Chapter 2: Preparing the Installation Site

Preparing the Site

This chapter provides the following information:

- A summary of customer responsibilities prior to installation
- Power, grounding, and distribution requirements of the DecisioNet System
- DecisioNet System environmental requirements
- DecisioNet System component characteristics

Customer Responsibilities

The customer must do or provide the following:

- When required by NCR, provide the NCR customer service representative with appropriate drawings that indicate:
  - Fixture Plan showing the location of store fixtures
  - Floor Plan showing the location of all interior walls, ceiling heights, and firewalls
  - Site wiring diagrams for power and communication
  - Location of other equipment capable of generating electrical noise, electromagnetic interference, heat, etc.
  - Environmental conditions that could affect RF communication
- Make building alterations necessary to meet wiring and other site requirements
- Provide and install all communications cables, wall jacks, special connectors, and associated hardware
- Provide and install necessary power distribution boxes, conduits, grounds, lightning protection, and associated hardware
- Provide and install auxiliary power or other equipment as required
- Provide storage or service areas as required
- Make sure that the environmental requirements discussed in this chapter are met
- Provide floor coverings and environmental systems that limit or control static electricity build-up and discharge

Warning: Make sure all applicable codes, regulations, and laws (including, but not limited to, electrical, building, safety, and health) are met.

Power, Grounding and Distribution Requirements

Voltage transients, line noise, surges, sags, impulses, and spikes can happen routinely or sporadically. When such phenomena occur, protective devices such as surge protectors may help to ensure proper operation of the equipment.

Power Requirements

The CBS does not have an internal power supply. It receives DC power from an external power supply that can support up to five CBSs. The power supply's output is +24 VDC.

Note: Power requirements in EU/EC countries limit the number of CBSs on one power supply to three (3).

For maximum system integrity, install the power supply(s) on a dedicated branch circuit from a distribution panel that does not supply any switched inductive loads (motors, air conditioners, etc.). Do not connect anything else to this branch circuit except other DecisioNet System equipment. This branch circuit must remain "live" at all times.

Each power supply circuit should consist of three conductors, including separate wires for the line, neutral, and insulated ground connections to the distribution panel.

The following are the specifications for the CBS power supply:

Voltage (in)	100 to 240 Volts AC
Current (in)	3 Amps
Power (in)	100 Watts
Frequency	50 or 60 Hz
Voltage (out)	24 Volts DC
Current (out)	4.5 Amps

Grounding Requirements

Because the DecisioNet System connects logic reference ground to safety ground, a noise-free grounding circuit is necessary for good system integrity.

Use an isolated ground receptacle, such as a Hubbell IG-5262 or equivalent. Make sure the ground conductor is insulated from conduit and neutral wire, and that it is connected to an insulated terminal strip at the distribution panel. DO NOT use this dedicated insulated ground wire as a neutral.

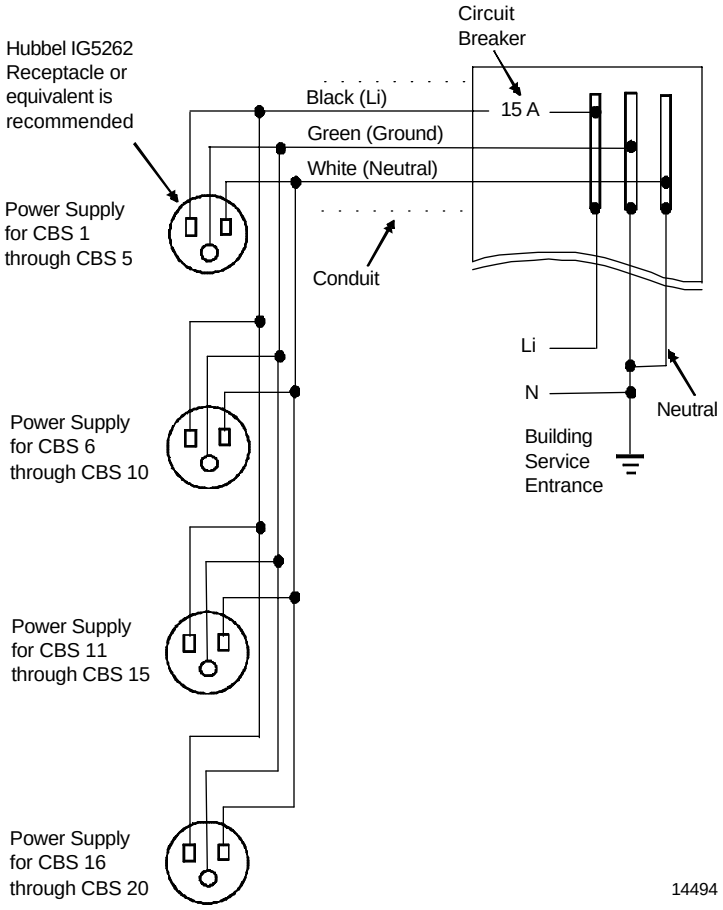
DO NOT use a conduit as a ground. Resistance at the conduit joints may create multiple ground levels within the electrical power distribution system and degrade the reliability of the DecisioNet System.

