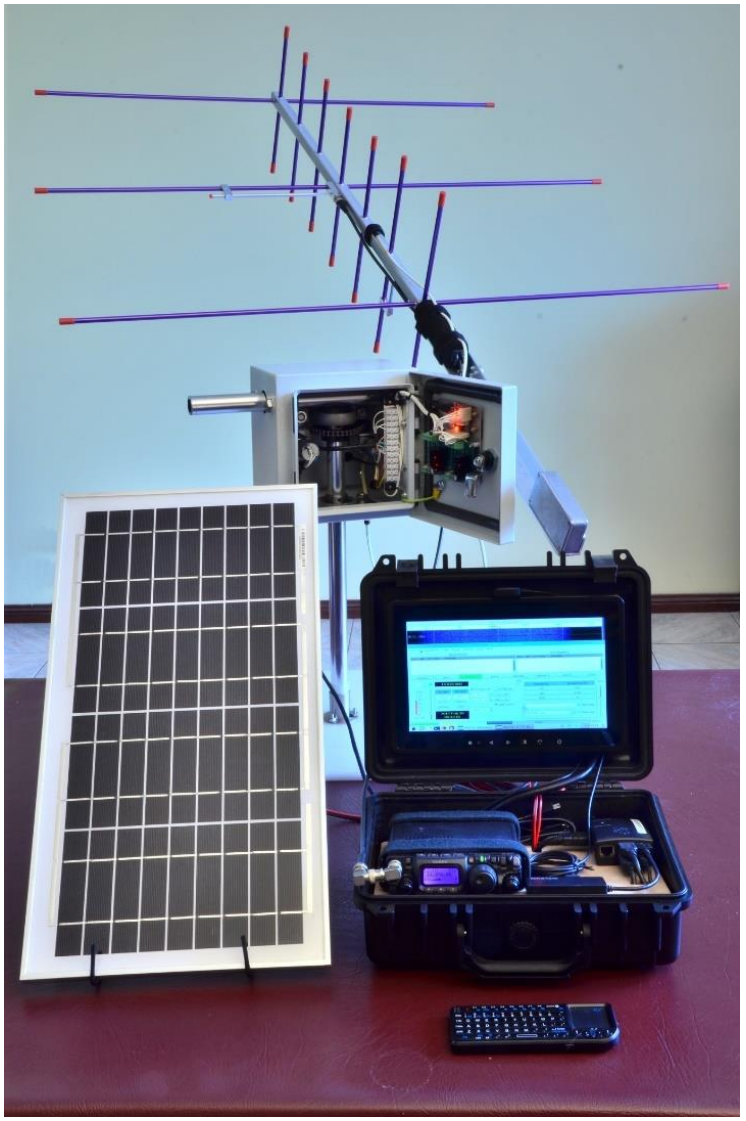
2017

Mini Satellite-Antenna Rotator MkII

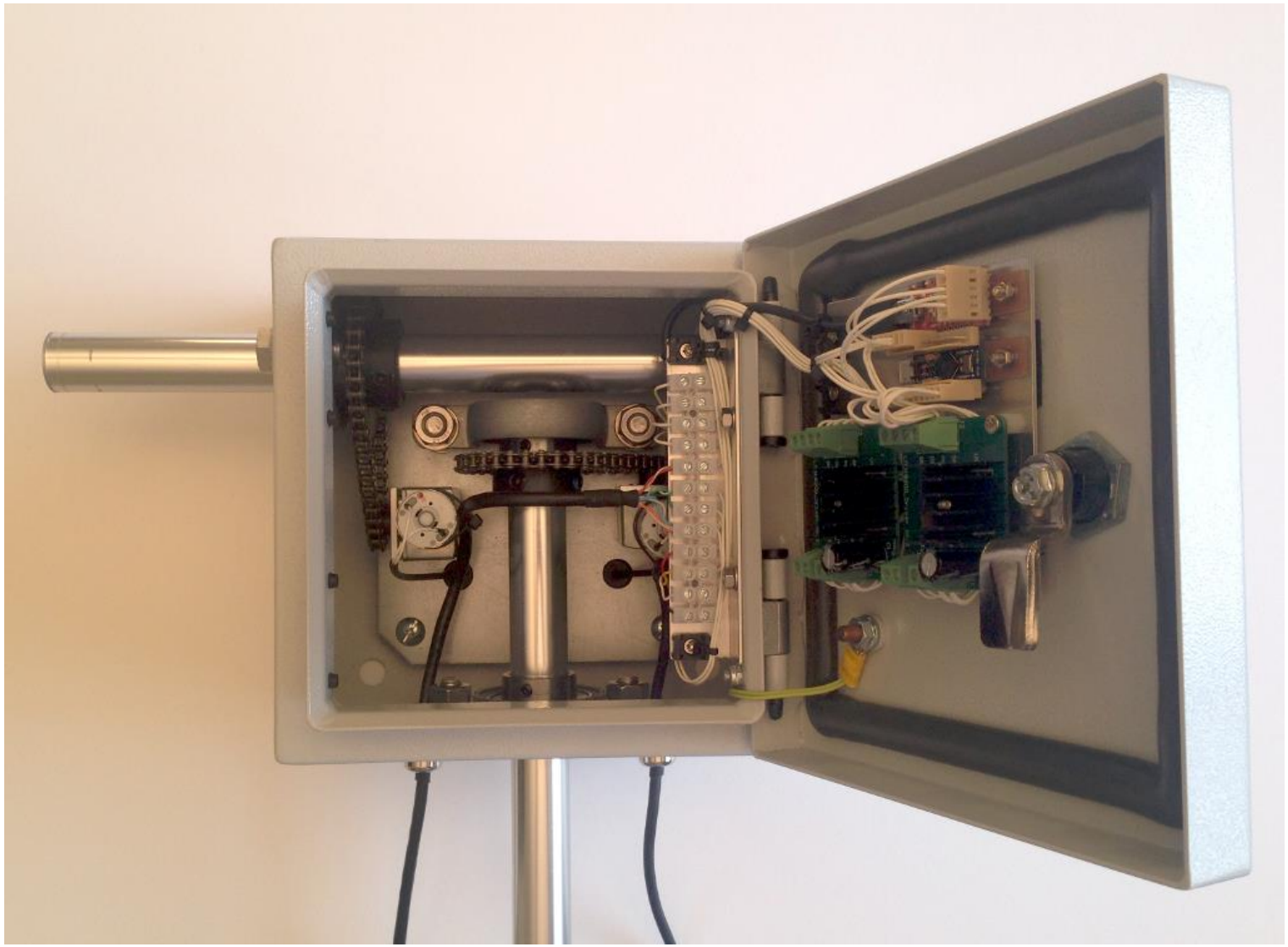
By

Julie VK3FOWL and Joe VK3YSP

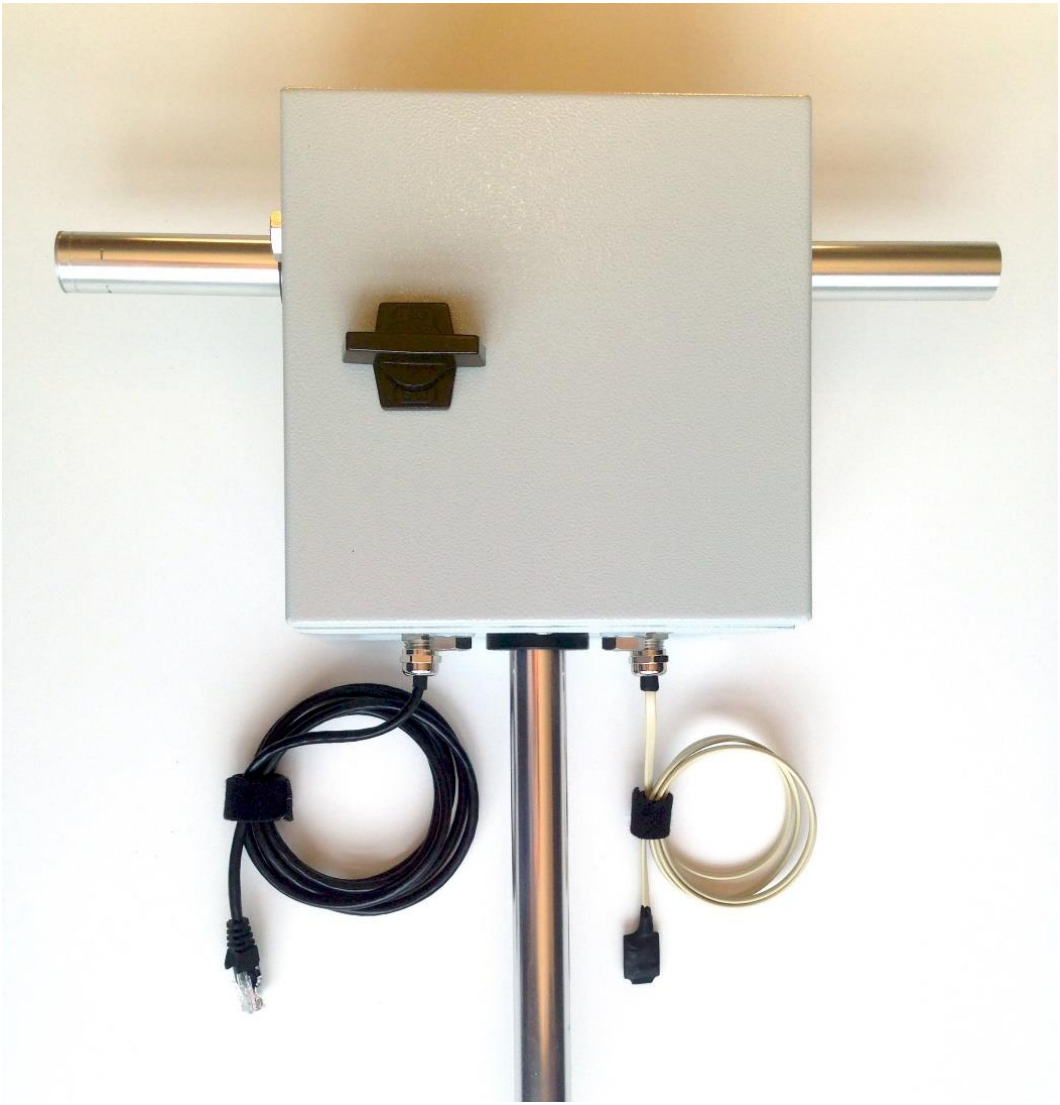
A Medium Duty Az-El Rotator



