# d.Drive **DISPENSE** C30



## Dose precisely from µl to ml



The d.Drive DISPENSE C30 SPS is a compact and very precise pump module designed for liquid handling applications in the range of 250 nl to 12.5 ml. The wetted parts are made of borosilicate glass, PTFE and PCTFE in the standard version. It is suitable for a variety of different media (aqueous, organic, aggressive, highly viscous, gaseous).



## **Operating principle**

The active valve switches to the input port. The syringe (self-priming) will be completely filled via the LOAD command. With the 5 STEP functions, different doses with variable dosing parameters can be carried out several times in succession.

#### **Dosing parameters:**

- Volume
- Dosing flow rate (TopFlow)
- Start speed (StartFlow)
- Acceleration at the start of dosing (Slope Up)
- Deceleration at the end of dosing (Slope Down)
- End speed (EndFlow)



By changing these dosing parameters, the flow and dosing characteristics of the respective medium can be addressed for optimal dosing.

The dosing unit can be operated optionally by touch panel, PC (RS232) or by PLC and the I/O interface.

# **Functions / parameters / setting options**

			ТР	RS232	IO Port
[INIT]	Initialize Device	Initialize syringe drive (valve is set to input port and syringe drives to top).	Х	Х	Х
[PRIME]	Rinse Fluid Paths	Rinse / Fill of flow channels (syringe picks up media from input port and dispenses to out- put port. When controlled by serial resp. I/O interface this cycle is performed once. When controlled by touch panel paths are rinsed until STOP button is pressed).	Х	Х	х
[LOAD]	Load Syringe	Fill syringe with total volume.	Х	Х	Х
[STEP 1-5]	Dose Volume	Dispense defined partial volume in a defined time.	х	Х	Х
[STOP]	Stop Device	Stopping the dispenser is possible at any time while any fluidic activity is performed.	х	Х	Х
[Syringe]	Selectable Syringe Size	Several syringe sizes can be used and therefore covering a wider volume range.	х	Х	
[TIME LOAD]	Adjustable Load Time	Fill time can be adjusted from 1 sec to 1 h. Fill time is applied to LOAD command as well as to pick-up of PRIME command.	Х	Х	
[Time Prime]	Adjustable Dispensing Time (Rinse)	Dispensing time can be adjusted to 1 sec to 1 h.	х	Х	
[Volume 1-5]	Adjustable Dose Volume	Dose volume in µl can be separately defi- ned for the 5 different dispensing programs [STEP].	Х	х	
[Top Flow]	Adjustable Flow Rate	Dispensing flow rate in µl/sec can be sepa- rately defined for the 5 different dispensing programs [STEP].	Х	х	
[Start Flow]	Adjustable Start Speed	Starting flow rate [µl/sec] in range of: 0.004408 0.176318 * syringe volume	Х	Х	
[End Flow]	Adjustable End Speed	End flow rate [µl/sec] in range of: 0.004408 - 0.176318 * syringe volume	х	Х	
[Slope Up]	Adjustable Acceleration	Acceleration of dose in range 1 - 40 (1 = slow / 40 = fast)	х	х	
[Slope Down]	Adjustable Deceleration	Deceleration of dose in range 1 - 40 (1 = slow / 40 = fast)	Х	Х	

## **Control via touch panel**

All functions of the dispenser can be controlled via touch panel on the front. It enables simple, intuitive and direct operation of the dosing unit. Relevant parameters can be easily configured and monitored.

#### **Initialize / Execute functions**



Start window



Main window for executing the functions



Stop

#### **Setup / Parameterization**



Setup selection, cklicking opens corresponding dialog box



Dialog box for parameters

### **Control via RS232 interface**

For operation via RS232 interface, connect the dosing unit to your PC via the RS232 interface on the rear using a suitable cable. The simple control commands of the RS232 protocol can be sent to the dispenser via a terminal program.