Power Distribution Requirements

Be aware of the following power distribution requirements:

- All wire connections must be electrically and mechanically sound and protected from deterioration. Deterioration due to corrosion or electrolysis, especially in humid or corrosive atmospheres, may result in electrical noise and/or a safety hazard.
- Electrical equipment such as wiring and circuit breakers cause voltage drops in the power distribution system. Verify that the voltage at each AC power outlet is within specification.
- Install AC power outlets in locations that are easily accessible and as close as possible to the equipment they serve.
- Do not route power cords through openings with sharp edges or in areas where they are exposed to sharp edges or pointy objects.
- Verify that all applicable national, state, and local codes are met.

The following illustration shows an example of site wiring.



Note: The distribution panel must not furnish power to any inductive loads such as refrigeration equipment, ovens, and motors.

Environmental Requirements

DecisioNet components operate across a wide range of environmental conditions as shown in the following tables. Do not install these components in locations where the temperature or humidity may go beyond the limits indicated.

Due to lower atmospheric pressure and air rarefaction at high altitudes, the maximum dry bulb temperature for each working range is decreased linearly by a value of 3.3 °C /1,000m (1.8 °F /1,000 ft.) between the altitude of 500m (1,640 ft.) and 3,000 m (9,840 ft.).

Temperature and Humidity

The environmental requirements for the CBS and ESLs are shown in the following tables.

CBS

	Operating	Transit (1 week maximum)	Storage
Temperature (Dry bulb)	5°C to 45°C (40°F to 113°F)	-40°C to 60°C (-40°F to 140°F)	-10°C to 50°C (14°F to 122°F)
Max. Temp. Change per Hour	10°C (18°F)	20°C (36°F)	15°C (27°F)
Relative Humidity	10% to 90% No Condensation	5% to 95% No Condensation	10% to 90% No Condensation
Max. Humidity Change per Hour	10%	10%	10%
Barometric Pressure	105 to 70 kilo pascals (up to a max. of 3,000 m [9,850 ft.])	105 to 70 kilo pascals (up to a max. of 3,000 m [9,850 ft.])	105 to 70 kilo pascals (up to a max. of 3,000 m [9,850 ft.])

ESL (Standard Size and Small Size)

	Operating	Transit (1 week maximum) and Storage (3 months maximum)
Temperature (Dry bulb)	0°C to 40°C (32°F to 104°F)	-30°C to 60°C (-22°F to 140°F)
Max. Temp. Change per Hour	10°C (50°F)	15°C (59°F)
Relative Humidity	5% to 90% No condensation	5% to 90% No condensation
Max. Humidity Change per Hour	10%	
Barometric Pressure	70 kilo pascals (up to a max. of 3,000 m [9,842 ft.])	

