

AUS

AUTOMATIC SLIDE STAINER

# AUS



**Automatic slide stainer with XY translator**

**Completely programmable**

**Multi-basket-protocol for histology and cytology slide staining**

The Intelsint AUS is a modern high throughput XY stainer, specifically designed for the operators safety and protection.

A total of 40 stations are available distributed on 3 rows. 28 reagent tanks are allocated in 2 rows with 4 removable racks (mid and back row, 7 tanks for each rack), an additional front row contains 5 tanks for flowing water, 2 input and 3 output tanks on a sliding-drawer with baskets sensors, the remaining 2 positions of the front row are fitted with warm air slide dryers.

All the structural internal parts are made in high quality stainless steel. An integrated computer controls all operations and is endowed with a large touch-screen color monitor. The advanced software handles multiple staining protocols and bath schemes, with a graphic representation of the work in progress. The HMI is clear and intuitive. Standard keyboard and mouse can be connected for who does not like touch-screen operations.



**Fumes Neutralization:**  
air aspiration system with charcoal filter

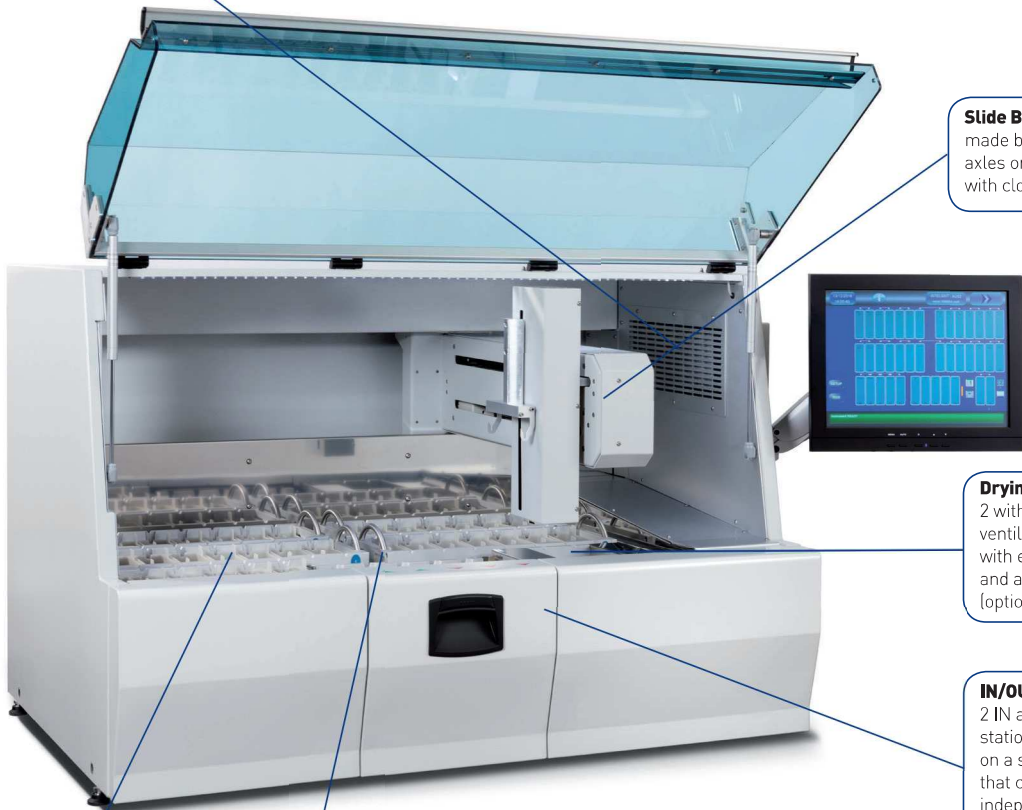
**Slide Baskets handling:**  
made by 3 independent axles on an XYZ scheme, with closed loop control

**Drying Stations:**  
2 with air forced ventilation up to 60°C, with electronic control and a precision of 1°C (optional) control

**IN/OUT Stations:**  
2 IN and 3 OUT basket stations, allocated on a sliding drawer that can be opened independently from the instrument lid cover

**Washing Station:**  
5 tanks, flow adjustment, single solenoid valve control.

**Reagent Stations:**  
28 reagent tanks are allocated in 2 rows with 4 removable racks (mid and back row, 7 tanks for each rack)





## Simple protocols monitoring

Through a simple and clear user interface every operation is under total control.

