VPG force sensors
Celtron • Revere • Sensortronics • Tedea-Huntleigh

ST1 Silo Weighing System

FEATURES

- Appropriate for panel mounting
- LCD screen
- Language Interface available in English and French
- Voltage rating: 24 VDC/160 mA
- Up to 4 measurements per screen
- Up to 8 silo weight measurements and 16 temperature measurements
- Up to 8 deported casings and deported temperature casings
- Recommended load cell for weighing measurements: 178 extensometer

OPTIONAL

- Modbus TCP & Ethernet IP connections available
- Up to 4 relay interface casings (16 relay outputs per casing)
- Up to 16 temperature control sensors (PT100)

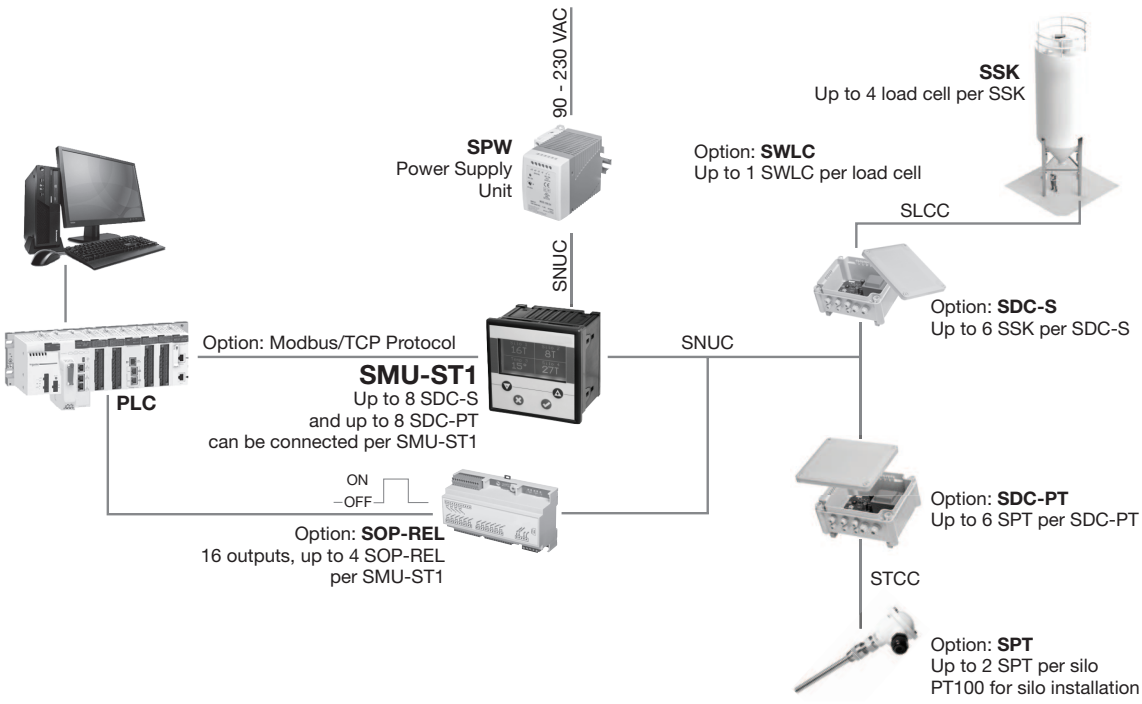
APPLICATIONS

- Cement plant – aggregates storage tank
- Water treatment plant – storage/ batching tank
- Agriculture (weighing measurements only) – grain vessel
- F&B industry (weighing measurements only) – dairy storage plant, brewery, filling machine

DESCRIPTION

Our modern and intuitive system can provide low uncertainty and highly repeatable weighing and temperature measurements. For our ST1 system, it can display both weight and temperature measurements of connected silos. Up to 8 silos can be supported with an option of up to a total of 16 PT100 Temperature Sensors, up to 4 relay interface casings and a Modbus TCP/ Ethernet IP connection.