ESL (Freezer)

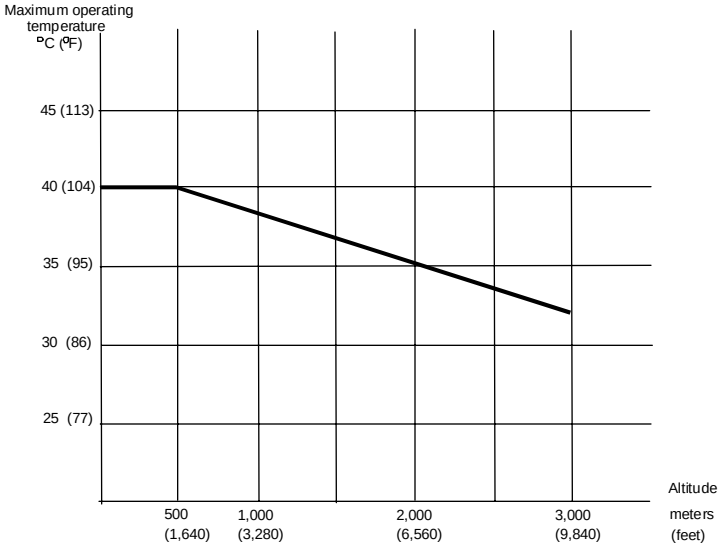
	Operating	Transit (1 week maximum) and Storage (3 months maximum)
Temperature (Dry bulb)	-30°C to 10°C (-22°F to 50°F)	-30°C to 60°C (-22°F to 140°F)
Max. Temp. Change per Hour	40°C (104°F)	15°C (59°F) No condensation
Relative Humidity	5% to 100% Condensation	5% to 90%
Max. Humidity Change per Hour	10%	
Barometric Pressure	70 kilo pascals (up to a max. of 3,000 m [9,842 ft.])	105 kilo pascals (up to a max. of 3,000 m [9,842 ft.])

ESL (Signage)

	Operating	Transit (1 week maximum) and Storage (3 months maximum)
Temperature (Dry bulb)	0°C to 40°C (32°F to 104°F)	-30°C to 60°C (-22°F to 140°F)
Max. Temp. Change per Hour	10°C (50°F)	15°C (59°F)
Relative Humidity	5% to 90% No condensation	5% to 90% No condensation
Max. Humidity Change per Hour	10%	
Barometric Pressure	70 kilo pascals (up to a max. of 3,000 m [9,842 ft.])	

Altitude and Temperature

The following graph shows how altitude affects the operating temperature of CBSs and ESLs. As altitude increases, the maximum operating temperature decreases.



Health and Safety

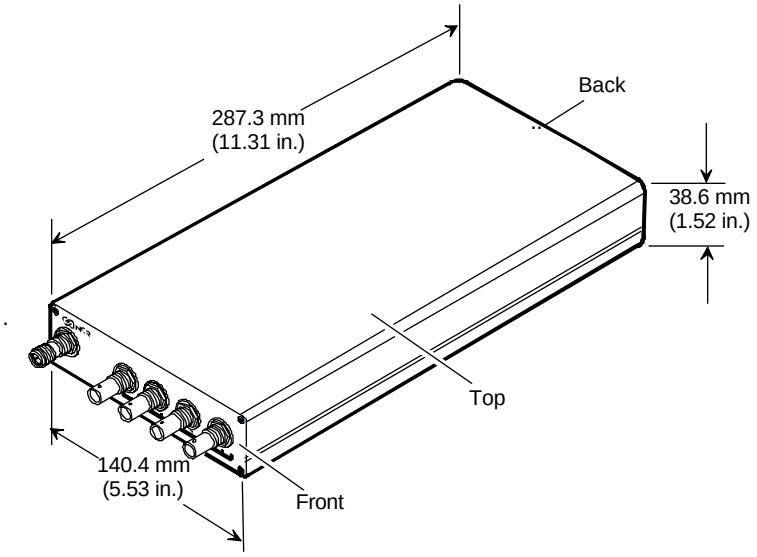
CBSs meet the following safety and radio frequency interference requirements.

- ANSI C95.1-1990
- UL 1950 3rd Edition
- UL 2043
- CSA CAN/CSA-22.2 No. 950-93
- CE mark per TULV
- FCC CFR, Title 47, Part 15.247
- FCC Class A Radiated Emissions
- FCC Class B Conducted Emissions and CFR 47 Parts 2 and 15
- RSP-100, RSS210, ICES-003, C108.9-M1983
- MPT 1349
- DOC Class A
- ETS 300 - 440
- ETS 300 - 328
- ETS 300 - 826
- CEPT 70 03
- TS 04-1

Component Characteristics

CBS

The CBS weighs 1.13 kg (2.5 lb.). The following illustration shows the dimensions of the CBS.



