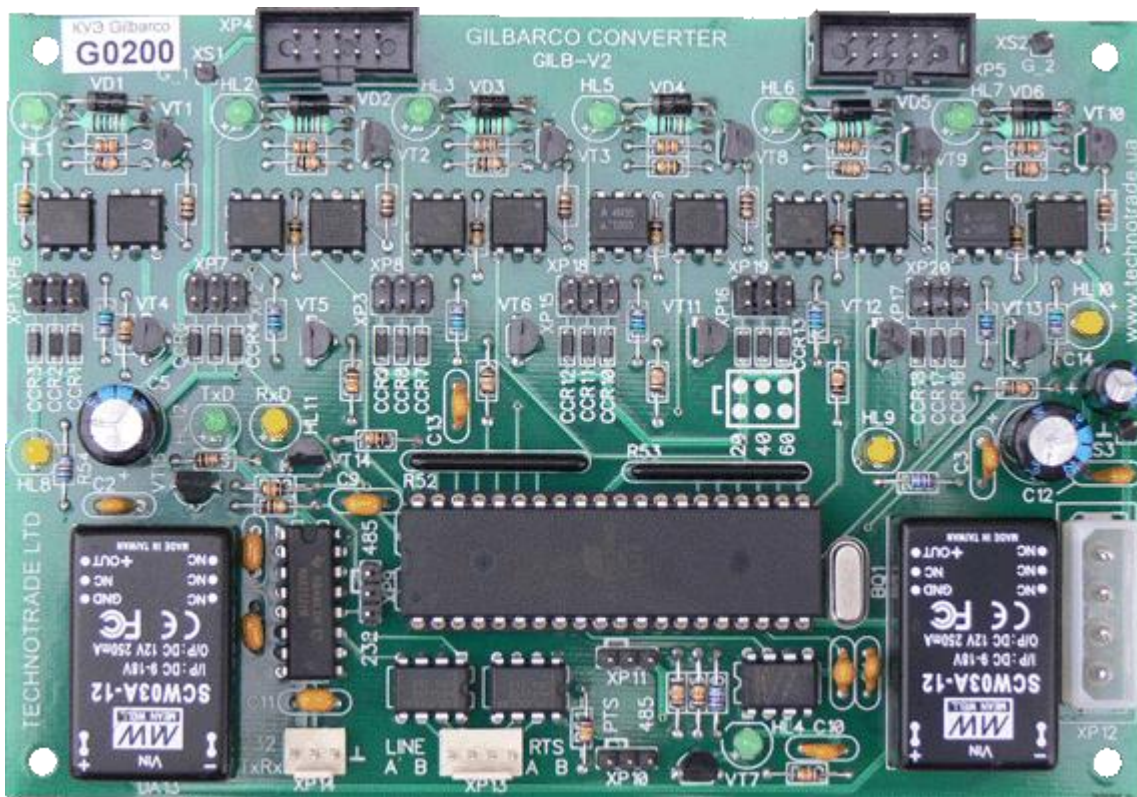


Gilbarco dispensers interface converter (2-wire current loop to RS-485/RS-232 and backwards)



TECHNICAL GUIDE

Review date: 03 May 2013

Revision number: 1.03

PCB board revision: GILB-V2

TECHNOTRADE LTD

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REVISION HISTORY

REV	DATE	BY	SECTION	DESCRIPTION
1.03	03.05.2013	EV	Connection schemes updated	Updated schemes of fuel dispensers connection
1.02	06.01.2013	EV	All	Sections review for PCB revision GILB-V2
1.01	03.08.2012	EV	All	First release

PURPOSE OF THE DOCUMENT

This Technical Guide is intended for studying of Gilbarco dispensers interface converter. It contains basic information regarding its board interfaces and connectors, configuration and adjustments, connection to fuel dispensers and external control systems (POS systems, cash registers, OPT terminals, etc), cabling. Information regarding connection to specific models of fuel dispensers and correspondent configuration of the Gilbarco dispensers interface converter can be received upon request to TECHNOTRADE LTD company.

Due to a reason that Gilbarco dispensers interface converter is constantly being developed in direction of improvements of its possibilities, changes are possible in final version, which are not described in given Technical Guide.

During the system development process given Technical Guide will be also expanded and updated and new chapters will be added. Latest version of this Technical Guide can be downloaded from the Gilbarco dispensers interface converter web-page: http://www.technotrade.ua/gilbarco_interface_converter.html.

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In case if you find any mistakes, omissions in this document or have any suggestions on improvements to this document, please feel free to e-mail them to our support mailbox: support_1a@technotrade.ua. We will be grateful to you for this valuable information.

All technical questions regarding the Gilbarco dispensers interface converter are welcome to be asked on support mailbox: support_1a@technotrade.ua. Our support team will be glad to help you.

Also you can call to us or visit us on:

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APPOINTMENT

Gilbarco dispenser interface converter (2-wire current loop to RS-485/RS-232 and backwards) is intended for communication with fuel dispensers, which use 2-wire current loop interface, through interfaces:

- RS-232,
- RS-485 (half-duplex),
- RS-485 (full-duplex),
- RS-485 (half-duplex with control over RTS) – used for PTS controller over fuel dispensers and ATG systems for petrol stations (http://www.technotrade.ua/fuel_pump_controller.html).

Although the interface converter is called 'Gilbarco dispenser interface converter' cause mostly Gilbarco dispensers use 2-wire current loop interface, this interface converter can also be applied for communication with other brands of fuel dispensers, which use 2-wire current loop for communication with control systems.

