



Australian Government
Department of Industry,
Innovation and Science

National Measurement Institute

Certificate of Approval NMI S423

Issued by the Chief Metrologist under Regulation 60
of the
National Measurement Regulations 1999

This is to certify that an approval for use for trade has been granted in respect of the instruments herein described.

Transponder Technologies Model TT4000 DCA Control System for Fuel Dispensers for Motor Vehicles

submitted by Transponder Technologies Pty Ltd
 2 Hamra Drive, Export Park
 Adelaide Airport SA 5950

NOTE: This Certificate relates to the suitability of the pattern of the instrument for use for trade only in respect of its metrological characteristics. This Certificate does not constitute or imply any guarantee of compliance by the manufacturer or any other person with any requirements regarding safety.

This approval has been granted with reference to document NMI R 117 Measuring Systems for Liquids Other than Water, dated June 2011.

This approval becomes subject to review on **8/10/21**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variants 1 to 3 approved –certificate issued	3/09/04
1	Variant 4 approved – certificate issued	6/05/05
2	Variants 5 to 8 approved – certificate issued	2/06/08
3	Variant 9 approved – certificate issued	8/10/16

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with approval number 'NMI S423' and only by persons authorised by the submitter.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S423' in addition to the approval number of the instrument, and only by persons authorised by the submitter.

It is the submitter's responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the National Measurement Institute (NMI) and with the relevant Certificate of Approval and Technical Schedule. Failure to comply with this Condition may attract penalties under Section 19B of the National Measurement Act and may result in cancellation or withdrawal of the approval, in accordance with document NMI P 106.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificates No S1/0/A and No S1/0B.

Signed by a person authorised by the Chief Metrologist to exercise their powers under Regulation 60 of the *National Measurement Regulations 1999*.

A handwritten signature in black ink, appearing to read 'A Rawlinson', with a horizontal line underneath.

Dr A Rawlinson

TECHNICAL SCHEDULE No S423

1. Description of Pattern approved 3/09/04

A Transponder Technologies model TT4000 DCA ('Driveway Card Acceptor') card-operated control system to provide unattended self-service operation for fuel dispensers fitted with Transponder Technologies model T5 indicators or other compatible (#) approved fuel dispensers.

(#) 'Compatible' is defined to mean that no additions/changes to hardware/software are required for satisfactory operation of the complete system.

1.1 Field of Operation

The field of operation is determined by the following characteristics:

- Environmental class -10°C to 55°C
- Input power supply 204 V to 264 V AC
- Maximum input frequency 1500 Hz per channel (two channel input)
- Accuracy class Class 0.5

- The system can provide unattended self-service arrangement for up to 32 approved fuel dispensers equipped with Transponder Technologies model T5 indicators (as described in the documentation of approval NSC S414) or other compatible (#) approved dispensers.

1.2 System Description

The TT4000 DCA control system is a stand-alone card-operated terminal that allows unattended self-service operation of fuel dispensers. Payment is authorised prior to delivering fuel via a magnetic-stripe card reader or *iButton* reader and/or PIN pad.

The device is housed in a lockable weatherproof housing for outdoor use, and features a magnetic-stripe card reader or *iButton* reader, keypad, liquid crystal display, uninterruptible power supply and receipt printer, in a single unit (Figure 1).

The TT4000 DCA control system contains the TransTech T6 controller circuit board (Figure 2) using software BAB05xxx, and provides communication and control of the fuel dispensers.

A Sola model 305 uninterruptible power supply unit is included to provide operation under power failure condition.

1.3 Checking Facilities

The system monitors the status of fuel dispensers and displays the condition of the requested dispenser as appropriate (i.e. in use/offline).

(i) Uninterruptible Power Supply

The system monitors the condition of the uninterruptible power supply, and if an error condition is detected it prevents a new transaction being started (authorised).

(ii) Receipt Printer

The system monitors the condition of the receipt printer and provides visual warning of an error. If the receipt printer is unavailable or out of paper, the front LCD will display that a receipt will not be available before a user enters their card or personal identification number (PIN) to authorise a transaction.

(iii) Memory Facilities

Prior to a dispenser being authorised, the device checks the status and availability of memory for storage of the transaction. If there is insufficient memory available, no further transactions can be authorised.