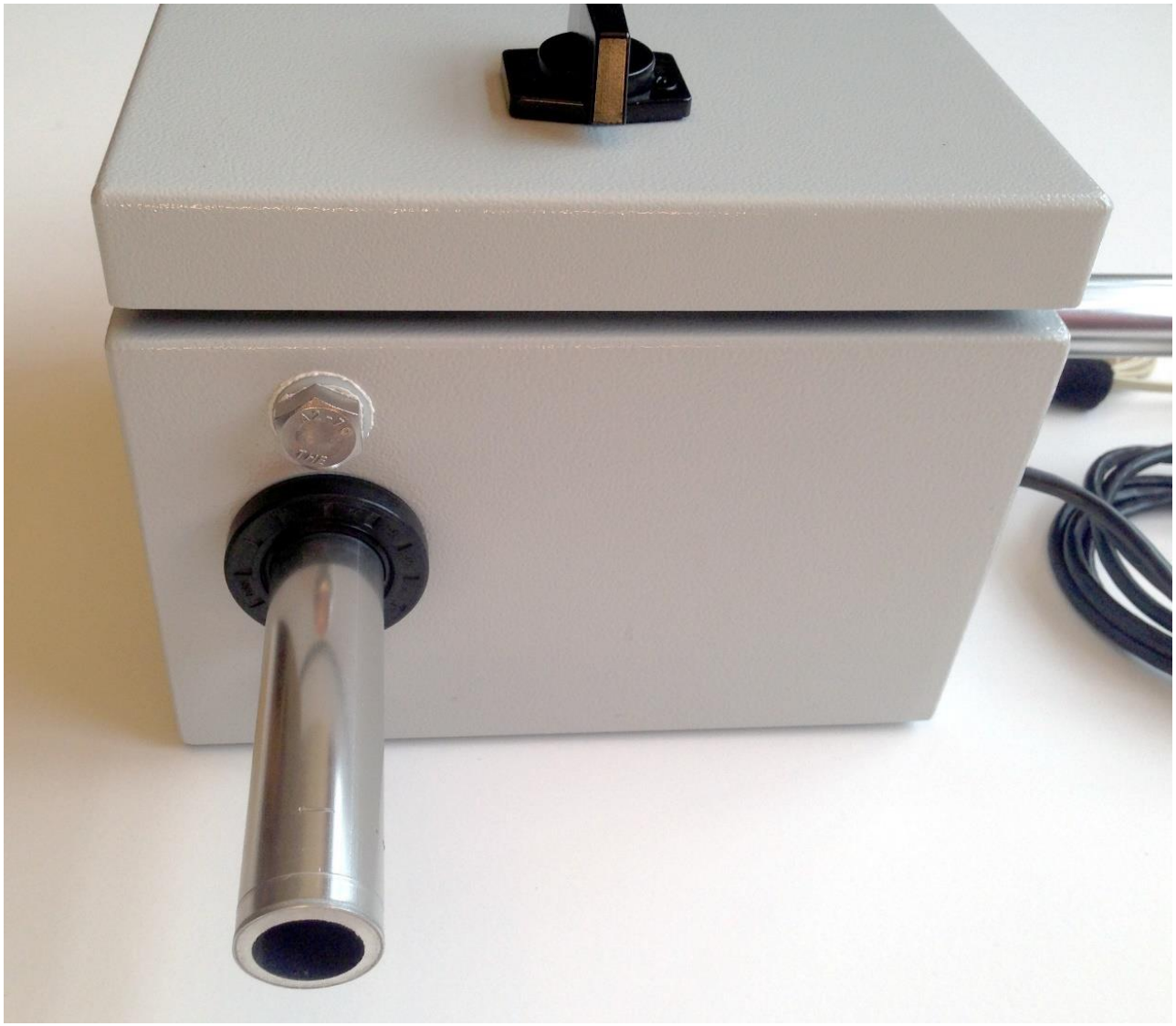
IP66 Enclosure



Through-Shaft for Dual Antennas

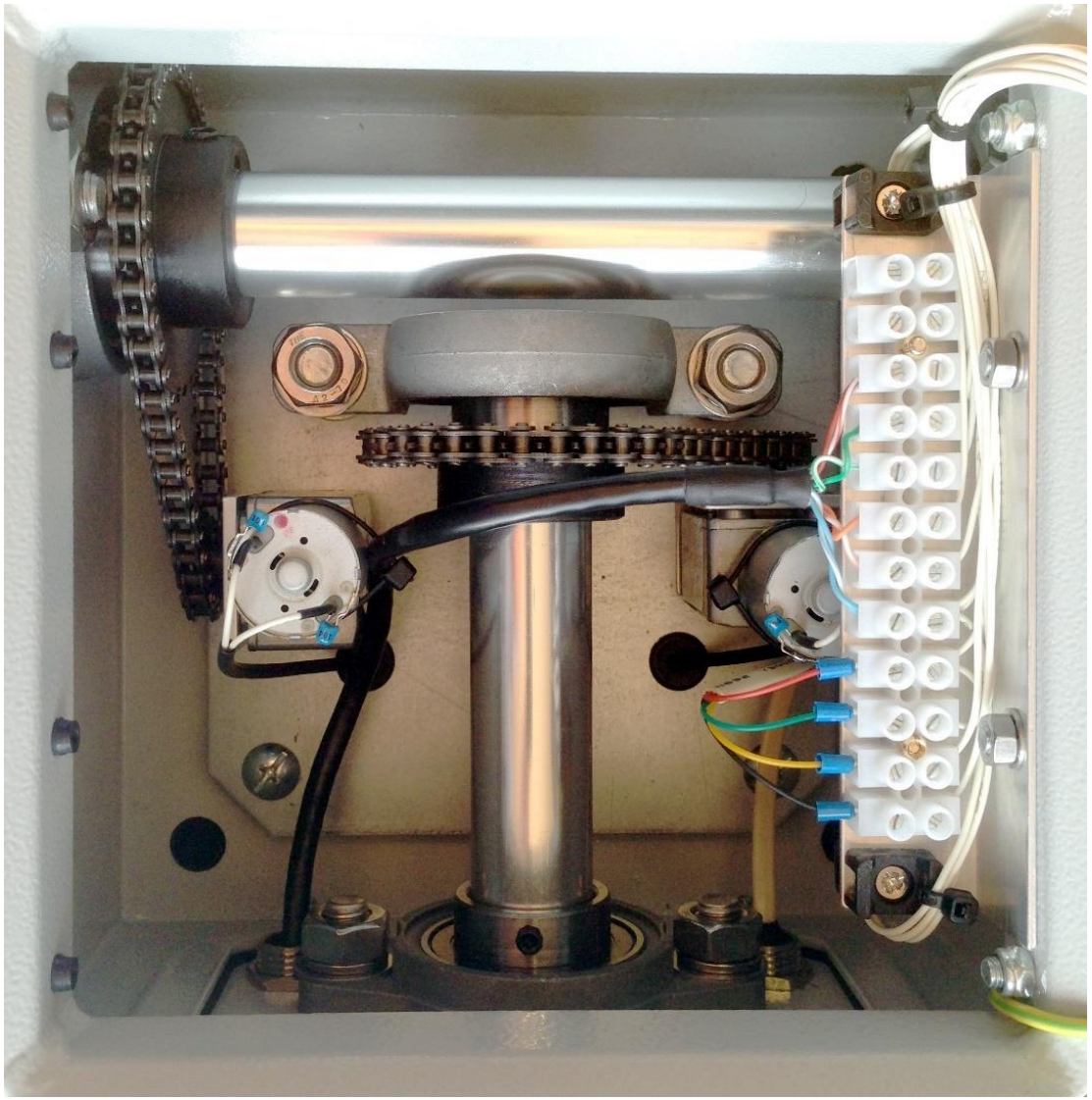


Hydraulic Seals for Ingress Protection

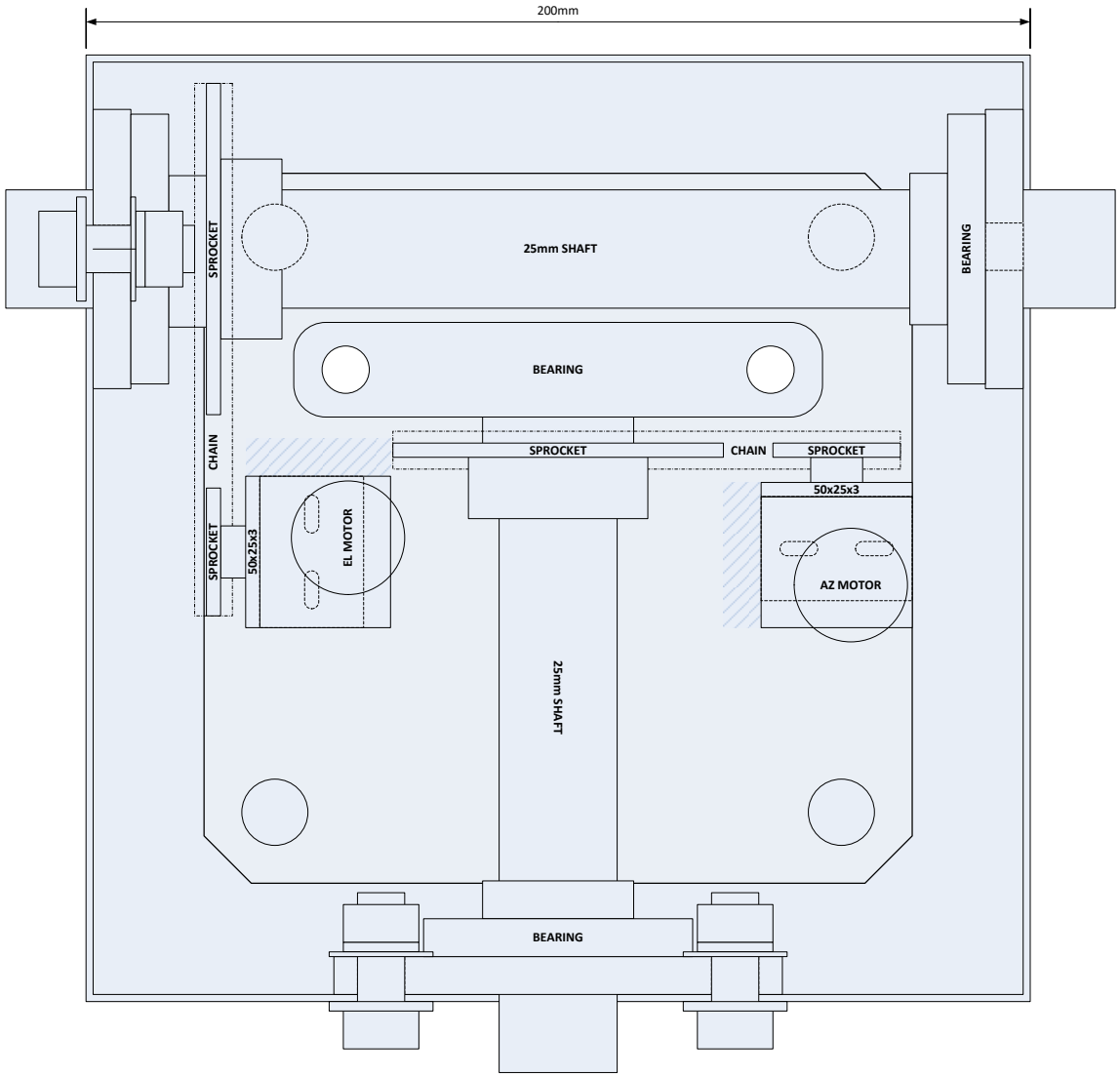


Entry Panel and Cable Glands

