

INTRA Base Unit

Datasheet for Units equipped with INTRA Controller Board V2



The base unit - shown above - has **one** flange on each axis. The flange of the primary axis (PA) attaches to the pod and the flange¹ of the secondary (SA or elevation) axis will – in addition to the integrated sun sensor – accept your sun-pointing instruments.

The unit comes with embedded control-electronics with flash-resident firmware and documentation. A cable ("ready to use", length: 2.5 m) to connect INTRA to a power supply and to a serial communication device is also included.

A number of kits, options and accessories are available to enhance the capabilities of the base unit. Among them

- ?? Axis Extension Kit
- ?? Single and Dual Shader Kit
- ?? Heater Option
- ?? Electrical Interface box and more....

Please check our price list and/or the separate data sheets of these options for more information.

¹ Order the **axis extension kit** if you want a flange also on the other end of the elevation axis.

Specifications of the INTRA Base Unit

	Mechanical
mass:	30 kg
dimensions:	D x W x H [mm]: 350 x 318 x 318
configuration:	elevation over azimuth (primary axis is azimuth, secondary is elevation)
motors:	brush-less DC-Motor on both axis.
encoders:	coding disks firmly attached to primary and secondary axis, hence no backlash.
resolution:	0.038 °
gears:	backlash-free, worm-drive, ratio 150:1 coupled with 1:1 (toothed) belt drive to 66:1 gear which is directly coupled to the motor.
gear option:	motors with gear 592:1 available (suited at middle to high latitudes only)
load capacity:	<30 kg or 60 Nm max. (gear 66:1) > 30 kg or up to 100 Nm (gear 592:1)
max. speed:	100 ° p.m. (gear 66:1) 11 ° p.m. (gear 592:1)
	Electrical
supply voltage:	24 VDC nom. (10 to 30 VDC) ²
operating supply current:	< 150 mA @ 24 VDC (motors off)
peak supply current:	2 A max.
power fail circuit:	The controller board is equipped with a LI-battery that keeps the RTC on time. Upon power-fail, essential status information is stored in RAM-locations of the RTC chip. Upon power up, INTRA resumes tracking.
serial interface:	RS232C
data rate:	57600 bps
data format:	1 start-, 8 data-, 1 stop- and no parity bit. (8,1,1,n)
EMV protection:	all electrical lines are filtered and protected with transorb diodes.
	Environment
general:	built for operational outdoor use
Temperature:	-30 °C to 50 °C, -46 °C to 50 °C with heater option
pointing:	error < 0.1° following two days of operation during good weather conditions.

Overview of INTRAs Firmware (INTRA Controller Board V2)

INTRAs firmware provides a user interface implemented as a set of remotely callable procedures (RPC) over the RS232C serial link. A PC-application, featuring a graphical user interface - **IntraCfg**³ allows to configure the tracker and to command it into operational mode. This done, INTRA operates completely autonomously, a link to a PC is no longer required. But most users prefer to have a permanent link, because this allows them to always monitor INTRAs operation. We provide a DLL that implements all RPCs presently available from the firmware. This DLL frees the user from having to deal with details of the RPC-mechanism. The DLL as well as its documentation are available from our website.

² The motors operate from the DC-voltage applied and hence, available torque of motors varies with voltage applied.

³ Available from our website www.brusag.ch/dlc.htm