



**ET-7018Z**  
**PET-7018Z**

**ET-7218Z**  
**PET-7218Z**

(PoE) Ethernet I/O Module with 10-ch Thermocouple Inputs,  
6/3-ch DO

## Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- 2-port Ethernet Switch (LAN Bypass) for Daisy-Chain Wiring
- Dual Watchdog
- I/O Pair Connection
- Built-in I/O
  - Thermocouple Input: 10 Channels
  - DO: 6/3 Channels



## Introduction

The "Z" version is another milestone in the development of the thermocouple series and is a testament to the excellence of ICP DAS products. The ET-7018Z/PET-7018Z/ET-7218Z/PET-7218Z is specifically designed for extremely accurate thermocouple measurement and features automatic cold-junction compensation for each channel to ensure temperature output consistency and stable temperature output in the field. Current input and voltage input are both supported. Another feature is that its ten input channels can be individually configured for different kinds of analog input. Open thermocouple detection and ESD/EFT/Surge protection mechanisms are also included. The six/five digital output channels can be set as alarm outputs with short-circuit protection and overload protection.

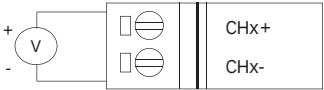
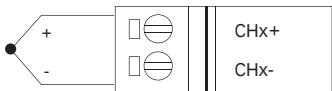
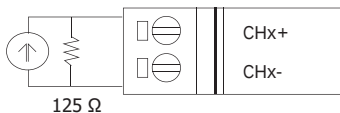
## System Specifications

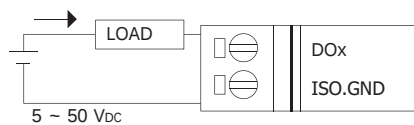
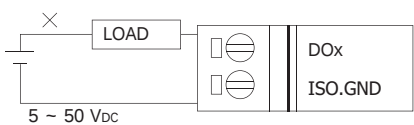
| Model                       | ET-7018Z                                                      | PET-7018Z            | ET-7218Z                                | PET-7218Z               |
|-----------------------------|---------------------------------------------------------------|----------------------|-----------------------------------------|-------------------------|
| Software                    |                                                               |                      |                                         |                         |
| Built-in Web Server         | Yes                                                           |                      |                                         |                         |
| CPU Module                  |                                                               |                      |                                         |                         |
| Watchdog Timer              | Module, Communication (Programmable)                          |                      |                                         |                         |
| 2-Way Isolation             |                                                               |                      |                                         |                         |
| Ethernet                    | 1500 VDC                                                      | -                    | 1500 VDC                                | -                       |
| I/O                         | 2500 VDC                                                      |                      |                                         |                         |
| EMS Protection              |                                                               |                      |                                         |                         |
| EFT (IEC 61000-4-4)         | ±4 kV for Power Line                                          |                      | ±2 kV for Power Line                    |                         |
| ESD (IEC 61000-4-2)         | ±4 kV Contact for Each Terminal<br>±8 kV Air for Random Point |                      |                                         |                         |
| Surge (IEC 61000-4-5)       | ±0.5 kV for Power Line                                        |                      | ±2 kV for Power Line                    |                         |
| LED Indicators              |                                                               |                      |                                         |                         |
| Status                      | Run, Ethernet                                                 | Run, Ethernet, PoE   | Run, Ethernet, I/O                      | Run, Ethernet, I/O, PoE |
| Ethernet                    |                                                               |                      |                                         |                         |
| Ports                       | 1 x RJ-45, 10/100 Base-TX                                     |                      | 2 x RJ-45, 10/100 Base-TX, Swtich Ports |                         |
| PoE                         | -                                                             | Yes                  | -                                       | Yes                     |
| LAN bypass                  | -                                                             |                      | Yes                                     |                         |
| Security                    | ID, Password and IP Filter                                    |                      |                                         |                         |
| Protocol                    | Modbus TCP, Modbus UDP                                        |                      |                                         |                         |
| Power                       |                                                               |                      |                                         |                         |
| Reverse Polarity Protection | Yes                                                           |                      |                                         |                         |
| Consumption                 | 2.0 W (max.)                                                  | 3.0 W (max.)         | 3.1 W (max.)                            | 3.3 W (max.)            |
| Powered from PoE            | -                                                             | IEEE 802.3af, Class1 | -                                       | IEEE 802.3af, Class1    |
| Powered from Terminal Block | +10 to +30 VDC                                                | +12 to +48 VDC       |                                         |                         |
| Mechanical                  |                                                               |                      |                                         |                         |
| Dimensions (mm)             | 72 x 123 x 35 (W x L x H)                                     |                      | 76 x 120 x 38 (W x L x H)               |                         |
| Installation                | DIN-Rail mounting                                             |                      |                                         |                         |
| Environment                 |                                                               |                      |                                         |                         |
| Operating Temperature       | -25 to +75°C                                                  |                      |                                         |                         |
| Storage Temperature         | -30 to +80°C                                                  |                      |                                         |                         |
| Humidity                    | 10 to 90% RH, Non-condensing                                  |                      |                                         |                         |