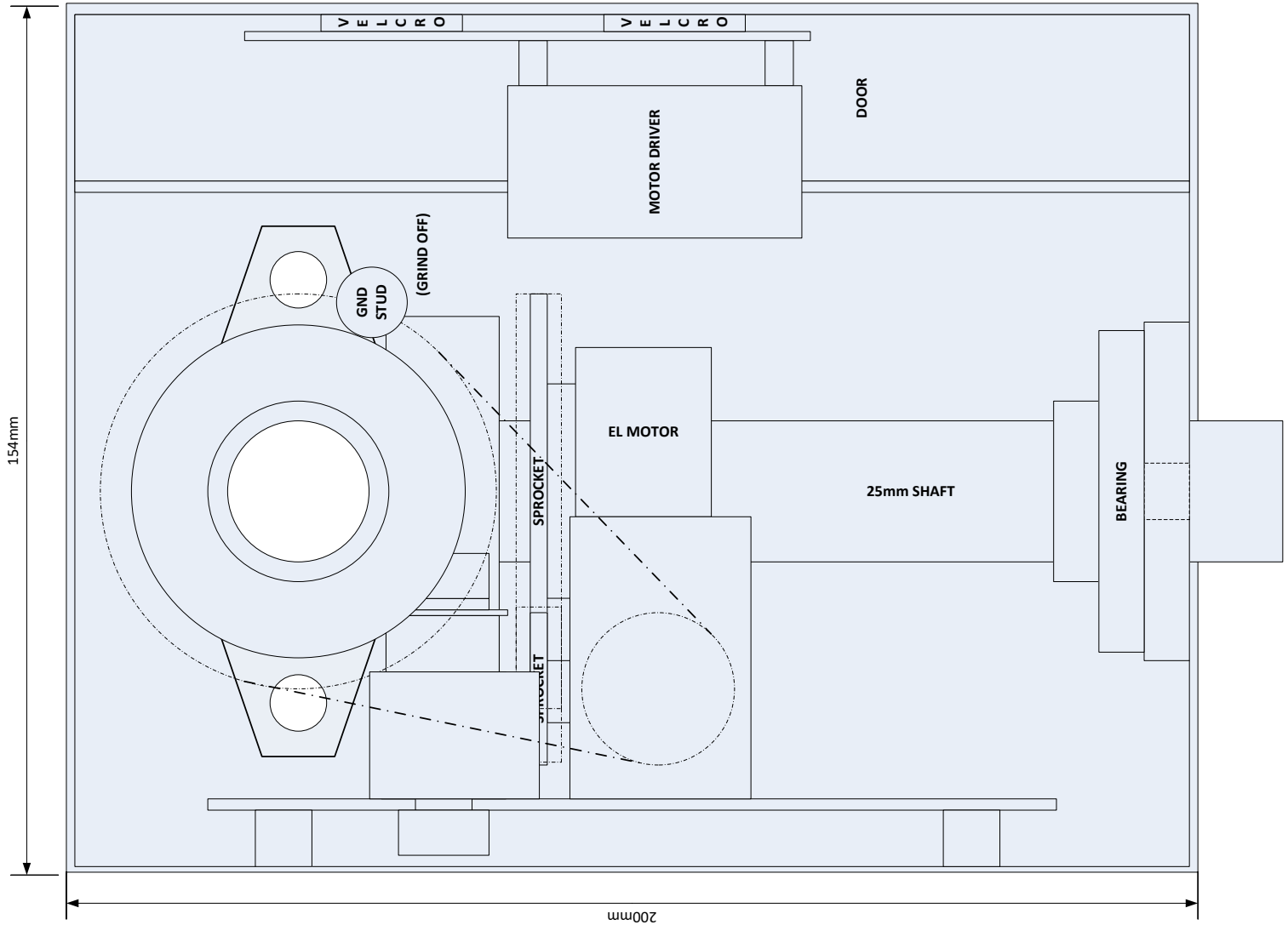
Terminal Block for Cable Connections



Plan View Drawing

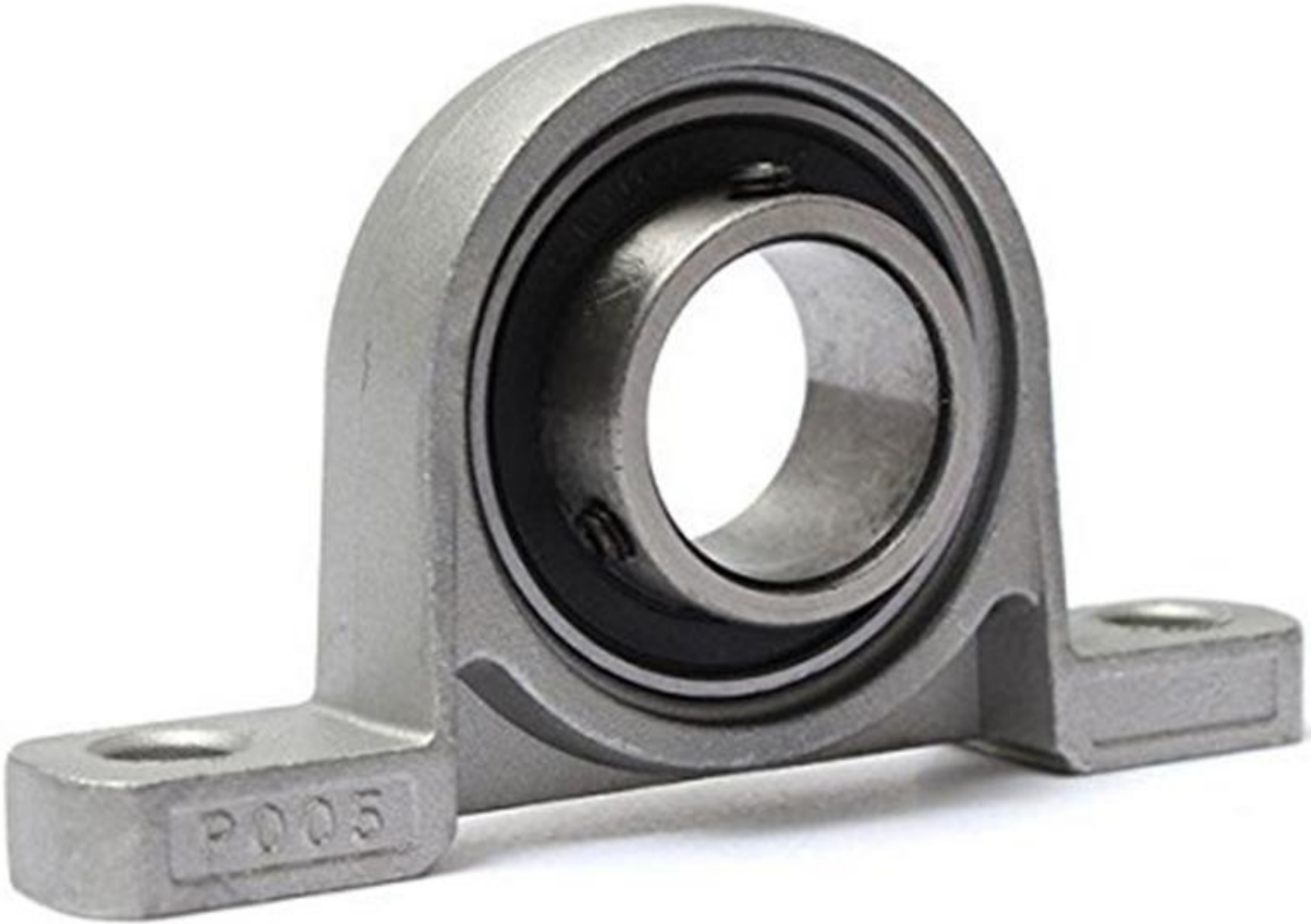


Side Elevation Drawing



Flange Bearing

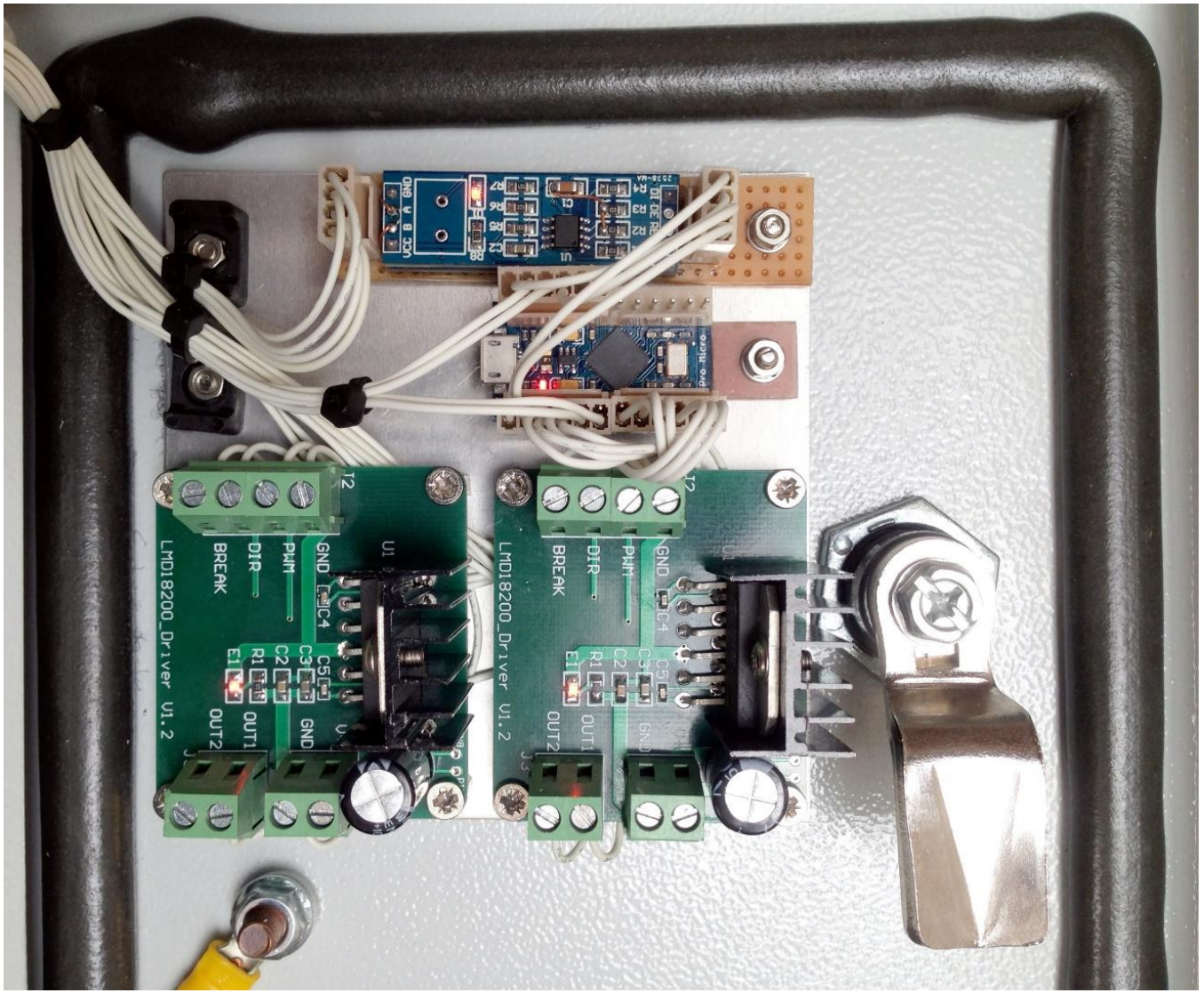
Pillow Block Bearing



Sprockets and Chain

