

# Building the mrusk G1000 panel

## Part list for PFD+MFD

Part	Type	Amount	Source
PCB set		1	mrusk
Encoder	EC11	26	<a href="https://www.ebay.de/itm/182373237976">https://www.ebay.de/itm/182373237976</a>
ALPS	RKJXT1F42001	2	<a href="https://www.ebay.de/itm/164837499516">https://www.ebay.de/itm/164837499516</a>
Switch	6x6x5mm	52	<a href="https://www.reichelt.de/kurzhubtaster-6x6mm-hoehe-5-0mm-12v-vertikal-taster-9302-p44579.html">https://www.reichelt.de/kurzhubtaster-6x6mm-hoehe-5-0mm-12v-vertikal-taster-9302-p44579.html</a>
IDC Header	6 pin	18	<a href="https://www.ebay.de/itm/362257230215">https://www.ebay.de/itm/362257230215</a>
IDC Plug	6 pin	34	<a href="https://www.ebay.de/itm/183463370948">https://www.ebay.de/itm/183463370948</a>
IDC Header	8 pin	8	<a href="https://www.ebay.de/itm/312078634350">https://www.ebay.de/itm/312078634350</a>
IDC Plug	8 pin	16	<a href="https://www.ebay.de/itm/312252897256">https://www.ebay.de/itm/312252897256</a>
IDC Header	14 pin	8	<a href="https://www.ebay.de/itm/312078591715">https://www.ebay.de/itm/312078591715</a>
IDC Plug	14 pin	9	<a href="https://www.ebay.de/itm/312252873182">https://www.ebay.de/itm/312252873182</a>
Pin Header	Single row	Ca. 300 pins	<a href="https://www.reichelt.de/40pol-stiftleiste-gerade-rm-2-54-sl-1x40g-2-54-p19506.html">https://www.reichelt.de/40pol-stiftleiste-gerade-rm-2-54-sl-1x40g-2-54-p19506.html</a>
Pin Header	Double row	Ca. 70x2 pins	<a href="https://www.reichelt.de/2x40pol-stiftleiste-gerade-rm-2-54-sl-2x40g-2-54-p19498.html">https://www.reichelt.de/2x40pol-stiftleiste-gerade-rm-2-54-sl-2x40g-2-54-p19498.html</a>
Resistor 1/4W	10 kΩ	10	
74HC4067	Module	10	<a href="https://www.ebay.de/itm/265408479238">https://www.ebay.de/itm/265408479238</a>
Screw	M3x5mm	30	
Screw	M2x5mm	20	
Ribbon cable	14pin (Split for 6 and 8)		<a href="https://www.reichelt.de/flachbandkabel-awg28-14-pol-grau-10m-ring-awg-28-14g-10m-p47653.html">https://www.reichelt.de/flachbandkabel-awg28-14-pol-grau-10m-ring-awg-28-14g-10m-p47653.html</a>
Display	VS104T-003	2	<a href="https://de.aliexpress.com/item/4000156062102.html">https://de.aliexpress.com/item/4000156062102.html</a>
Arduino MEGA 2560		1	
For OPTIONAL Backlight			
LED white 1206	white	24	<a href="https://www.reichelt.de/led-smd-3216-1206-warmweiss-900-mcd-120-led-ii-1206-ww-p156359.html">https://www.reichelt.de/led-smd-3216-1206-warmweiss-900-mcd-120-led-ii-1206-ww-p156359.html</a>
Resistor 1206	100 Ω	24	<a href="https://www.reichelt.de/smd-widerstand-1206-100-ohm-250-mw-1-vis-crcw12061002-p238101.html">https://www.reichelt.de/smd-widerstand-1206-100-ohm-250-mw-1-vis-crcw12061002-p238101.html</a>

## PCB Set

Shortcut	Usage	Amount	PCBs per Panel
APL	Autopilot (MFD only)	1	2
FMS	Flight Management System	2	2
Enc	Single Encoder (Volume, Heading)	6	16
DEnc	Dual Encoder	10	8
FF	Frequency Flip Flop Key	4	20
Range	Range/Pan knob	2	6
Softkey	Softkey bar	2	1
MUX	Multiplexer carrier	2	1
HAT	Connector to Arduino MEGA 2560	1	2

## Special mounting instructions

### MUX Board

- Mount Multiplexers on **BOTTOM** side, parts facing **UPWARDS** (see picture). Spacing by headers with additional separator from further header pins.
- MUX 6 is optional and can be left free.
- Solder IDC sockets first and MUX boards last when all pins were tested.

### ENC and DENC Boards

- Use 2x3 header pin, not IDC connector. Remove plastic pin underneath the encoder. Space is needed for header pins.
- Each ENC board has one free input (connect to FF boards).
- Connector on DENC board is facing to the outside

### RANGE Board

- Solder pin header from bottom so that the pins do not appear on top side.

### FF Board

- Wire J1 directly to ENC board next to it.

### HAT board

- Solder header connection to MEGA2560 on bottom side.
- One 14 pin cable per unit, two slots are spare.

### MUX Inputs

DENC1	NAV
DENC2	COM
DENC3	CRS/BARO
DENC4	ALT
DENC5	FMS
ENC1	NAV VOL
ENC2	COM VOL
DENC6	spare









