT observatory clock LCD HHMMSS powered from 12V. Metronome. RED Backlight. SERIAL PORT to send time in LX200 protocol.	£160.00	
Options:-			
OPT 1	Internal NiMH rechargeable battery instead of PP3	ADD	£30.00
OPT 2	Electrical output of 1 sec pulses	ADD	£20.00
OPT 3	Variable backlight brightness	ADD	£20.00
OPT 4	UK Mains adapter - (product PSU1)	ADD	£10.00
OPT 5	Improved temperature performance, 5ppm crystal	ADD	£40.00
OPT 6	Tape recorder output of metronome pulses	ADD	£20.00
OPT 7	CRYSTAL OVEN, (less than 5s error in 6 months)	ADD	£120.00 (Includes OP
OPT 8	Frequency generator output	ADD	£25.00
also			
SERIAL/IH	PC to IH (9 pin 'D' to 6 pin RJ12) converter lead (2 mtr)	£20.00	
SER/MEADE	PC to MEADE (9 pin 'D' to 6 pin RJ12) converter lead (2 mtr)	£20.00	
PCEXTEND	PC extender cable (2 mtr)	£9.00	
PC/XOVER	PC - PC crossover lead (2 mtr) Connects CLOCK to PC	£9.00	

ARTICLES and MISCELLANEOUS EQUIPMENT

BALANCE	Spring balance for measuring motor torques photo	£10.00
SEEKER	Spiralling controller device to fit in AUTOGUIDER socket	£59.00
PA2	PULSE ANALYSER for autoguider signals	£59.00
CCDTEST	AUTOGUIDER input TESTER and CCD Simulator (For DRIVE and CAMERA)	£45.00
DEW I	DEW HEATER CONTROLLER . 2 outputs, upto 60 Watts supplied	£59.00
POLAR	POLAR ILLUMINATOR for lots of little mounts. PLEASE CALL.	£20.00
RONCHI/80	Ronchi grating 80 lines/inch (35mm slide) photo	£9.50
RONCHI/120	Ronchi grating 120 lines/inch (35mm slide)	£9.50
RONCHI/LGE	Grating 1.2cm square in 7cm square material	£15.00
ILLUM	Polarscope ILLUMINATOR for external fitting	£20.00
DEFECT	Article "IMAGE DEFECTS IN TELESCOPES" and cures.	see website
SIDEREAL	Article "UNDERSTANDING SIDEREAL TIME"	see website
DRIVESYS	Article "UNDERSTANDING TELESCOPE DRIVE SYSTEMS"	see website
POSITION	Article "TELESCOPE POINTING ERRORS & CORRECTIONS"	see website

MATERIALS

[Thicknesses are nominal] Further Information		
PTFE	Low friction material 1.0mm thick	25p per square inch
PTFE	Low friction material 1.6mm thick	30p per square inch
PTFE	Low friction material 6mm thick photo	75p per square inch
PTFE	Low friction material 10mm thick	£1.00 per square inch
GRAB	Grab handle for M8 threads photo	£3.00
FOOT	Foot level adjuster screw M10 x 70mm photo	£3.00

POWER SUPPLIES AND LEADS

PSU1	UK Mains adapter 240V ac to 12V DC maximum 1 amp	£10.00
PSU5	Power supply 88-240V ac input, 12V DC output 5 Amps With UK mains lead and 4mm banana plugs	£65.00
PSU5/24	Power supply 85-240V ac input, 24V DC output 5 Amps With UK mains lead and 4mm banana plugs	£130.00
PSU9	Power supply 85-240V ac input, 24V DC output 8.4 Amps With UK mains lead and 4mm banana plugs	£200.00
LEAD/5M	Car battery lead with croc clips, fuse, 5 metres (10 amp) and 4mm banana plugs	£20.00
LEAD/CIG	5 metre fused lead plugs into cigar lighter socket (8 Amp) and 4mm banana plugs	£20.00

DELIVERY CHARGES TO UK

Small packets under £50 (sent 1st class post)	ADD	£5.00
Royal Mail Special delivery under 1kg with £500 insurance (UK)	ADD	£20.00
Next day carrier delivery to 25kg with insurance (UK)	ADD	£25.00

UNITS ARE MADE TO ORDER - Expected time to despatch will be given at ordering.

Equipment supplied without batteries unless stated.

ALL PRICES IN UK POUNDS STERLING and include UK VAT at 20%.

EXPORT orders please contact us for a quote.

Official orders accepted. All prices and specifications subject to revisions without notice.

One year guarantee against defective parts and assembly.

ORDERING INFORMATION:

E-Mail for a quote alan@awrtech.co.uk OR print out and fill in form below and POST it to us.

We can accept credit/debit card payment (VISA, MASTERCARD) made by TELEPHONE or LETTER ONLY.
******* DO NOT EMAIL YOUR CREDIT CARD INFORMATION *******

I order the following items:

NAME _____ TELEPHONE _____ TOTAL _____

e-MAIL ADDRESS _____

ADDRESS _____ Please send Cheque or card information to:
AWR Technology
The Old Bakehouse, Albert Rd,
Deal, Kent CT14 9RD, UK
TEL: 01304 365918
FAX: 01304 369737

CREDIT /DEBIT CARD _____ ORDER DATE _____
PAYMENT: CARD NUMBER _____ ISSUE No (SWITCH) _____

EXPIRY DATE _____ SIGNATURE _____ SECURITY DIGITS _____

IF PURCHASING A DRIVE SYSTEM PLEASE FILL IN THE ESSENTIAL INFO BELOW
(Technical help available at 01304-365918)

Qu 1. We need to work out the drive reduction ratio to get the correct oscillator frequency so that the motor will drive the slow motion shaft at the correct speed. Contact technical if you have a sector plate or friction drive.

Number of teeth on RA drive wheel _____ or time for one rev of worm _____
RA drive reduction gear arrangement if not simple worm / wheel:

Qu 2. Similarly for declination. Number of teeth on DEC drive wheel _____
DEC drive reduction gear arrangement if not simple worm / wheel:

Qu 3. Lead lengths you require:
HANDSET to DR BOX: _____ DRIVE BOX to RA motor: _____ DRIVE BOX to DEC motor: _____

Slow motion shaft diameters for OLDHAM drive coupling RA _____ DEC _____

Qu 4. Telescope size and type: _____

Approximate weight of tube assembly and counterweight: _____

How easy is it to turn the slow motions: _____ (Torque: _____)
(If it is 'heavy' then we need you to measure the torque required - contact technical).

Qu 5. For supplying to your existing SYNCHRONOUS MOTOR we need to know its details:

Voltage: _____ Frequency: _____ Power: _____ No of wires: _____

Markings on your synchronous motor: _____