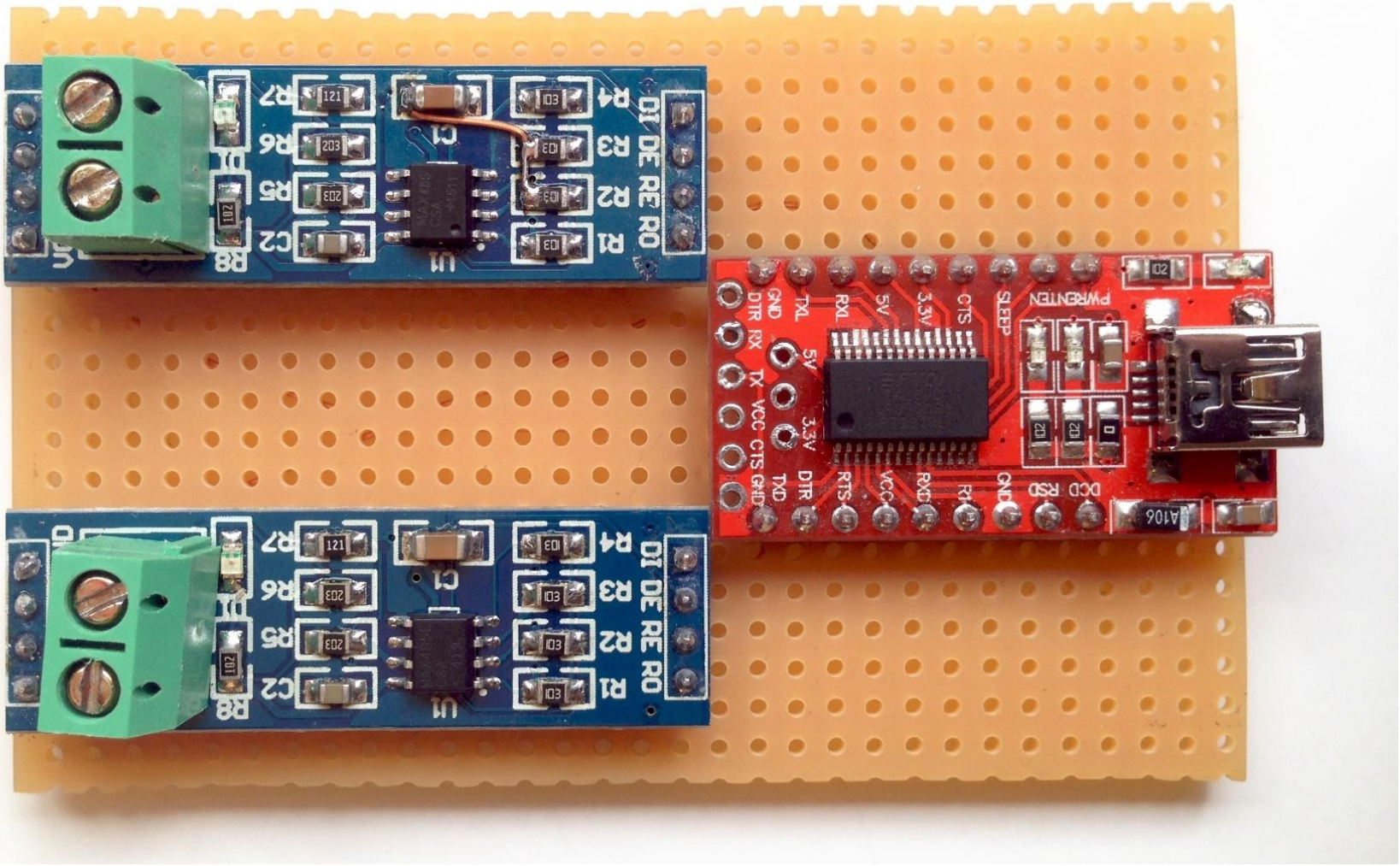
	Product Description	Item #	Qty	Price	Total
	TRITAN Sprocket 25BS10HX1/4, 1/4" Pitch, 1/4" Finished Bore, 10 Teeth **Shipping Method:** UPS - GROUND **Estimated Ship Date:** 08/26/2016	B759819	4	$3.61	$14.44
	TRITAN Sprocket 25BS32X1, 1/4" Pitch, 1" Finished Bore, 32 Teeth **Shipping Method:** UPS - GROUND **Estimated Ship Date:** 08/26/2016	B759571	4	$12.25	$49.00
	Tritan Precision Ansi Roller Chain - 25-1r - 1/4" Pitch - 10ft Box **Shipping Method:** UPS - GROUND **Estimated Ship Date:** 08/25/2016	B615650	1	$18.25	$18.25
	Tritan Precision Ansi Roller Chain - 25-1r - 1/4" Pitch - Connecting Link **Shipping Method:** UPS - GROUND **Estimated Ship Date:** 08/25/2016	B615676	4	$0.36	$1.44