### **Control via I/O port**

It is possible to control the unit via a process control system using the I/O port. Dosing parameters are previously loaded into the pump's memory via the RS232 interface or entered via the touch panel. Afterwards the following functions can be selected: INIT, PRIME, LOAD and STEP1-5 by trigger signal (24V) using BCD coding. For status check signals for "Busy" and "Error" are available. For input commands and status return optoelectronic couplers enable the conversion of analog signals to TTL and vice versa together with the galvanic separation of the different electronic levels.

Nameplate		
		_
AUX	RS232	Power
		O
		24 VDC

## **Specifications**

Dosing module	Centris
Part no.	900764-SPS
Delivery includes	Dispenser, Valve (3-2 port) PTFE/PCTFE, ¼-28-UNF (already pre-assem- bled), 24 VDC table power supply (without syringes, tubing, software)
Stroke length	3 cm
Time for full stroke	1 sec – 1h
Resolution	181.490
Dosing Accuracy	according to DIN ISO 8655-5
Pressure range	0 - 6 bar (depending on syringe size)
Syringe	25 μl – 12,5 ml (wetted parts made of borosilicate glass/PTFE)
Valve	3/2 port with ¼-28 UNF connection (wetted parts made of PTFE/PCTFE)
Fluid path	Borosilicate glass, PTFE, PCTFE
Control	Touch panel; serial via RS232; I/O port for TTL signals
Power supply	24 V / DC via table power supply
Dimensions	W: 135 mm x H: 200 mm x D: 130/170 mm
Weight	approx. 3 kg

## **DURATEC d.Drive DISPENSE**

## **Examples of Application**

#### Spread/ Spray/ Evaporate Liquids

Transportation of liquids to different dispensing systems for spreading, spraying or evaporation of liquids:

- Agent application in medical technology and medical diagnostics
- Test gas production via evaporation systems
- Cleaning processes semiconductor industry
- Gluina processes



d.Drive Dispense

#### **Reaction Technology / Fermentation – Multi-Media Dosing System**

Dosing different media via selection valve in one reactor / fermenter.

- Reactant
- Catalyzer
- Acid / Base
- Substrate
- Nutrient solution
- Detergents



Reactor / Fermenter

Spray Nozzle

#### **Reaction Technology / Fermentation – Multi-Reactor Dosing System**

Dosing of one medium via distribution valve in different reactors / fermenters.

- Reactant
- Catalyzer
- Acid / Base
- Substrate
- Nutrient solution
- Detergents



#### Liquid Handling / Microfluidics

Duplex dosing of different media using small streams/quantities in and through microstructures, microfluidic chips, measuring cells, filtration systems etc.



#### **Dispenser connected to LC/MS**

Addition of standard for calibration, buffer for pH switch or eluent for E-Spray into fluidic path between HPLC system and MS detector.



# **Ordering Information - Equipment, Accessories, Valves & Syringes**

Part no.	Description
900764-SPS	Dispenser with valves & power supply (Syringes & tubings must be ordered separately)
900760-003	RS232/USB control cable
900760-005	Valve (3-2 port) PTFE/PCTFE
900760-C30-25	25 μl syringe (PTFE seal)
900760-C30-50	50 µl syringe (PTFE seal)
900760-C30-100	100 μl syringe (PTFE seal)
900760-C30-250	250 μl syringe (PTFE seal)
900760-C30-500	500 μl syringe (PTFE seal)
900760-C30-1000	1.000 μl syringe (PTFE seal)
1900760-C30-2500	2.500 μl syringe (PTFE seal)
900760-C30-5000	5.000 μl syringe (PTFE seal)
900760-C30-12500	12.500 μl syringe (PTFE seal)