## I/O Specifications

| Model                                  | ET-7018Z                                                                      | PET-7018Z | ET-7218Z       | PET-7218Z |
|----------------------------------------|-------------------------------------------------------------------------------|-----------|----------------|-----------|
| Analog Input                           |                                                                               |           |                |           |
| Channels                               | 10 (Differential)                                                             |           |                |           |
| Type                                   | Voltage, Current, Thermocouple                                                |           |                |           |
| Temperature Output Consistency         | Yes                                                                           |           |                |           |
| Stable Temperature Output in the Field | Yes                                                                           |           |                |           |
| Range                                  | ±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5 V                                |           |                |           |
|                                        | ±20 mA, 0 to 20 mA, 4 to 20 mA<br>(Requires Optional External 125 Ω Resistor) |           |                |           |
|                                        | Thermocouple (J, K, T, E, R, S, B, N, C, L, M, and L <sub>DIN43710</sub> )    |           |                |           |
| Resolution                             | 16-bit                                                                        |           |                |           |
| Accuracy                               | ±0.1% of FSR or better                                                        |           |                |           |
| Sampling Rate                          | 10 Hz (total channels)                                                        |           |                |           |
| Input Impedance                        | >300 kΩ                                                                       |           |                |           |
| Over Voltage Protection                | 240 Vrms                                                                      |           |                |           |
| Individual Channel Configuration       | Yes                                                                           |           |                |           |
| Open Wire Detection                    | Yes                                                                           |           |                |           |
| Virtual Channel to Channel Isolation   | ±400 VDC                                                                      |           |                |           |
| Digital Output                         |                                                                               |           |                |           |
| Channels                               | 6                                                                             |           | 3              |           |
| Type                                   | Isolated Open Collector                                                       |           |                |           |
| Sink/Source (NPN/PNP)                  | Sink                                                                          |           |                |           |
| Load Voltage                           | +5 to +50 VDC                                                                 |           |                |           |
| Load Current                           | 700 mA/channel                                                                |           | 650 mA/channel |           |
| Overvoltage Protection                 | +60 VDC                                                                       |           |                |           |
| Overload Protection                    | 1.4 A                                                                         |           |                |           |
| Short-circuit Protection               | Yes                                                                           |           |                |           |
| Power on Value                         | Programmable                                                                  |           |                |           |
| Safe Value                             | Programmable                                                                  |           |                |           |

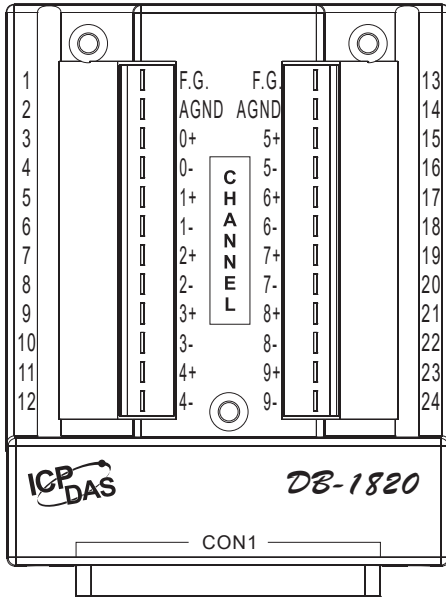
## Wire Connections

|                                                                                                     |  |
|-----------------------------------------------------------------------------------------------------|--|
| <b>Voltage Input (Default)</b>                                                                      |  |
|                  |  |
| <b>Thermocouple Input (Default)</b>                                                                 |  |
|                  |  |
| <b>Current Input</b>                                                                                |  |
|                  |  |
| Note: When connecting to a current source, an optional external $125\ \Omega$ resistor is required. |  |

