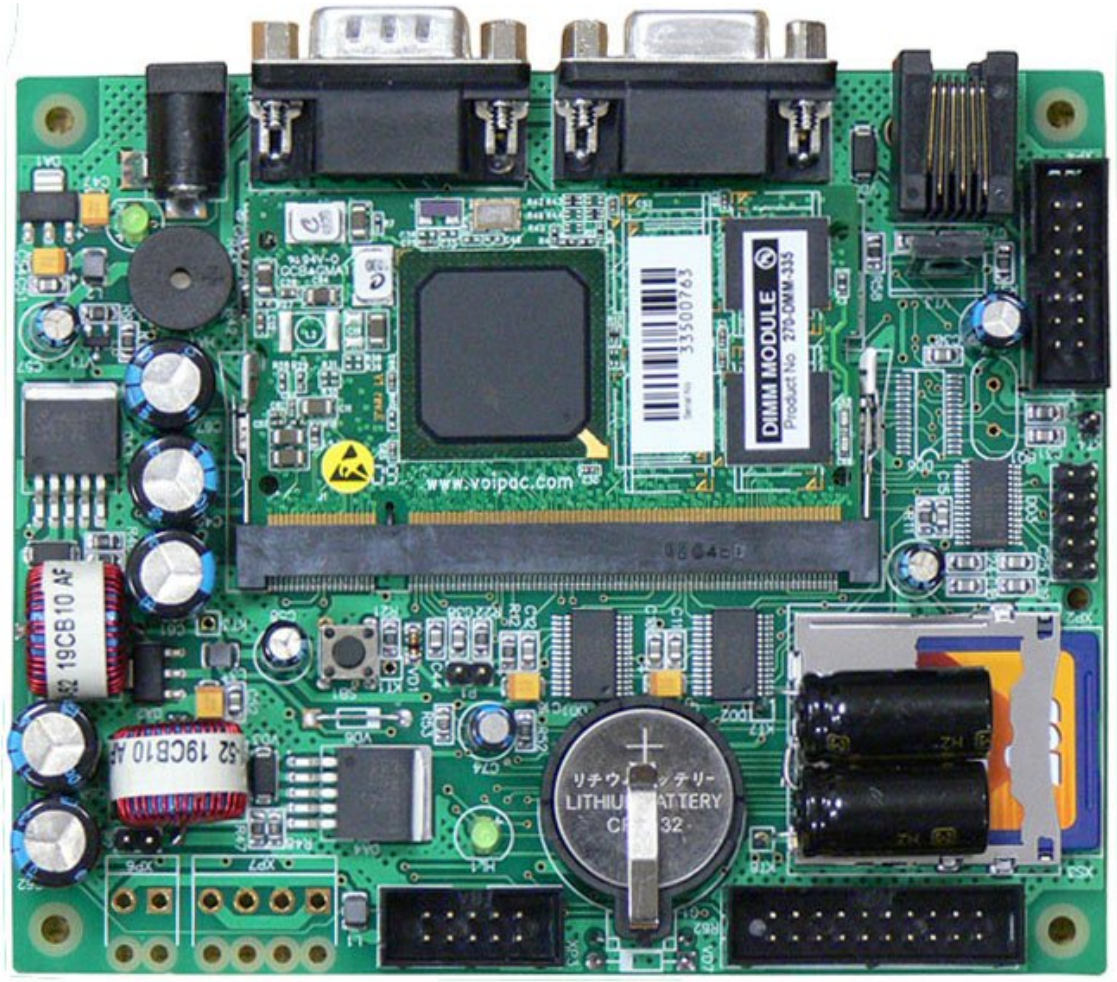
Fiscal module (FM)
for petrol stations' POS systems



TECHNICAL GUIDE

Review date: 11 Nov 2010

"TECHNOTRADE LTD"

PURPOSE

Fiscal module (FM) for petrol stations' POS systems is intended to be used in structure of a POS system or a cash register for petrol stations to provide

- registration of sales,
- calculation of taxes,
- storing of financial information in non-volatile memory,
- execution of fiscal reports.