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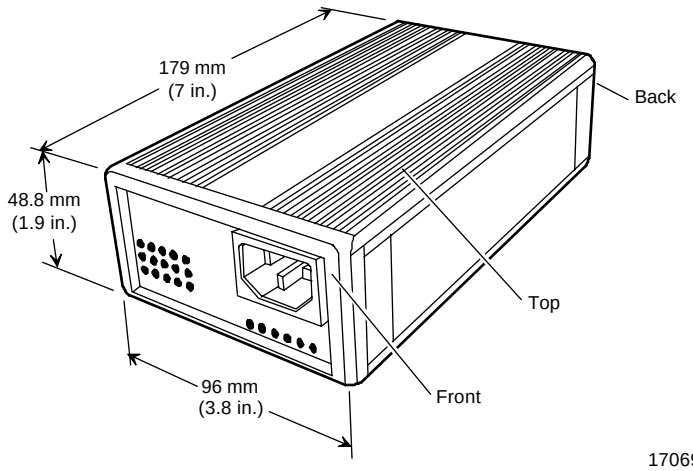
The CBS does not have ventilation holes, but it does require the service clearances indicated in following table.

Direction	Distance in mm	Distance in inches
Top	Not applicable	Not applicable
Bottom	127	5
Right	101.6	4
Left	101.6	4
Front	101.6	4
Back	101.6	4

CBS Power Supply

The CBS power supply weighs .85 kg (1.88 lb.). The following illustration shows the dimensions of the CBS power supply.



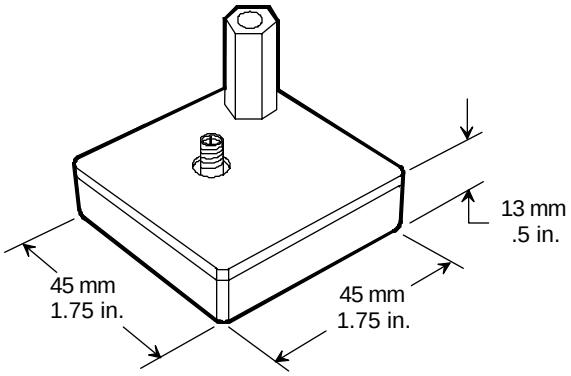
The CBS power supply has rear ventilation holes, so it requires the air flow and service clearances indicated in the following table.

Direction	Distance in mm	Distance in inches
Top	50.8	2
Bottom	50.8	2
Right	50.8	2
Left	50.8	2
Front	50.8	2
Back	50.8	2

Antennas

Transmit Antenna

The transmit antenna has a threaded female standoff and weighs .085 kg (0.19 lb.). The following illustration shows the dimensions of the transmit antenna.



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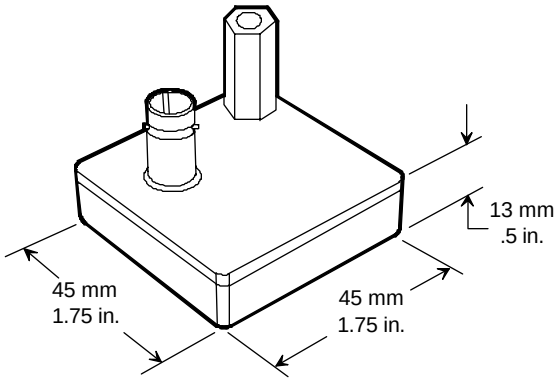
Receive Antenna

The receive antenna has a threaded female standoff and weighs .085 kg (0.19 lb.). The following illustration shows the dimensions of the receive antenna.