Controller Electronics

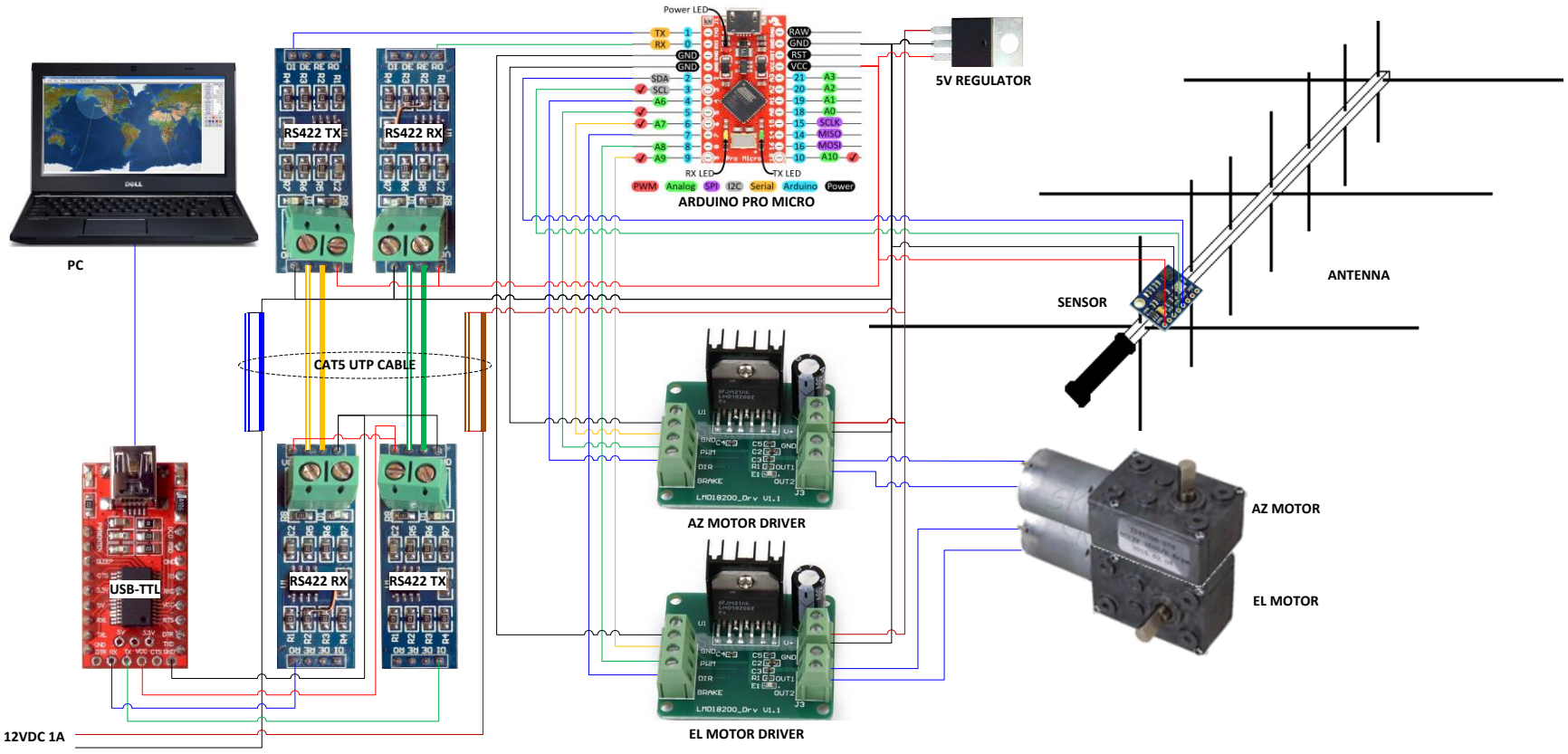


USB to RS-422 Converter

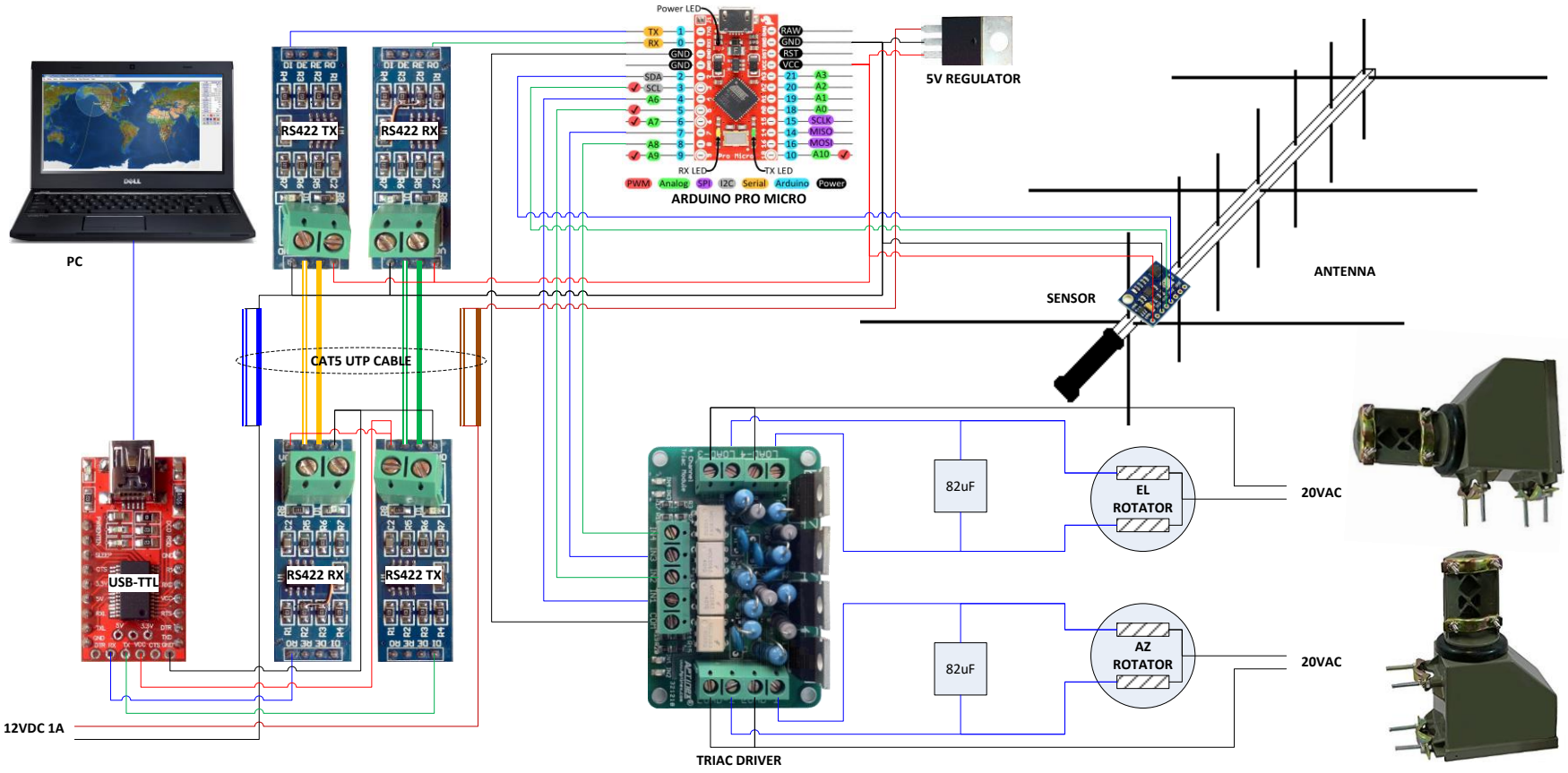
Dual RS-485 to TTL to USB



Pictorial Schematic Diagram



Modification for AC Motors



Parts List

Item	Quantity	Part Number	Vendor	USD	AUD	GST	Total
IP66 Enclosure, 200x200x150mm	1	FT202015	Switchesplus		$ 50.60	$ 5.06	$ 55.66
Chain, 1/4" pitch	1	B16650	Globalindustrial	$ 18.25	$ 23.91		$ 23.91
Chain Link, 1/4" pitch	2	B615676	Globalindustrial	$ 0.36	$ 0.47		$ 0.94
Sprocket, 32 tooth, 1" Finished Bore	2	B759571 - TRITAN 25BS32X1	Globalindustrial	$ 12.25	$ 16.05		$ 32.10
Sprocket, 10 tooth, 1/6" Finished Bore	2	B759819 - TRITAN 25BS10HX1/4	Globalindustrial	$ 3.61	$ 4.73		$ 9.46
Aluminium Tube, 25x3x1600mm*	1	TUB025X3BF	Alum. Trade Centre		$ 17.43	$ 1.74	$ 19.17
Aluminium Angle, 50x25x3x1600mm	1	ANG050X25X3MF	Alum. Trade Centre		$ 17.23	$ 1.72	$ 18.95
Aluminium Angle, 25x25x1.6x1600mm	1	ANG025X25X1.6MF	Alum. Trade Centre		$ 12.54	$ 1.25	$ 13.79
Flange Bearing, 25mm	3	KFL005	eBay: ecdepot		$ 7.69		$ 23.07
Pillow Block Bearing, 25mm	1	KP005	eBay: ecdepot		$ 8.29		$ 8.29
Motor Driver, H-Bridge, 3A	2	LMD18200T DC Motor Driver Module	eBay: ecdepot		$ 15.20		$ 30.40
Controller, Arduino Pro Micro	1	ATmega32U4 5V 16MHz	eBay: smooth-dealer		$ 6.07		$ 6.07
Sensor, 3D Magnetometer/Accelerometer	1	10DOF L3GD20 LSM303D BMP180	eBay: smooth-dealer		$ 6.96		$ 6.96
USB to TTL Serial Converter	1	FTDI FT232RL USB to TTL Serial Converter	eBay: iluckydog		$ 2.65		$ 2.65
TTL to RS485 Module	4	5V MAX485/RS485 Module TTL to RS-485 Module	ebay: shoptuny		$ 1.00		$ 4.00
Motor, DC, Right Angle Worm Geared	2	High Torque 12V DC 2rpm DC Worm Geared Motor	eBay: skull_music		$ 12.32		$ 24.64