TECHNICAL FEATURES

Specification:	
Voltage	24 V DC
Current consumption	1 A max
Temperature range	0°C ÷ +70°C
Weight	240 g
Dimensions	122 x 107 x 20 mm

Communication ports:	
PC port	RS-232
Controller over fuel dispensers port	RS-232
Receipts printer port	RS-232
Pole display port	RS-232
Cash drawer port	+12-24 V Key
Operation log port	RS-232

Communication protocols:	
Input protocol	FM_protocol (TECHNOTRADE LTD company private protocol)
Output protocol	UniPump protocol (TECHNOTRADE LTD company private protocol)

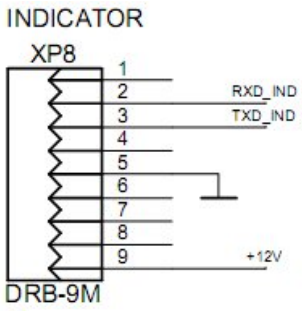
Functional characteristics

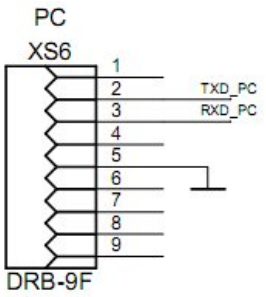
Name	Quantity	Programming	Notes
1. Working groups	1		
2. Products (services)	Up to 15000	code name price products quantity tax group department products group	0-2147483647 26 symbols
3. Departments	Up to 16	code name	 26 symbols
4. Products groups	Up to 100	code name	 26 symbols
5. Tax groups, positive and negative	6 6	tax in percents up to 99.99% for fiscal receipt (direct) tax in percents up to 99.99% for debit receipt (reverse)	writing of tax rates in FM
6. Cashiers	Up to 16	name	24 symbols
7. Description of reservoir	Up to 16	name measurement unit contracted fuel name	16 symbols 4 symbols 12 symbols
8. Filling places	Up to 16	name	12 symbols
9. Payment forms	8		

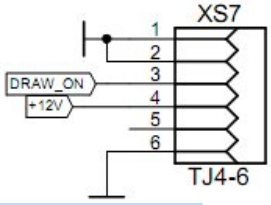
Additional functional characteristics:	
Maximal cost value of product code	9.999.999
Maximal sum of purchases	9.999.999
Maximal cumulative sum during a day on tax group	999.999.999
Maximal sum of payments for fuel on each payment form	999.999.999
Maximal sum of dispensed fuel in liters	9.999.999
Duration of data storing in RAM at switching off power supply	> 1440 hours
Quantity of digits in pole display	2 rows with 20 digits each
Quantity of decimal places	0 – 3
Receipt serial number	1 – 2147483647 (with increase)
Quantity of daily reports with nulling	2000 at 6 tax rates (6 direct and 6 reverse)
Reports: - current and with nulling; - daily and daily with nulling. **Fiscal report is a daily report with nulling.**	**Tax reports** from fiscal memory: - general, full on dates; - full on period by numbers.

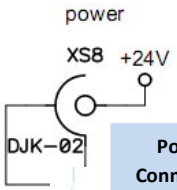
Fiscal and RAM memory of fiscal module are located on **SD-flash card** with capacity not less than 64 MB. Fiscal memory stores fiscal data.