All 40 stations and all actuators with their status (agitation system, water valves, air filtration, dryers, sensors, IN/OUT drawer) are clearly represented on the color screen.

During the operating phases the end-effector in movement is shown (basket translator).

It is possible to check the work in progress of each slide basket simply touching the related basket icon.

Touching the reagent tanks it is possible in any moment to know their situation (contents, baskets processed, last change date).

## Bath schemes and staining protocols programming

It is possible to define 2 different reagent allocation schemes, (pre-defined baths configuration). For each bath it is possible to define up to 18 staining protocols, each one made by 28 steps.

Each step is made by:

- reagent tank number (tank position)
- time in seconds
- time type (Open-Flex-Exact)
- drip time

## Optimized Protocols Scheduling

Thanks to complex software algorithms the protocols/baskets scheduling is optimized in order to achieve the highest possible throughput. All basket handling phases are previously scheduled and studied allowing the end-effector time best usage.

## Reagent Management System (RMS)

The RMS assists the operator with a precise scheduling of the reagent substitution allowing high quality staining results. When the predefined number of stained baskets is exceeded the related tank is shown in red color, the reagent substitution can be made when the instrument is in stand-by mode and the action can be easily recorded in the RMS system.

| SP | TK | REAGENT    | TIME  | TYPE  | DRIP | Protocol   | EQUIVALENTE OK  |
|----|----|------------|-------|-------|------|------------|-----------------|
| 1  | 39 | dryer      | 180   | OPEN  | 0    | STATUS     | Modify Protocol |
| 2  | 1  | Xil1 In    | 05:00 | OPEN  | 0    | TOTAL TIME | 49:29           |
| 3  | 3  | Xil2 In    | 05:00 | FLEX  | 10   |            |                 |
| 4  | 15 | 100_1 In   | 02:00 | FLEX  | 0    |            |                 |
| 5  | 17 | 100_2 In   | 02:00 | FLEX  | 0    |            |                 |
| 6  | 23 | 95_1 In    | 02:00 | FLEX  | 0    |            |                 |
| 7  | 25 | 95_2 In    | 01:00 | FLEX  | 10   |            |                 |
| 8  | 9  | H2Od       | 04:00 | FLEX  | 10   |            |                 |
| 9  | 11 | Mayer      | 05:00 | EXACT | 10   |            |                 |
| 10 | 29 | water      | 05:00 | FLEX  | 5    |            |                 |
| 11 | 13 | Eosina Alc | 05:00 | EXACT | 10   |            |                 |
| 12 | 27 | 95_1 Out   | 01:00 | FLEX  | 0    |            |                 |
| 13 | 19 | 100_1 Out  | 01:00 | FLEX  | 0    |            |                 |
| 14 | 21 | 100_2 Out  | 01:00 | FLEX  | 10   |            |                 |
| 15 | 5  | Xil1 Out   | 01:00 | FLEX  | 0    |            |                 |
| 16 | 7  | Xil2 Out   | 03:00 | FLEX  | 5    |            |                 |

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Insert Line Copy Program

Append Line

Delete Line PRINT

SAVE GRAPH EXIT

| REAGENT MANAGEMENT |      |            |
|--------------------|------|------------|
| Limit              | Tank | Reagent    |
| 100                | 1    | Xil1 In    |
| 100                | 2    | Xil1 In    |
| 100                | 3    | Xil2 In    |
| 100                | 4    | Xil2 In    |
| 100                | 5    | Xil1 Out   |
| 100                | 6    | Xil1 Out   |
| 100                | 7    | Xil2 Out   |
| 100                | 8    | Xil2 Out   |
| 50                 | 9    | H2Od       |
| 50                 | 10   | H2Od       |
| 50                 | 11   | Mayer      |
| 50                 | 12   | Mayer      |
| 50                 | 13   | Eosina Alc |
| 150                | 14   | Eosina Alc |
| 75                 | 15   | 100_1 In   |
| 75                 | 16   | 100_1 In   |
| 75                 | 17   | 100_2 In   |
| 75                 | 18   | 100_2 In   |
| 75                 | 19   | 100_1 Out  |
| 75                 | 20   | 100_1 Out  |
| 75                 | 21   | 100_2 Out  |
| 75                 | 22   | 100_2 Out  |
| 100                | 23   | 95_1 In    |
| 100                | 24   | 95_1 In    |
| 100                | 25   | 95_2 In    |
| 100                | 26   | 95_2 In    |
| 100                | 27   | 95_1 Out   |
| 100                | 28   | 95_1 Out   |