1.4 Verification Provision

The TT4000 DCA control system has provision for a verification mark to be applied.

1.5 Markings

The TT4000 DCA control system is marked with the following data, together in one location:

Manufacturer's name or mark
Manufacturer's designation (model number)
Serial number
Pattern approval mark	S423
Environmental class	Class N

2. Description of Variant 1 **approved 3/09/04**

The Transponder Technologies model TT3400 CAS ('Customer Authorisation Station') control system (Figure 3) which is similar to the pattern (model TT4000 DCA) except that it does not contain the TransTech T6 controller circuit board and is replaced by a separate TT4000 DCA controller or by a Transponder Technologies model FC6000 control system (as described in the documentation of approval NSC S422).

3. Description of Variant 2 **approved 3/09/04**

The Transponder Technologies model TT3500 CAS ('Customer Authorisation Station') control system (Figure 4) which is similar to the pattern (model TT4000 DCA) except that it does not contain the TransTech T6 controller circuit board and is replaced by a separate TT4000 DCA controller or by a Transponder Technologies model FC6000 control system (as described in the documentation of approval NSC S422).

The TT3500 CAS features a revised communication PCB (printed circuit board) which provides equivalent operation to the communication PCB included in the TT3400 CAS.

2. Description of Variant 3 **approved 3/09/04**

With Transponder Technologies Email and/or Gilbarco protocol communication converters (Figure 5) for use with up to 32 compatible (#) approved Email and/or Gilbarco/ Marconi fuel dispenser indicators.

(#) 'Compatible' is defined to mean that no additions/changes to hardware/software are required for satisfactory operation of the complete system.

3. Description of Variant 4 **approved 6/05/05**

The Transponder Technologies model TT3000 DCA ('Driveway Card Acceptor') control system which is similar to the pattern (model TT4000 DCA) except that it does not contain a receipt printer. The system may only be used with an additional non-resettable volume totaliser provided for each account held by a registered customer.

4. Description of Variant 5 **approved 2/06/08**

The Transponder Technologies model TT3000 DCA2 'Driveway Card Acceptor' (Figure 6) which is the same as the pattern except for that it uses a Storm 1000 series 4x4 matrix keypad.

5. Description of Variant 6 **approved 2/06/08**

The Transponder Technologies model TT3000 SC 'Site Controller' (Figure 7) which is not fitted with an external keypad, display or ID device, however an internal keypad and liquid crystals display (LCD) are provided for configuration. The TT3000 SC is used in applications where the customer interface is provided by a separate device (e.g. a model T5BMR ('Bulk Meter Register' or a model T5CIM customer interface module, as described as variants 5 and 6, respectively, in the documentation of approval NMI S414) and as such the TT3000 SC is used as the central controlling device.

8. Description of Variant 7 **approved 2/06/08**

The Transponder Technologies model TT3000 MC 'Mobile Controller' (Figure 8) which is similar to the model TT3000 SC (variant 6) except that it is housed in a poly-carbonate enclosure and is used in mobile applications.

9. Description of Variant 8 **approved 2/06/08**

The Transponder Technologies model TT3000 CIP 'Controller-in-Pump' (Figure 9) which is similar to the model TT3000 DCA (variant 4) except that it is housed within a Transponder Technologies 805 series fuel dispenser (as described in the documentation of approval NMI 5/6A/207). The TT3000 CIP provides the customer interface in unattended self-serve applications through the use of a model T5CIM customer interface module (as described as variant 6 in the documentation of approval NMI S414).

10. Description of Variant 9

approved 08/10/16

The T50 Bay Controller (Bay Loading System BLS) (Figure10) has an external 16-button keypad, 5.5in 254 × 64 dot monochrome graphic LCD and ID device reader to provide a user interface.

There is an internally mounted 16-button keypad and 4-line × 20-character LCD to provide a means of configuring the device.

The device power supply system has enhanced input conditioning and power transient/surge protection, and an uninterruptable power supply and backup battery is incorporated.

The T50 Bay Controller (Figure11) has a Bill of Loading Printer.