CONFIGURATION



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ST1 Silo Weighing System

SPECIFICATIONS

ST1 CONTROLLER (SMU-ST1)

Performance

Silo Weight Measurement Up to 8
Temperature Measurement Up to 16
Microcontroller Microchip PIC16
Data Storage 266KB

Environmental

Operating Temperature 0 to +50°C (32 to 122°F)
Storage Temperature -20 to +70°C (-4 to 158°F)
Maximum Humidity Before Condensation 90%

Display and Keyboard

Display Graphic LCD
Display Dimensions 128 x 64 pixels
Keyboard 4 button on the front of the device
Available Languages English and French

Electrical

Voltage 24VDC
Current Rating 160 mA
Wattage 2.5 W

Enclosures

Dimensions 96 x 96 x 72 mm L x H x D (3.78 x 3.78 x 2.83")
Mounting Panel Mounting
Electrical Connections 3.81 mm (0.15") removal terminal blocks

POWER SUPPLY UNIT (SPW)

Input Voltage 90/230VAC
Output Voltage 24VDC
Power Output 100 W
Dimensions 100 x 55 x 90 mm L x H x D (3.94 x 2.17 x 3.54")
Mounting DIN Rail

DEPORTED CASING – SILO (SDC-S)

Input Voltage 24 VDC
Output Voltage 5 VDC
Wattage 17 W
Measuring Range -2.4 to +2.4 mV/V
Input Sensitivity 0.002 mV
Microcontroller Microchip PIC32
Data Storage 2 MB
Dimensions 190 x 170 x 100 mm L x H x D (7.48 x 6.69 x 3.94")
Operating Temperature -10 to +50°C (14 to 122°F)
Storage Temperature -20 to +70°C (-4 to 158°F)
CAN Bus Up to 8 Deported Casing can be connected on the same bus

SILO KIT (SSK)

Junction Box Dimensions 80 x 80 x 52 mm L x H x D (3.15 x 3.15 x 2.05")
Junction Box Material Polystyrene
Studs Dimensions 25 x 25 x 12 mm L x H x D (0.98 x 0.98 x 0.47")
Studs Thread 3/8 inches
Studs Material Steel
Template Dimensions 178 x 25 x 15 mm L x H x D (7.01 x 0.98 x 0.59")
Template Material Steel

PT100 TEMPERATURE SENSOR (SPT)

Material Stainless steel
Connection ½" male cylindrical gas
Probe Length 200 mm (7.87")
Dimensions 300 x 100 x 70 mm L x H x D (11.81 x 3.94 x 2.76")
Probe 3-wire PT100 ceramic IEC 60751 class A
Operating Temperature -50 to +450°C (-58 to 842°F)
Storage Temperature -50 to +450°C (-58 to 842°F)

DEPORTED TEMPERATURE CASING (SDC-PT)

Output Voltage 24 VDC
Wattage 6.5 W
Measuring Range -50 to +150 °C (-58 to 302°F)
Microcontroller Microchip PIC32
Data Storage 2 MB
Dimensions 190 x 170 x 100 mm L x H x D (7.48 x 6.69 x 3.94")
Operating Temperature -10 to +50°C (14 to 122°F)
Storage Temperature -20 to +70°C (-4 to 158°F)

WEATHER SHIELD – 178 LOAD CELL (SWLC)

Dimensions 600 x 150 x 242 mm L x H x D (23.62 x 5.91 x 9.53")
Material Aluminum
Material Width 1 mm (0.04")
Mounting Collar clamping

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ST1 Silo Weighing System

RELAY INTERFACE CASING (SOP-REL)

Max Relay Outputs Per Casing 16
Max Relay Output Voltage 24 VDC
Relay Current Rating 1 Amps
Max Switching Power 30 W
Life Expectancy 100,000 ops
Operating Temperature -10 to +50°C (14 to 122°F)
Storage Temperature -20 to +70°C (-4 to 158°F)
Input Voltage 24 VDC
Wattage 6 W
Microcontroller Microchip PIC32
Dimensions 160 x 90 x 58 mm L x H x D (6.30 x 3.54 x 2.28")
CAN Bus Up to 4 Interface Casing can be connected on the same bus