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## AUS - Functional Features

|                           |                                                                                                                                                                                                                                     |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Slide throughput:         | 30 slides baskets continuous loading, up to 12 (or more) slide baskets handled/stained at the same time, with the same or with different staining protocols.                                                                        |
| Operating procedure:      | when a basket is inserted in an input stations the system asks the operator to define the staining protocols required, default protocols are proposed on 3 fast-start buttons.                                                      |
| Total Operative Stations: | 40                                                                                                                                                                                                                                  |
| Reagent Stations:         | 28 high resistance plastic tanks, 485 ml operating volume (600ml total volume); to allow safe and ergonomic reagent substitution/maintenance the reagent tanks are allocated on 4 easily removable and washable racks with handles. |
| Water Washing Stations:   | 5 tanks (removable), with water flow pressure adjustment and single solenoid valves for individual operation.                                                                                                                       |
| Drying Stations:          | 2 with air forced ventilation up to 60°C, with electronic control and a precision of 1°C (optional)                                                                                                                                 |
| IN/OUT Stations:          | 2 IN and 3 OUT basket stations, allocated on a sliding drawer that can be opened independently from the instrument lid cover.                                                                                                       |
| Reagent Agitation/Mixing: | continuous vertical up/down movement of the 28 reagent tanks, the agitation automatically starts when a basket is in one of the tank.                                                                                               |
| Fumes Neutralization:     | air aspiration system with charcoal filter.                                                                                                                                                                                         |

## AUS - Control Features

|                          |                                                                                                                                                                                                                                                                     |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Staining Protocols:      | 18 programs with 25 steps                                                                                                                                                                                                                                           |
| Optional Baths Schemes:  | 2 alternative bath schemes, for each bath it is possible to define different reagents configuration and staining protocols                                                                                                                                          |
| Equivalent Tanks:        | equivalent tanks can be associate in order to optimize the workflow scheduling                                                                                                                                                                                      |
| Immersion time:          | Programmable from 1" to 99'59". It is possible to define 3 different time priority: OPEN (no limit), FLEX (10% tolerance), EXACT (to be respected exactly)                                                                                                          |
| Selectable dripping time |                                                                                                                                                                                                                                                                     |
| HMI Interface:           | Touch-screen color Monitor , 15" display. The instrument configuration is graphically reproduced with all the active components in motion. All operating needed data is shown at a glance with simple screen touch operations (mouse/keyboard operations available) |
| Languages:               | English, Italian, German, French, Spanish, Chinese, Russian (every language can be easily implemented)                                                                                                                                                              |
| Reagent Quality Control: | the RMS (Reagent Management System) assists the operator with a precise scheduling of the reagent substitution allowing high quality staining results; reports on PDF files are available in the long term memory and can be easily downloaded by USB ports         |
| Password:                | 1 level, with selectable instrument different function protection                                                                                                                                                                                                   |
| Memory data backup:      | on external flash memory via USB ports available on the instrument side                                                                                                                                                                                             |

## AUS - Technical Specification

|                              |                        |                                                        |
|------------------------------|------------------------|--------------------------------------------------------|
| <b>Dimensions and weight</b> | Dimensions (l x h x p) | 1220 x 780 x 770 mm                                    |
|                              | Monitor (l)            | + 400 mm                                               |
|                              | Worktop (l x p)        | 1220 x 770 mm                                          |
|                              | Weight                 | 155 Kg                                                 |
| <b>Electrical data</b>       | Power supply           | 115 ÷ 230 V                                            |
|                              | Frequency              | 50 ÷ 60 Hz                                             |
|                              | Electrical power       | 0,8 kW                                                 |
| <b>Working environment</b>   | Temperature / Humidity | 15 ÷ 30 °C / 70% max                                   |
| <b>Internal composition</b>  | Reagent stations       | 28 (485 ml capacity)                                   |
|                              | Rinse stations         | 5 (with pressure and flow regulator)                   |
|                              | Loading stations       | 2                                                      |
|                              | Unloading Stations     | 3                                                      |
|                              | Heated stations        | 2 (60°C ±1°C)                                          |
| <b>Productivity</b>          |                        | 10 basket of 30 slides maximum, with the same protocol |
| <b>Connections</b>           | Loading tube H2O (Ø)   | 10 mm                                                  |
|                              | Exhaust pipe H2O (Ø)   | 18 mm (¾")                                             |
| <b>Exit</b>                  | USB ports              | 4                                                      |
|                              | Free contact           | 1                                                      |