Hydraulic shaft seals, 25mm	3	Black Nitrile Rubber Double Lip Oil Shaft Seal TC 25mm x 45mm x 8mm	eBay: sellerbible		$ 2.43		$ 7.29
Header, 6 Pin, 2.54 pitch	4	HM3416	Jaycar		$ 2.40		$ 9.60
Housing, 6 Pin, 2.54 pitch	4	HM3406	Jaycar		$ 3.00		$ 12.00
SS Hex Blots, M10x45	2	10X45MG304SS	United Fasteners		$ 0.71	$ 0.07	$ 1.56
SS Hex Bolts, M10x25	6	10X25MG304SS	United Fasteners		$ 0.36	$ 0.04	$ 2.35
SS Hex Nuts, M10	12	10MG304N	United Fasteners		$ 0.18	$ 0.02	$ 2.38
SS Flat Washers, M10	12	10MG304W	United Fasteners		$ 0.04	$ 0.00	$ 0.51
SS Spring Washers, M10	8	10MG304S	United Fasteners		$ 0.04	$ 0.00	$ 0.34
Nylon washers, M10	6	10MNYW	United Fasteners		$ 0.10	$ 0.01	$ 0.64
CSK Bolts Posi, M3x10	1	H3127A (Pack of 25)	Altronics		$ 2.65		$ 2.65
CSK Bolts Posi, M3x6	1	H3117A (Pack of 25)	Altronics		$ 3.00		$ 3.00
Nylon Tapped Spacer, M3x8	1	H1345 (Pack of 8)	Altronics		$ 2.95		$ 2.95
Hex Nuts, M3	1	H3175 (Pack of 25)	Altronics		$ 2.30		$ 2.30
Flat Washers, M3	1	H3180 (Pack of 25)	Altronics		$ 1.90		$ 1.90
Shake Proof Washers, M3	1	H3185 (Pack of 25)	Altronics		$ 2.50		$ 2.50
Terminal Block, 12-Way, Protected	1	P2135A	Altronics		$ 2.30		$ 2.30
Cable gland, Metal, IP68, 4-8mm	2	H4342	Altronics		$ 6.00		$ 12.00
Total cost of parts (*Some as required to suit installation)							$ 346.32

Ready for two Cross-Polarised Yagis

Links

- http://www.sarcnet.org/projects.html
- https://www.ebay.com.au – See parts list
- http://www.globalindustrial.com – Roller Chain and Sprockets
- https://www.switchesplus.com.au/
- http://www.altronics.com.au/
- https://www.aluminiumtc.com.au/
- http://www.unitedfasteners.com.au/