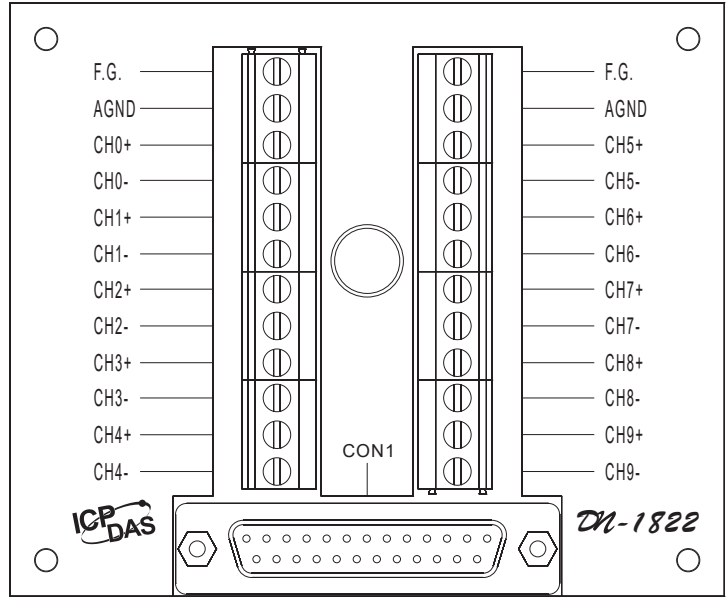
| Digital Output        | ON State<br>Readback as 1                                                           | OFF State<br>Readback as 0                                                           |
|-----------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Open Collector (Sink) |  |  |

## Pin Assignments

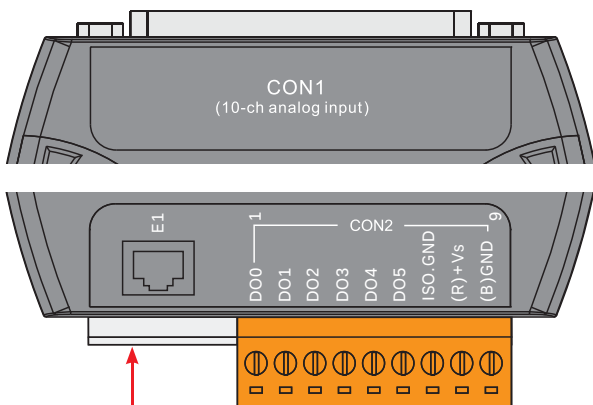
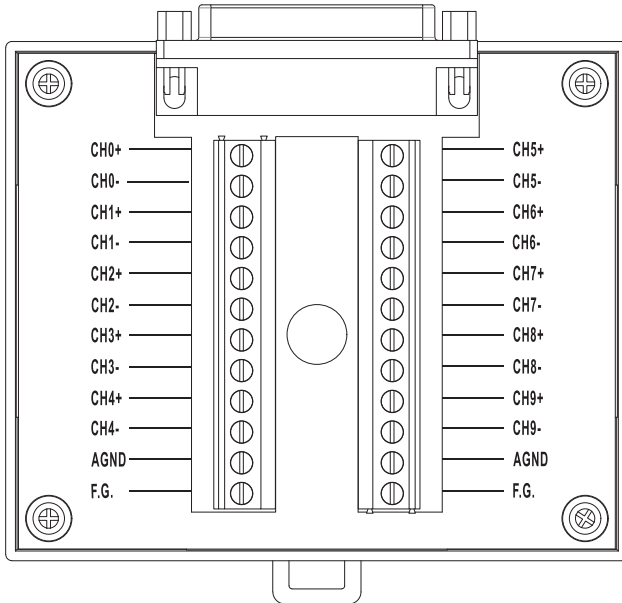
DB-1820