TEST PROCEDURE

Instruments shall be tested in conjunction with any tests specified in the approval documentation for the instruments to which the pattern is connected, as appropriate, and in accordance with any relevant tests specified in the National Instrument Test Procedures.

Points 2-6 are required at commissioning, thereafter may be conducted at the discretion of the inspecting officer.

1. Check the TransTech T6 software version number. The version number is marked on a label on the 28 pin EEPROM integrated circuit chip mounted on the circuit board on the inside rear panel of the TT4000 unit. The version number is also displayed on the front display during the power on initialisation sequence.
2. Check that the unit price change for the grade of fuel is implemented to the allocated fuel dispensers when they are available for authorisation.
3. Check that the control console identifies displays and prints the correct data for the corresponding number allocated to the fuel dispenser.
4. Authorise a delivery and check that the delivery details on the fuel dispenser agree with the receipt obtained.
5. Check that when principal power supply is disconnected from the uninterruptible power supply, the fuel dispenser cannot be authorised.
6. Remove paper from the receipt printer to check that when the receipt printer is unavailable an appropriate message is displayed on the front LCD.

FIGURE S423 – 1



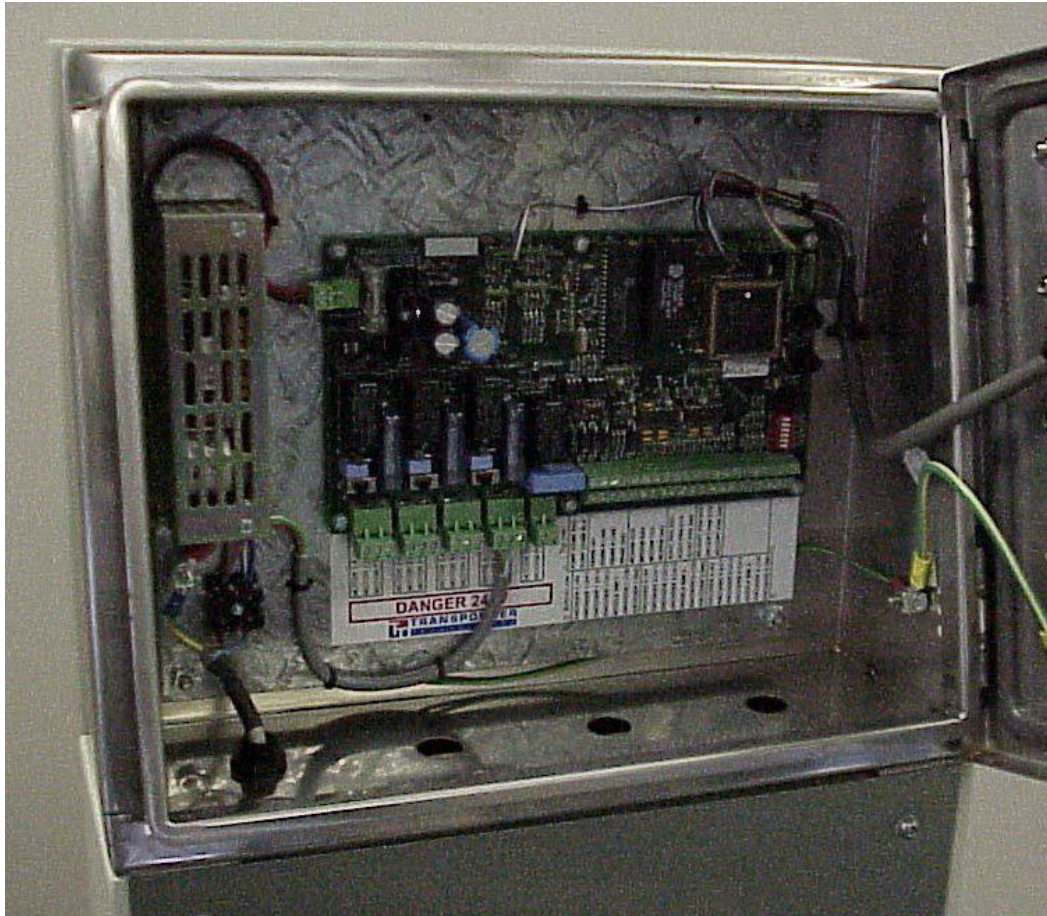
Transponder Technologies Model TT4000 DCA Control System – Pattern