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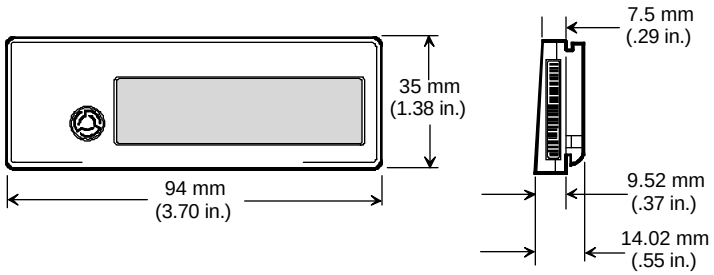
ESLs

ESLs are available in variety of sizes and LCDs. This section describes the physical characteristics of the available ESLs.

ESL, Standard Size

The 1x8 and 4+8-character standard-size ESLs weigh 0.031 kg (0.068 lb.). Physical dimensions are shown below.

Standard-size 1x8 and 4+8-character "freezer" ESLs are available at GCA. They have the same dimensions and weight as non-freezer standard-size ESLs. The text on the serial number label of the freezer ESL is blue. The text on the serial number label of the non-freezer ESL is black.



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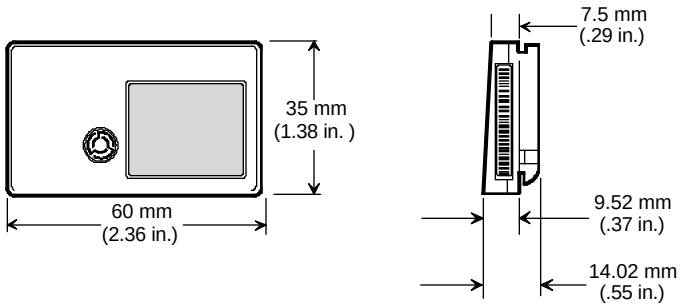
ESL, Small Size

The 2x5-character small size ESL weighs 0.023 kg (0.05 lb.). Physical dimensions are shown below.



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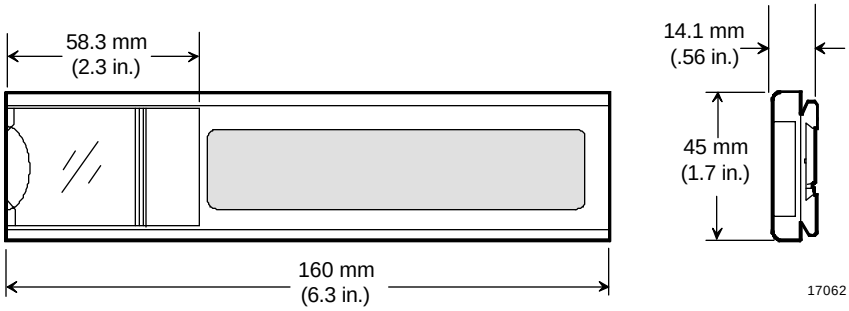
ESL, Small Signage

The 1x6-character small signage ESL weighs 0.068 kg (0.15 lb.). Physical dimensions are shown below.



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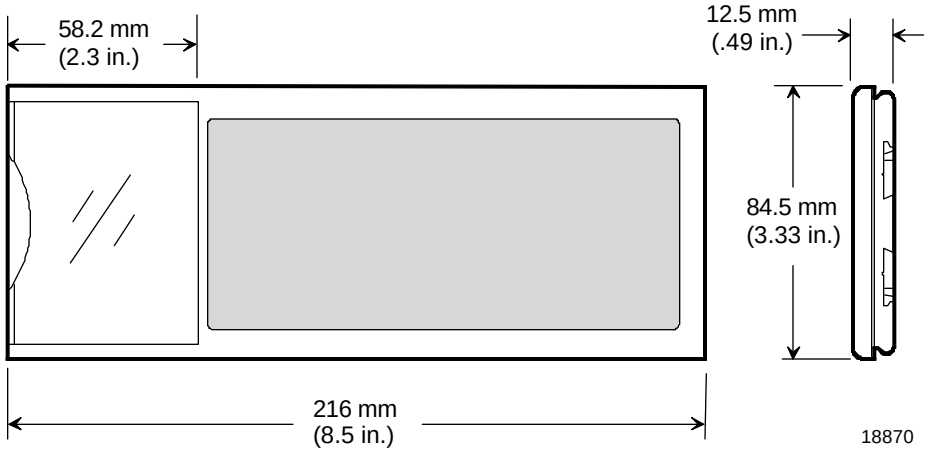
ESL, Large Signage

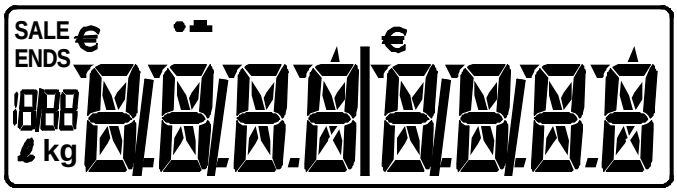
The 2x6-character large signage ESL weighs 0.16 kg (0.36 lb.). Physical dimensions are shown below.