## **Ordering Information - Tubing & Capillaries**

Part no.	Description	
PTFE Tubing/Capillaries (10 m/Pckg.)		
300160	1/16" PTFE-Capillary ID=0.17 mm	
300161	1/16" PTFE-Capillary ID=0.25 mm	
300162	1/16" PTFE-Capillary ID=0.50 mm	
300163	1/16" PTFE-Capillary ID=0.75 mm	
300164	1/16" PTFE-Capillary ID=1.00 mm	
300151	1/8" PTFE-Tubing ID=1.60 mm	
300152	1/8" PTFE-Tubing ID=2.40 mm	
FEP Tubing/Capillaries (10 m/Pckg.)		
300092	1/16" FEP-Capillary ID=0.25 mm	
300093	1/16" FEP-Capillary ID=0.50 mm	
300094	1/16" FEP-Capillary ID=0.75 mm	
300095	1/16" FEP-Capillary ID=1.00 mm	
300090	1/8" FEP-Capillary ID=1.58 mm	
FEP Tubing/Capillaries incl. Fittings (10 m/Pckg.)		
H61614-01	2,9 mm x 2 mm x 1200 mm FEP Tubing incl. ¼-28 UNF Fitting	
H61615-01	2 mm x 1 mm x 1200 mm FEP Tubing incl. ¼-28 UNF Fitting	
H1172-02	2,9 mm x 2 mm x Specified length mm FEP Tubing incl. ¼-28 UNF Fitting	
H1174-02	2 mm x 1 mm x 1200 mm FEP Tubing incl. ¼-28 UNF Fitting	
PEEK Tubing	/Capillaries (3 m/Pckg.)	
300032-К	1/16" PEEK-Capillary ID=0.064 mm natur	
300036	1/16" PEEK-Capillary ID=0.13 mm red coded	
300032	1/16" PEEK-Capillary ID=0.17 mm yellow coded	
300033	1/16" PEEK-Capillary ID=0.25 mm blue coded	
300034	1/16" PEEK-Capillary ID=0.50 mm orange coded	
300035	1/16" PEEK-Capillary ID=0.75 mm green coded	
300037	1/16" PEEK-Capillary ID=1.0 mm grey coded	
300037-G	1/16" PEEK-Capillary ID=1.40 mm black coded	
300038-160	1/8" PEEK-Capillary ID=1.6 mm	

## **Ordering Information - Fittings & Adapters**

Part no.	Description
H209721	<sup>1</sup> / <sub>4</sub> -28 UNF PCTFE Low pressure fitting (flanged) incl. O-ring and kink protection spring for tubing with O.D. 2.9 mm
H209722	<sup>1</sup> ⁄4-28 UNF PCTFE Low pressure fitting (flanged) incl. O-ring and kink protection spring for tubing with O.D. 2.0 mm
XP-201	<sup>1</sup> ⁄4-28 UNF Delrin low pressure fitting (black) incl. ETFE ferrule (blue) for 1/16" capillary
XP-301	<sup>1</sup> ⁄4-28 UNF Delrin low pressure fitting (black) incl. ETFE ferrule (yellow) for 1/16" capillary
P-249	<sup>1</sup> / <sub>4</sub> 28 UNF Super Flangeless Low Pressure Fitting (PEEK), for 1/16" capillary, one-piece
P-349	<sup>1</sup> ⁄ <sub>4</sub> 28 UNF Super-Flangeless Low pressure fitting (PEEK), for 1/8" capillary, one-piece
P-646	ETFE Adapter, 1/16" ID tubing connection to 1/4 -28 UNF male thread
P-647	ETFE Adapter, 1/8" ID tubing connection to 1/4 -28 UNF male thread
P-648	ETFE Adapter, 3/16" ID tubing connection to ¼ -28 UNF male thread
P-624	ETFE Adapter, female Luer to ¼ -28 UNF male thread
P-625	ETFE Adapter, male Luer to $\frac{1}{4}$ -28 UNF male thread
P-670	PCTFE-Adapter, M6 female thread x $\frac{1}{4}$ -28 UNF male thread, max. 69 bar
P-669-01	PEEK-Adapter 10-32 UNF female thread to ¼ -28 UNF male thread



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