FIGURE S423 – 2



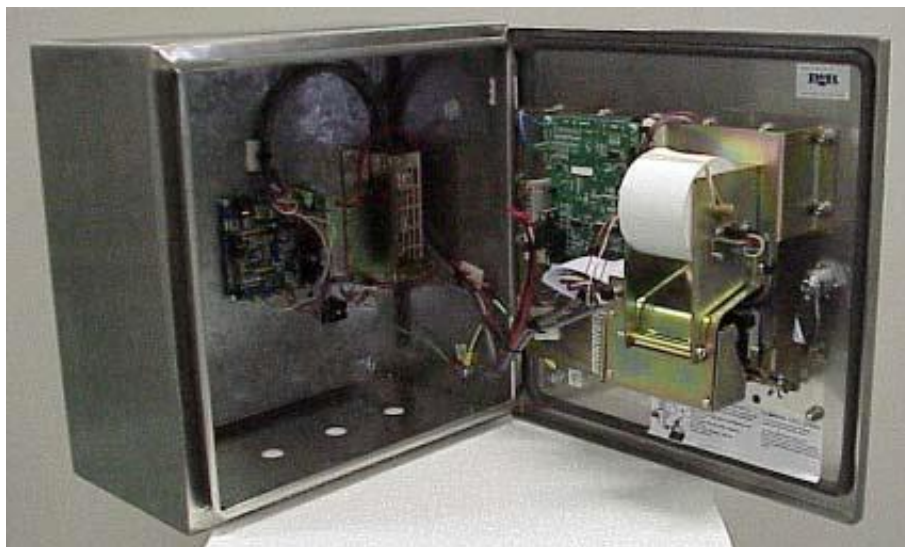
Transponder Technologies Model TT4000 DCA Control System – Pattern

FIGURE S423 – 3



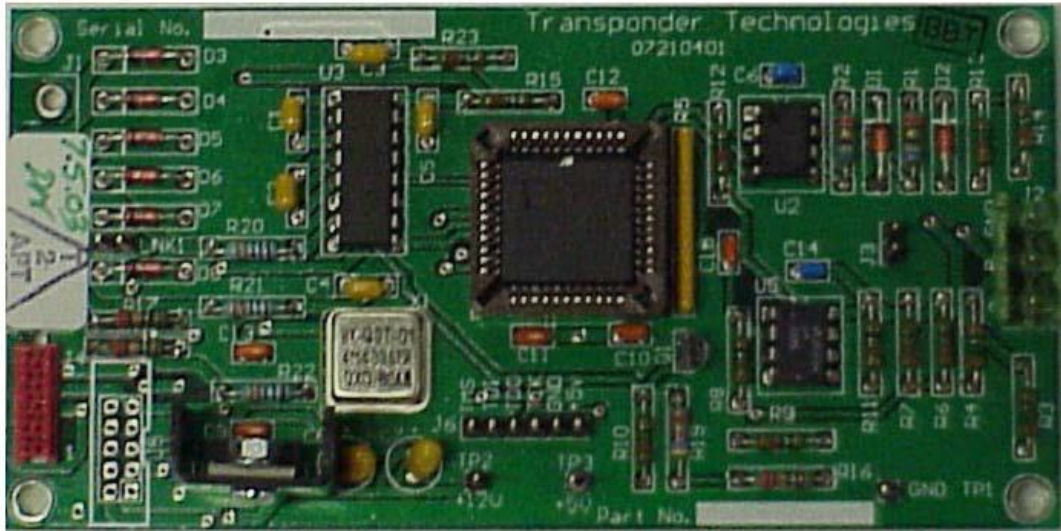
Model TT3400 CAS Control System – Variant 1