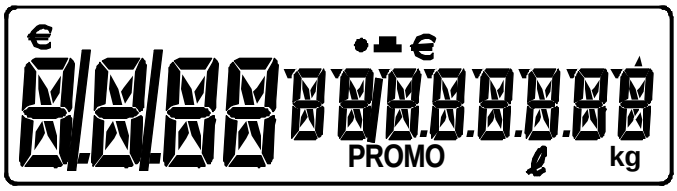
ESL Displays and Symbols

The ESL displays are shown in the following illustrations. The symbols on the displays are explained in the table following the illustrations.

1x8-Character, Standard Size



4+8-Character, Standard Size



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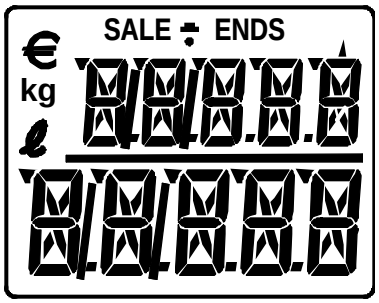
2x5-Character, Small Size



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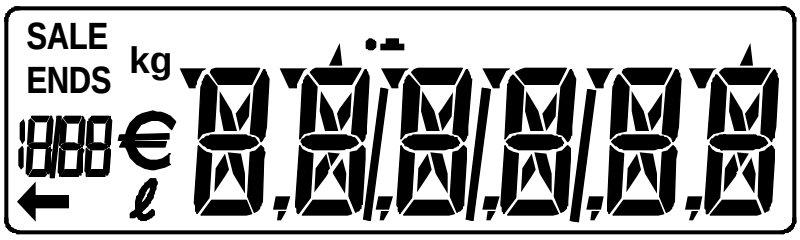
1x6-Character, Small Signage



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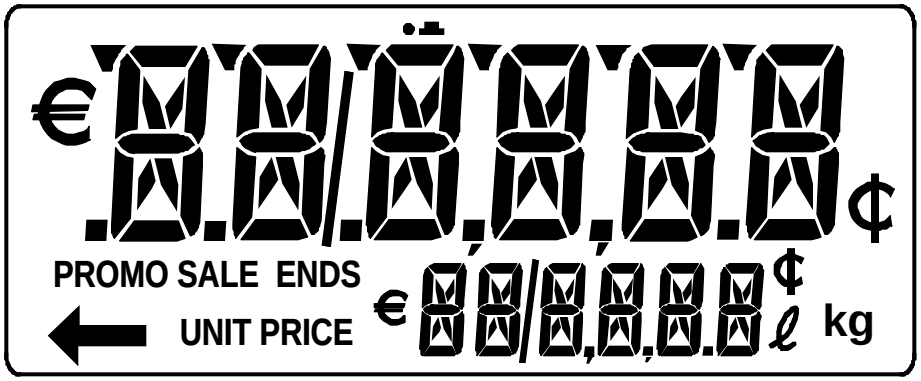
2x6-Character, Large Signage



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●	Lights when the ESL is out of synchronization for RF communication
▬	Lights when the battery is low
←	Customer defined symbol (Accessible from the Promotions option in ESL Maintenance or from a custom application)
UNIT	Customer defined symbol
PRICE	Customer defined symbol
SALE	Customer defined symbol
ENDS	Customer defined symbol
PROMO	Customer defined symbol
¢	Cents currency symbol
€	Euro currency symbol
kg	Kilogram symbol
ℓ	Liter symbol

For ESL configuration information refer to the *DecisioNet User's Guide* (B005-0000-1317).