

# 영 문 규 격 서

## COMMODITY DESCRIPTION

H.S. NO.	DESCRIPTION	ITEM NO	MODEL	Q' TY
9027.80.1000	Differential Scanning Calorimeter		DSC 1	1 set

### A. Features :

1. Heat flux type DSC, so it is easy and rather cheap to maintenance and repair the furnace part.
2. User friendly ergonomic Design.
3. User exchangeable DSC Ceramic sensor with 56-fold Au/AuPd thermocouple pile
4. 0.04  $\mu W$  DSC sensitivity results in Signal to Noise ratio of more than 16:1
5. Display with SmartSens Technology , contact-free handling thanks to smart-sens
6. Calibration performance – Temperature, Heat flow and Tau-lag calibration
7. Modular concept (Modularity Design) – Hardware and software can be expanded at anytime.
8. The three-layer furnace lid ensures that surroundings have no influence on the measurement.
9. FlexCal® Calibration – Temperature can be calibrated exactly. Even with different rates heating, the insert and peak temperatures are practically identical as in reality
10. Depending on the temperature range, you can match your system exactly to your requirements. Air cooling, cryostat or intra-cooler and nitrogen cooling systems are available.
11. Entire measurement sequence can be developed in a computer with a few commands and extensions and modifications can easily be entered. A large number of software options will facilitate your work or even handle a large part of it for you

### B. Specifications

- |                                 |   |   |
|---------------------------------|---|---|
| 1. Type of DSC                  | : | Heat Flux DSC                           |
| 2. Temperature Range            | : | -150 or less ~ 500°C                    |
| 3. Sensor and furnace type      | : | DSC sensor and furnace separation type  |
| Sensor Material                 | : | Ceramic sensor                          |
| Thermocouple pile               | : | 56-fold Au/AuPd thermocouple            |
| Furnace Material                | : | Silver                                  |
| 4. DSC sensitivity              | : | 0.04 $\mu W$                            |
| 5. Signal to noise ratio        | : | 16 : 1                                  |
| 6. Cooling options              | : | Liquid nitrogen cooling                 |
| 7. Signal time range            | : | ≤ 2.3 seconds with standard Al crucible |
| 8. Measurement range            | : | ± 350mW(100°C)                          |
| 9. Digital resolution           | : | 16,800,000 points                       |
| 10. Temperature accuracy        | : | ± 0.2°C                                 |
| 11. Temperature reproducibility | : | ± 0.1°C                                 |
| 12. Heating rate                | : | 0.001 ~ 100°C/min                       |
| 13. Cooling rate                | : | 15 min from 100°C to - 100°C (LN2)      |
| 14. Sampling rate               | : | Max. 50 values/second                   |
| 15. Noise(RMS)                  | : | < 1 $\mu W$                             |
| 16. Electrical safety           | : | St, CSA, EN 61010-1,                    |

17. Electromagnetic compatibility : EN55011(B), FCC part 15J, EN50082-1
18. Simple switching from reactive gas to inert purge gas
19. Protective gas inlet
20. Can be modified to automatic furnace opening and closing
21. Status indication, temperature indication on PC
22. Many modules can be measured by supplied software
23. Temperature accuracy is independent of heating rate used to TauLag calibration
24. High sample throughput thanks to short cooling time
25. Multiuser-Multitasking : several users can work at the same time
26. Modular concept: the software can be expanded at anytime.
27. The following evaluations are included in the software.
  - DSC Evaluation: Content, Crystallinity, Conversion, Enthalpy, Glass transition (with or without the relaxation peak)
  - Onset and endset (with and without threshold value)
  - Absissa and ordinate scaling
  - Peak integration
  - Zoom function
  - Step (with horizontal or tangential base lines)
  - Table: all types and possibilities to output curves in tabular form
  - Normalization to the sample size : conversion to W/g or % representation
  - Deconvolution : signal deconvolution on use of crucibles with a high time constant
  - Plotting of the curves against time, reference or sample temperature
  - Display of sample temperature
  - SDTA (Single Differential thermal Analysis) : calculation of the DTA curve
  - Automatic calibration programs for temperature 1, 2 or multiple points
  - First and second derivative
  - Take apart curve
  - Curve calculations : integration, addition, multiplication, division, subtraction
  - Cut the frame

## C. Accessories:

### C-1. Standard Accessories

1. Operating instructions DSC 1	1 set
2. DSC ceramic sensor	1 ea
3. Bent tweezers	1 ea
4. Needle to pierce crucible lid	1 ea
5. Sample funnel for loading 40 $\mu\text{l}$ crucible	1 ea
6. Zinc pills for temperature calibration	1 pkg
7. Indium pills for temp' and enthalpy calibration	1 pkg
8. Crosstip screwdriver	1 ea
9. Wrench key 8mm	1 ea
10. Tubing connector	1 set
11. Plug for line socket switched of DSC 1	1 ea
12. Microfuse	1 ea
13. Power cable	1 ea

### C-2. Optional Standard Accessories

1. STARe update Version 11.0	1 set
2. SW-Option Specific Heat Evaluation	1 set

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|-----------------------------|--------|
| 3. IntraCooler (FT900-MT)   | 1 set  |
| 4. Flow-meter for purge gas | 2 sets |

#### D. Remarks

1. The installation and operation should be done by the factory trained-service engineer at end user' s site.
2. One-year warranty service should be provided by supplier after the installation.