FIGURE S423 – 4

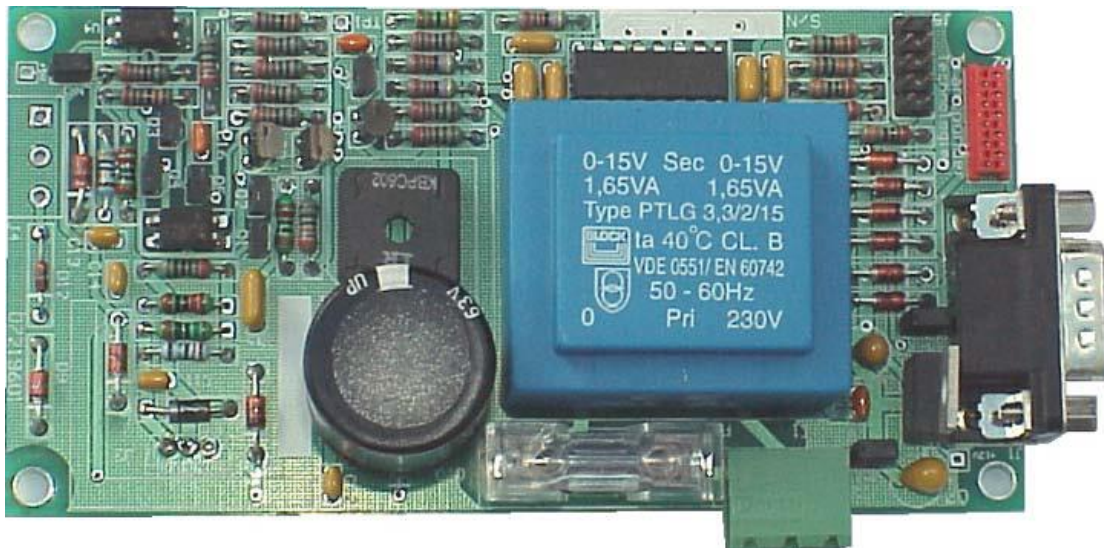


Model TT3500 CAS Control System – Variant 2

FIGURE S423 – 5



Transponder Technologies Email Protocol Communication Converter
– Variant 3



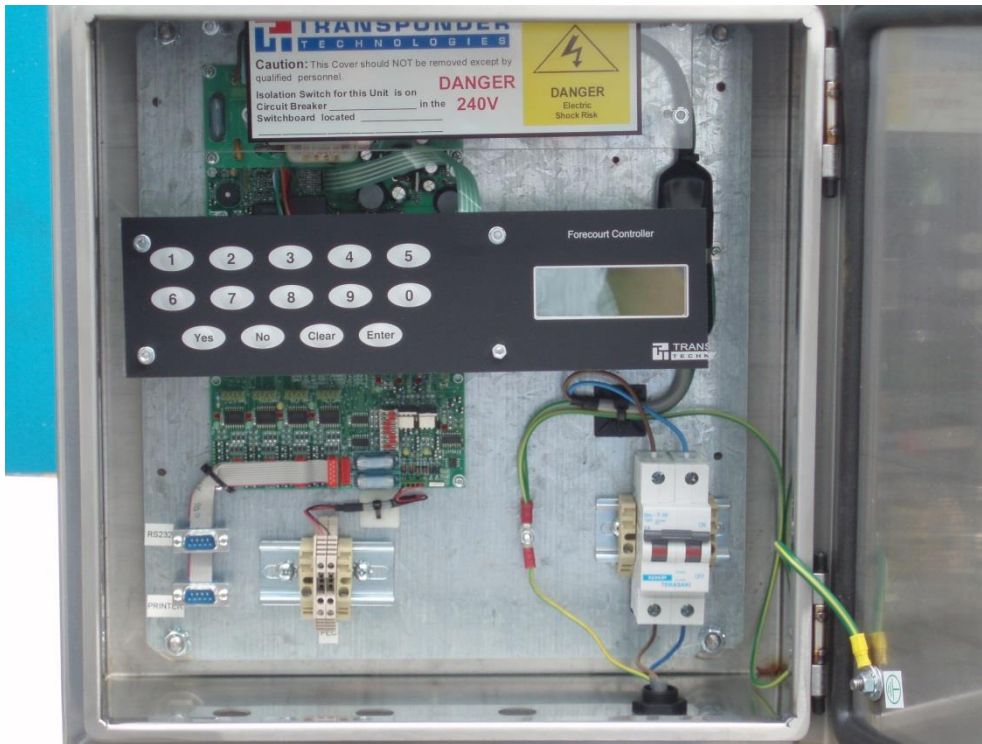
Transponder Technologies Gilbarco Protocol Communication Converter
– Variant 3