MODBUS TCP – INSERTED IN ST1 (SCOM-MOD)

Dimensions 82 x 60 x 15 mm L x H x D (3.23 x 2.36 x 0.59")
Microcontroller Microchip PIC16
Operating Temperature -10 to +50°C (14 to 122°F)
Storage Temperature -20 to +70°C (-4 to 158°F)
Output Voltage 5 VDC
Wattage 1.5 W
Max Simultaneous Connection 1
Max Number of Request 10 per seconds
Electrical Connection RJ-45
Connection Speed 10 to 100 mbps

RECOMMENDED LOAD CELLS

Model 178 Load Cell

Note: Please refer to model's datasheet for further information. Refer to Document no: 63999.

All specifications are subject to change without notice.

If you require any further information about any of the modules, please contact vpgfs.marketing@vpgsensors.com.

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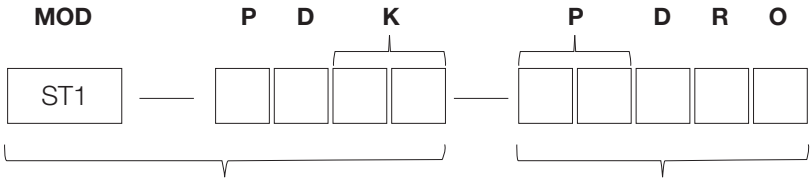
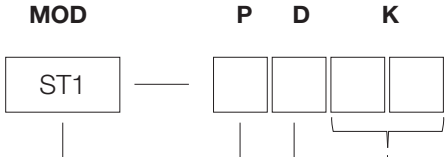
ST1 Silo Weighing System

ORDERING INFORMATION FOR ST1

Complete item number



Mandatory section of item number



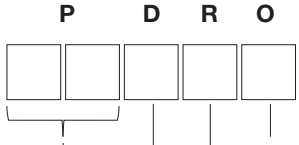
MODEL (MOD)
ST1

POWER (P)
1 = 90/230VAC to 24VDC
100W power supply

SILO KIT (K)
Enter a number between 01 and 08 to select the desired number of Silo Kits

DEPORTED CASING (D)
(up to a max of 6 silo kits per casing)
Enter a number between 1 and 8 to select the desired number of deported casings

Optional section of item number



PT100 TEMPERATURE SENSOR (P)
Enter a number between 00 and 16 to select desired number of sensors

DEPORTED TEMPERATURE CASING (D)
(up to six PT100 sensors per casing)
Enter a number between 0 and 8 to select desired number of casings

COMMUNICATION OUTPUT (O)
M = Modbus/TCP connection
N = No Modbus/TCP connection

RELAY INTERFACE CASINGS (R)
(up to 16 relay outputs per casing)
Enter a number between 0 and 4 to select desired number of relay interface casings

Example Complete Item Selection Number:

ST1– 1104 – 0821M with 90/230 VAC to 24 VDC 100 W power supply, 1 deported casing, 4 silo kits, 8 temperature sensors, 2 deported temperature casings, 1 relay interface casings, and an Modbus TCP connection.

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COMPONENTS FOR INDIVIDUAL PURCHASE

RTSP	XXXX

RTSPST1	= MAIN CONTROL UNIT	RTSPSPT	= PT100 TEMP SENSOR
RTSPSPW	= POWER SUPPLY UNIT	RTSPSDCPT	= DEPORTED TEMP CASING FOR 6 PT100s
RTSPSDCS	= DEPORTED CASING FOR 6 SILO KITS	RTSPSOPREL	= OUTPUT - RELAY INTERFACE CASING
RTSPSSK	= SILO KIT	RTSPSCOMMOD	= COMMUNICATION – MODBUS/TCP
RTSPSLCC	= LOAD CELL AND SILO KITS CABLE	RTSPSNUC	= COMMUNICATION CABLE (CAN BUS)
RTSPSTCC	= TEMP SENSOR CABLE	RTSPSWLC	= LOAD CELL WEATHER SHIELD

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