RGO/La Palma Technical Note No. 22

New Filters for the A & G Unit of the INT in La Palma

Describes the new comparison system (neutral density) filters and the necessary ADAM software changes.

Dianne Harmer

Peter Ellis

Leslie Bell

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Hardware changes to the A & G unit

The comparison (moving) mirror has had a more powerful motor fitted and now operates in all telescope altitudes. The visual-viewing system has been removed to accommodate the comparison filter wheel system.

The comparison system now has a comprehensive set of filters, mounted in two filter wheels - A & B. At present only ND filters are fitted, colour filters will be available in the near future. The following table lists the position and value of the ND filters.

Position	Wheel A	Wheel B
0	CLEAR	CLEAR
1	0.236	0.33
2	0.61	0.498
3	0.80	0.89
4	1.74	1.20
5	3.0	2.1
6	Empty (For colour filters)	Empty (For colour filters)
7	Empty (For colour filters)	Empty (For colour filters)

By combination the range of ND values available extends from 0 to 5.1

The following neutral filtering can be obtained by combinations as shown, although separated filters do not usually add precisely. The filters are metal coatings on quartz substrates, and will show some small variations in density with wavelength. Note that other combinations may be obtained if necessary by adding the filters from the main filter trays.

Combined filters		Expected density (nominal values at 5500A)
A0	+ B0	Clear (antireflection-coated quartz substrates)
Al	+ B0	0.236
A0	+ Bl	0.33
A0	+ B2	0. 498
Al	+ Bl	0.566
A2	+ B0	0.61
Al	+ B2	0.734
A3	+ B0	0.80
A0	+ B3	0.89
A2	+ B2	1.108
Al	+ B3	l.126
A3	+ Bl	l.13
A0	+ B4	1.20
A3	+ B2	l.298
Al	+ B4	l.436
A2	+ B3	1.50
A3	+ B3	1.69
A4	+ B0	l.74
A2	+ B4	1.81
A3	+ B4	2.00
A4	+ Bl	2.07
A0	+ B5	2.10
A4	+ B2	2.238
Al	+ B5	2.336
A4	+ B3	2.63
A2	+ B5	2.71
A3	+ B5	2.90
A4	+ B4	2.94
A5	+ B0	3.00
A5	+ Bl	3.33
A5	+ B2	3.498
A4	+ B5	3.84
A5	+ B3	3.89
A5	+ B4	4.20
A5	+ B5	5.10

Order-sorting colour filters or colour attenuation filters will still have to be selected from the main A & G box filters in the usual way. However, it may be useful to consider in more detail which main A & G box neutral filter slide is most compatible with the astronomical observation programme, as there is now more direct control over the calibration source intensity.

A reminder that nominal densities in these slides are as follows:

Slide 1 Position	ASND filter	Slide 2 Position	ASND filter
0	Clear	0	Clear
1	0.3	1	0.42
2	0.6	2	0.73
3	l.2	3	l.07
4	1.8	4	1.48
5	3.0	5	2.03

Remember to make the change through ADAM as well as physically changing the filter slides.

We may consider significant changes to these filter slide contents now that the new calibration source filters are fitted. Please advise DLH of your suggestions: most suitable time for changes to be effected will be April 1985.

Comments on operation of the system (P.A. Ellis), engineer's controller (W. Bracey or A.R. Seabrook), ADAM (Leslie Bell) would also be appreciated.

Changes to ADAM software

There are 2 new commands, AFARC n and BFARC m, both abbreviable to the first 3 characters. AFARC controls arc filter Wheel A and BFARC controls arc filter Wheel B. You may select positions 0 - 7 for each wheel, the value of the filter at the selected position is displayed on the Mimic display. These commands replace the command FARC which controlled the arc filter slide and had a position of either IN or OUT.

The commands FLENS and VMIRROR are no longer available, since the field lens and visual system have been removed.

The Mimic display now shows the positions of the TV and Guider filter wheels and the status of the 2 camera shutters.

Note: ADAM has been adapted for the present so that procedures in which FARC has previously been used will now call the nearest single filter to that original, i.e. density 2.1.