FIGURE S423 – 6



Transponder Technologies Model TT3000 DCA2 'Driveway Card Acceptor'
– Variant 5

FIGURE S423 – 7



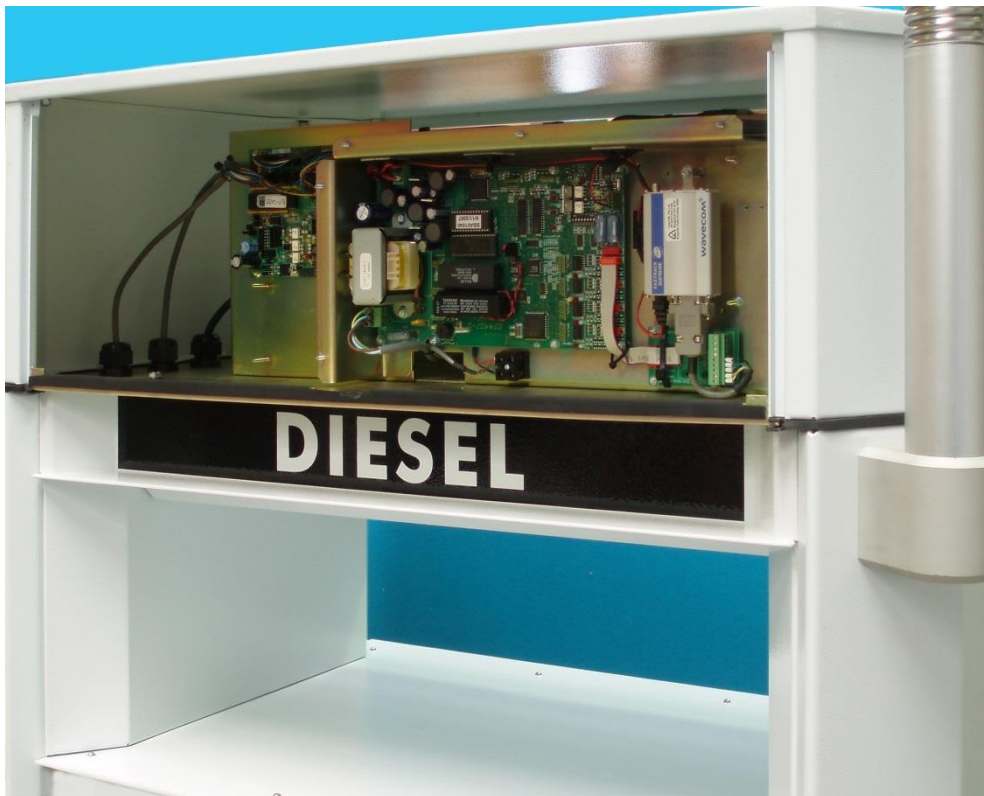
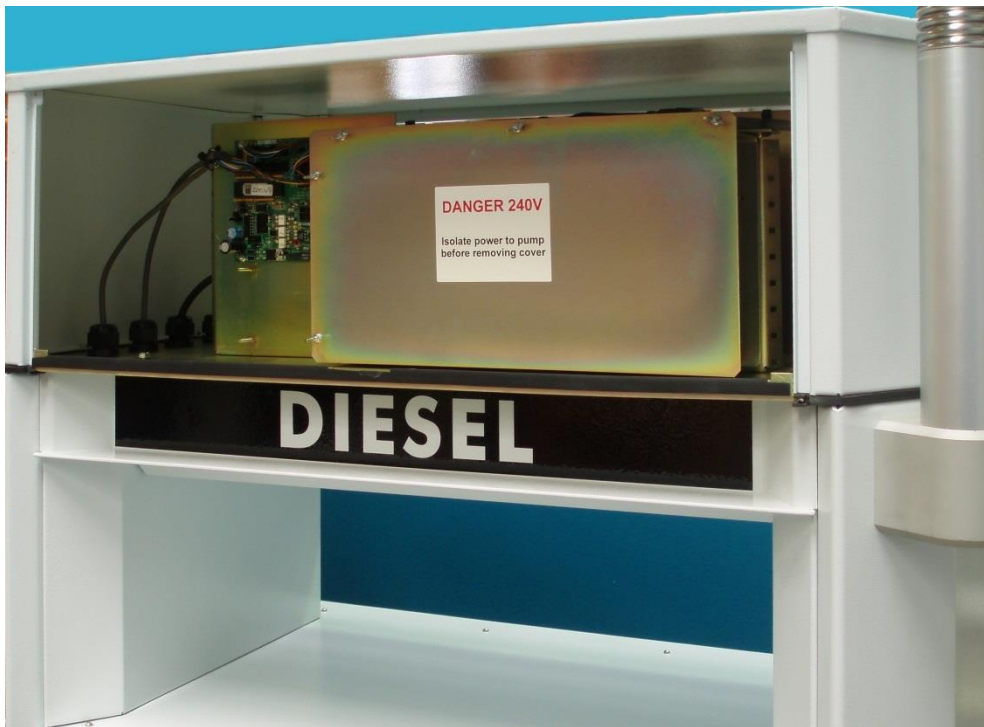
Transponder Technologies Model TT3000 SC 'Site Controller' – Variant 6