DN-1822

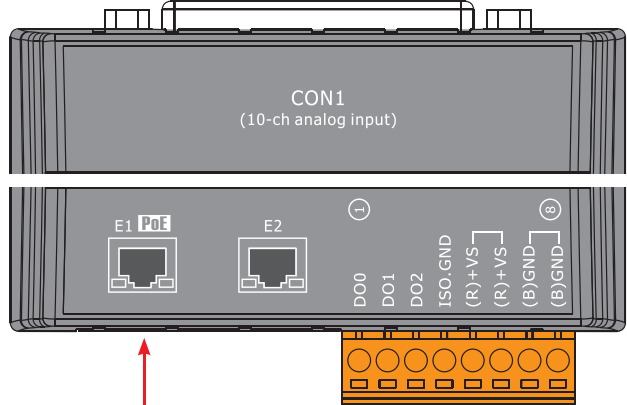


DN-1823



PET-7018Z: PoE

ET-7018Z: +10 to +30 VDC  
PET-7018Z: +12 to +48 VDC

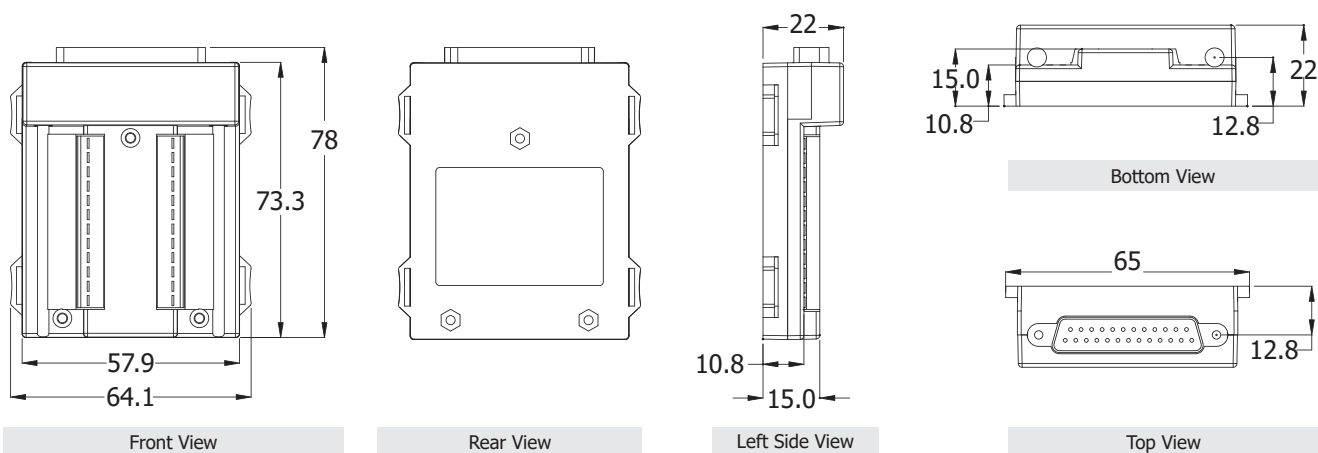


PET-7218: PoE

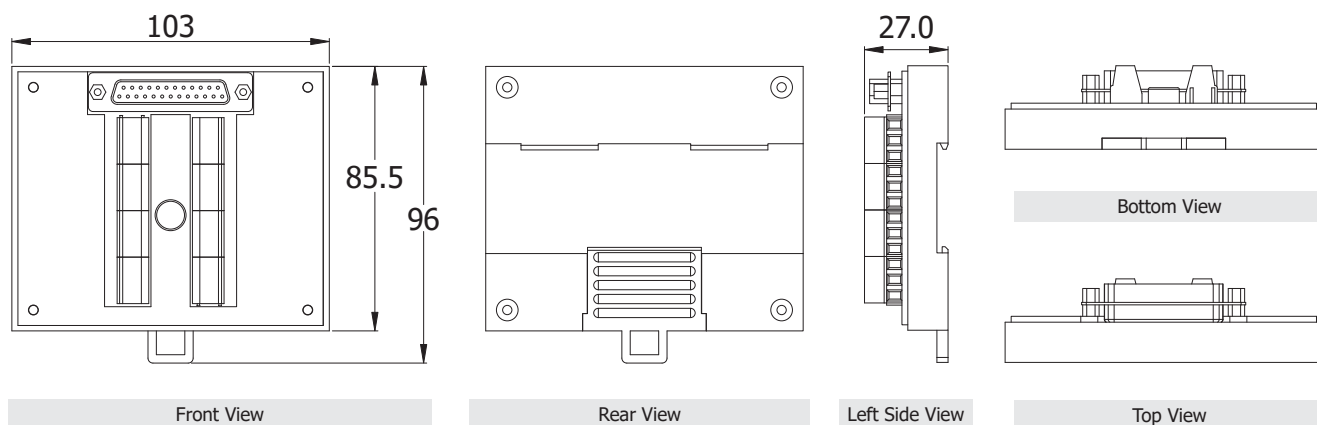
ET-7218: +10 to +30 VDC  
PET-7218: +12 to +48 VDC