FM BOARD CONNECTORS OVERVIEW







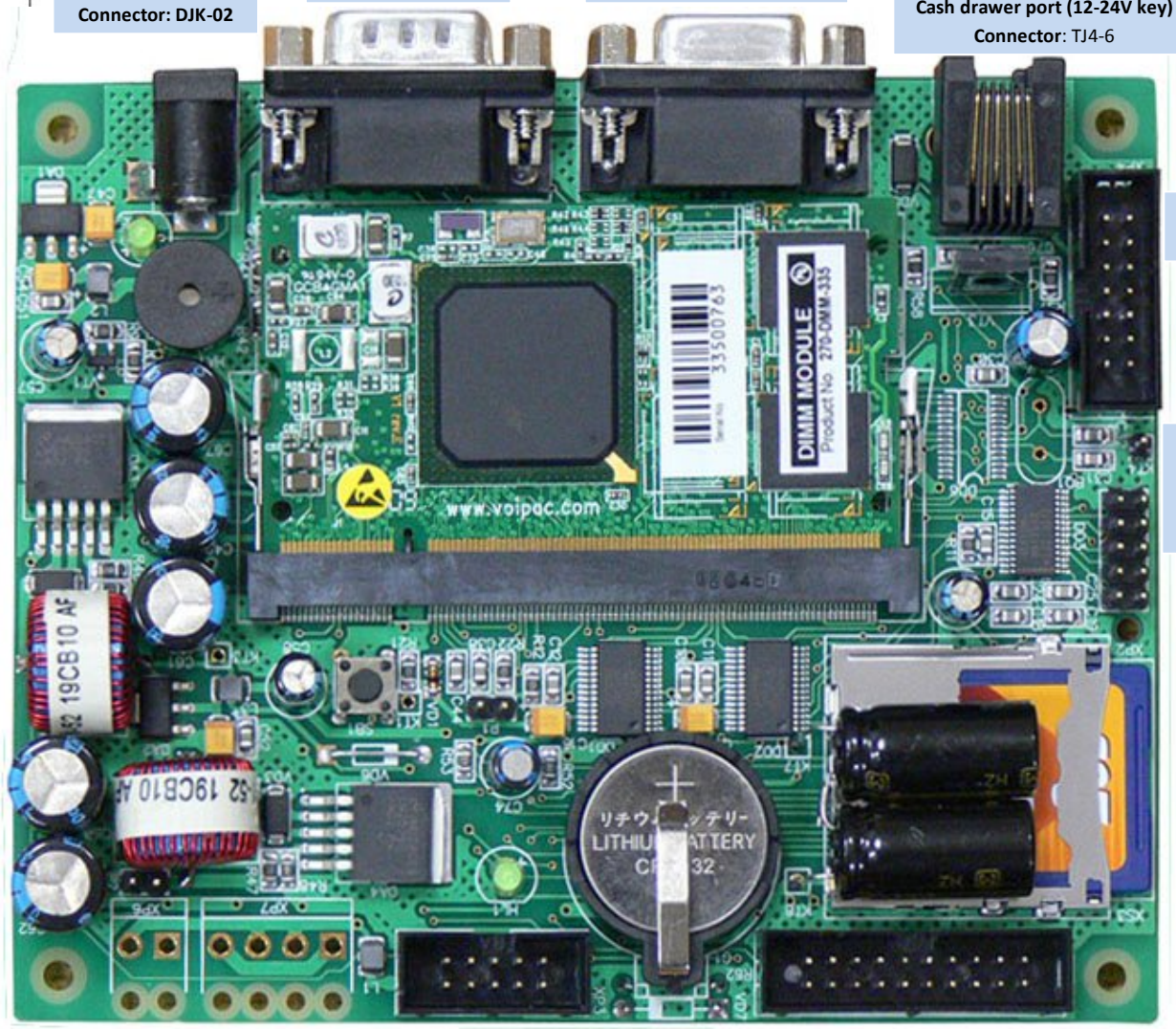


Power supply
Connector: DJK-02

PC port (RS-232)
Connector: DRB-9F

Pole display port (RS-232)
Connector: DRB-9M

Cash drawer port (12-24V key)
Connector: TJ4-6



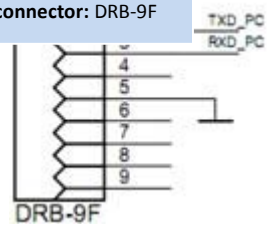
Debug port (RS-232)

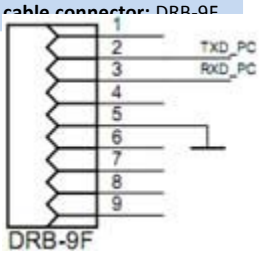
Port not used
(reserved for future versions)

Switch button and printer power supply connection cables

Controller over fuel dispensers port (RS-232)
Output cable connector: DRB-9F

Receipts printer port (RS-232)
Output cable connector: DRB-9F





CONTROL OVER FUEL DISPENSERS

FM through connected controller over fuel dispensers (PTS controller) (see link: http://deliveryproducts.com/fuel_pump_controller.html) is capable to provide simultaneous control over various types of electronic fuel delivery dispensers . Control over various fuel dispensers in FM is made through a common communication protocol UniPump, using which FM controls PTS.

Currently supported fuel dispensers are the following:

1. ADAST EASYCALL,
2. TiT UNIPUMP,
3. Wayne DART,
4. MMPetro ZAP,
5. GILBARCO Two-wire,
6. TOKHEIM Controller-Dispenser Communication protocol,
7. TATSUNO Benč PDE,
8. TATSUNO Partyline,
9. DEVELCO,
10. SAFE Graf,
11. GALILEO Pump Control,
12. Slavutich FD-Link,
13. Shelf

Quantity of protocols depends on the version of PTS controller’s firmware. New protocols are to be added in future versions of firmware.

APPLICATION OF FM

For developers under Windows OS FM is supplied together with **API (FM_server Windows OS based service)**, which is capable to provide control over FM in Windows for facilitating of development and reducing of development time.

In Technotrade's POS system for petrol stations POS.21 FM with PTS are situated in a tray of thermal receipts printer Epson TM-T260F.

POS.21 system on the basis of FM

FM and PTS controller are situated in EPSON receipts printer tray

Receipts printer Epson TM-T260F characteristics:	
Print method	Thermal print of receipt and control tapes 203 x 203 dpi
Symbol size	Font A: 1.25 mm X 2.50 mm Font B: 0.875 mm X 2.0 mm
Line length	Font A: 40 symbols Font B: 49 symbols
Print speed	100 mm/sec
Print tape width	60 mm