FIGURE S423 – 8



Transponder Technologies Model TT3000 MC 'Mobile Controller' – Variant 7

FIGURE S423 – 9



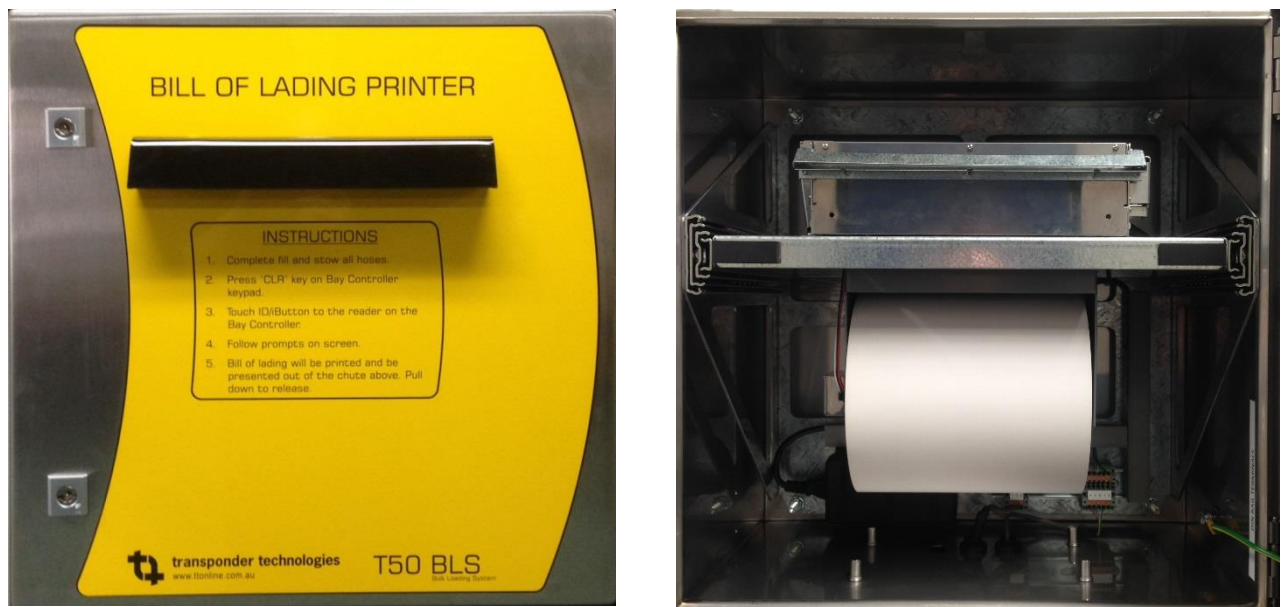
Transponder Technologies Model TT3000 CIP 'Controller-in-Pump' – Variant 8

FIGURE S423 – 10



Transponder Technologies Model T50 Bay Controller – Variant 9

FIGURE S423 – 11



Model T50 Bay Controller Bill of Loading Printer – Variant 9