## ■ Dimensions (Units: mm)

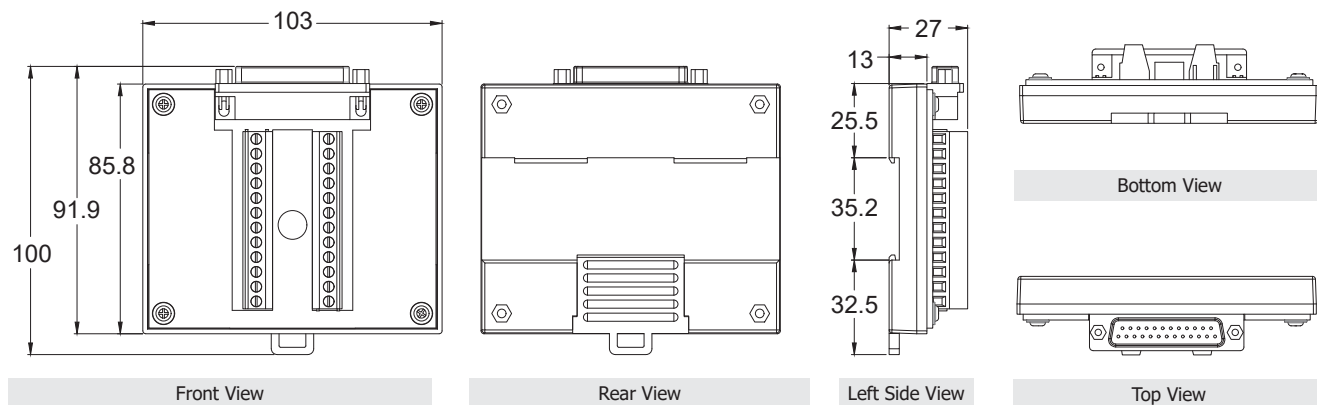
### DB-1820



### DN-1822



### DN-1823

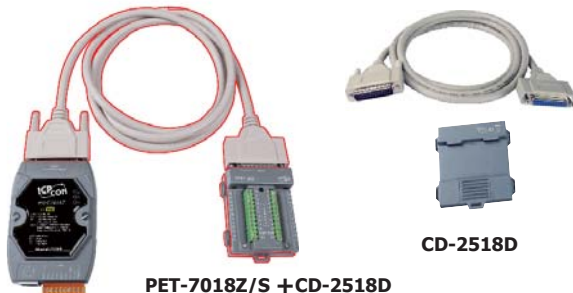


## Ordering Information

|                        |                                                                                                                                                                                 |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ET-7018Z/S CR</b>   | Ethernet I/O Module with 10-ch Thermocouple Inputs, 6-ch DO (RoHS)<br>Includes DB-1820 Daughter Board                                                                           |
| <b>PET-7018Z/S CR</b>  | PoE Ethernet I/O Module with 10-ch Thermocouple Inputs, 6-ch DO (RoHS)<br>Includes DB-1820 Daughter Board                                                                       |
| <b>ET-7218Z/S CR</b>   | Ethernet I/O Module with 2-port Ethernet Switch, with 10-ch Thermocouple Inputs, 3-ch DO (RoHS)<br>Includes DB-1820 Daughter Board                                              |
| <b>PET-7218Z/S CR</b>  | PoE Ethernet I/O Module with 2-port Ethernet Switch, with 10-ch Thermocouple Inputs, 3-ch DO (RoHS)<br>Includes DB-1820 Daughter Board                                          |
| <b>ET-7018Z/S2 CR</b>  | Ethernet I/O Module with 10-ch Thermocouple Inputs, 6-ch DO (RoHS)<br>Includes DN-1822 Daughter Board, CA-252518D-1 1.8 m Cable and 4PAPP-006-G                                 |
| <b>PET-7018Z/S2 CR</b> | PoE Ethernet I/O Module with 10-ch Thermocouple Inputs, 6-ch DO (RoHS)<br>Includes DN-1822 Daughter Board, CA-252518D-1 1.8 m Cable and 4PAPP-006-G                             |
| <b>ET-7218Z/S2 CR</b>  | Ethernet I/O Module with 2-port Ethernet Switch with 10-ch Thermocouple Inputs, 3-ch DO (RoHS)<br>Includes DN-1822 Daughter Board, CA-252518D-1 1.8 m Cable and 4PAPP-006-G     |
| <b>PET-7218Z/S2 CR</b> | PoE Ethernet I/O Module with 2-port Ethernet Switch with 10-ch Thermocouple Inputs, 3-ch DO (RoHS)<br>Includes DN-1822 Daughter Board, CA-252518D-1 1.8 m Cable and 4PAPP-006-G |
| <b>ET-7018Z/S3 CR</b>  | Ethernet I/O Module with 10-ch Thermocouple Inputs, 6-ch DO (RoHS)<br>Includes DN-1823 Daughter Board, CA-2525015D 15 cm Cable and 4PAPP-006-G                                  |
| <b>PET-7018Z/S3 CR</b> | PoE Ethernet I/O Module with 10-ch Thermocouple Inputs, 6-ch DO (RoHS)<br>Includes DN-1823 Daughter Board, CA-2525015D 15 cm Cable and 4PAPP-006-G                              |
| <b>ET-7218Z/S3 CR</b>  | Ethernet I/O Module with 2-port Ethernet Switch with 10-ch Thermocouple Inputs, 3-ch DO (RoHS)<br>Includes DN-1823 Daughter Board, CA-2525015D 15 cm Cable and 4PAPP-006-G      |
| <b>PET-7218Z/S3 CR</b> | PoE Ethernet I/O Module with 2-port Ethernet Switch with 10-ch Thermocouple Inputs, 3-ch DO (RoHS)<br>Includes DN-1823 Daughter Board, CA-2525015D 15 cm Cable and 4PAPP-006-G  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Front</p> </div> <div style="text-align: center;">  <p>Rear</p> </div> </div> <p><b>ET-7018Z/S:</b> DB-1820 Connects to the ET-7018Z Directly<br/> <b>PET-7018Z/S:</b> DB-1820 Connects to the PET-7018Z Directly<br/> <b>ET-7218Z/S:</b> DB-1820 Connects to the ET-7218Z Directly<br/> <b>PET-7218Z/S:</b> DB-1820 Connects to the PET-7218Z Directly</p> |  <p><b>ET-7018Z/S2:</b> DN-1822 connects to the ET-7018Z/S2 via a 1.8 m long flex cable<br/> <b>PET-7018Z/S2:</b> DN-1822 connects to the PET-7018Z/S2 via a 1.8 m long flex cable<br/> <b>ET-7218Z/S2:</b> DN-1822 connects to the ET-7218Z/S2 via a 1.8 m long flex cable<br/> <b>PET-7218Z/S2:</b> DN-1822 connects to the PET-7218Z/S2 via a 1.8 m long flex cable</p> |
|  <p><b>ET-7018Z/S3:</b> DN-1823 connects to the ET-7018Z/S3 via a 15 cm long flex cable<br/> <b>PET-7018Z/S3:</b> DN-1823 connects to the PET-7018Z/S3 via a 15 cm long flex cable</p>                                                                                                                                                                                                                                                                                                                                                         |  <p><b>ET-7218Z/S3:</b> DN-1823 connects to the ET-7218Z/S3 via a 15 cm long flex cable<br/> <b>PET-7218Z/S3:</b> DN-1823 connects to the PET-7218Z/S3 via a 15 cm long flex cable</p>                                                                                                                                                                                    |

## Accessories

|                                                                                                                                        |                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>PET-7018Z/S + CD-25015 + 4PAPP-006-G</b></p> |  <p><b>PET-7018Z/S + CD-2518D</b><br/> <b>PET-7218Z/S + CD-2518D</b></p> |
|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|