Some of fuel dispenser brands, which use 2-wire current loop:

- Salzkotten
- Batchen Email
- Prowalco
- Wayne Dresser (USCL communication protocol)
- PetroTec
- EuroPump
- Mekser
- Meksan
- Petposan
- PEC (Gallagher Fuel Systems)
- Bennett
- Falcon LPG
- Greenfield

TECHNICAL SPECIFICATIONS

Specification

Power supply voltage	+12 V DC, +5 V DC
Current consumption	200 mA max
Temperature range	-40°C ÷ +80°C
Weight	120 g
Dimensions	145 x100 x 20 mm

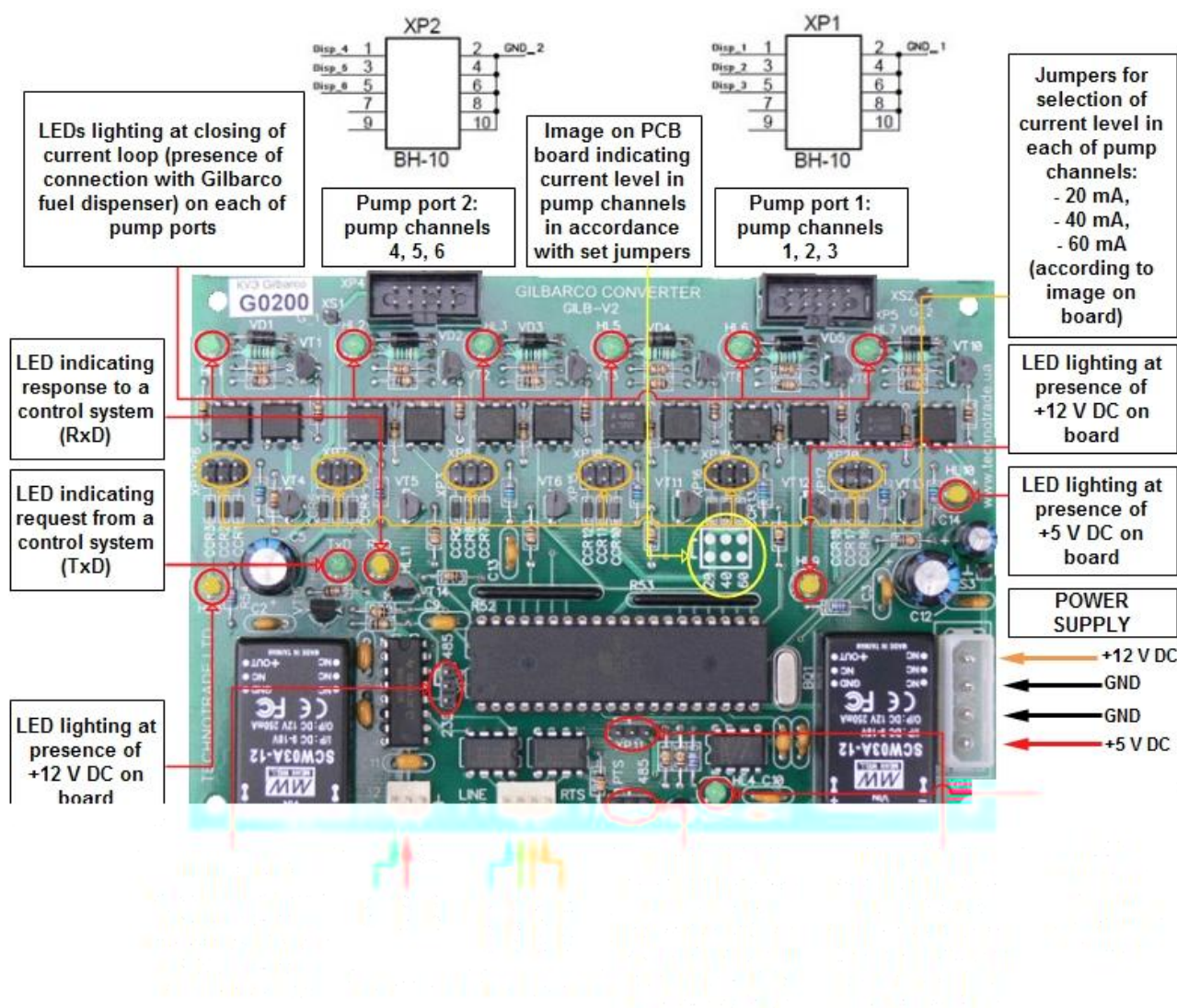
Technical characteristics

Current level in current loop interface	Adjustable using jumpers XP1, XP2, XP3, XP6, XP7, XP8, located on Gilbarco PCB board, selected values: 30 mA, 45 mA, 60 mA
Current loop generator	Current generator

Communication ports

PORT NAME		INTERFACE	PURPOSE
PC PORT	PC PORT (RS-232)	RS-232	Selection of interface is made using jumpers XP9, XP10, XP11, located on Gilbarco PCB board. Interface RS-485 (half-duplex with control over RTS), which is marked as PTS on PCB board serves for connection with PTS controller over fuel dispensers and ATG systems for petrol stations (http://www.technotrade.ua/fuel_pump_controller.html)
	PC PORT (RS-485)	RS-485 (half-duplex), RS-485 (full-duplex), RS-485 (half-duplex with control over RTS)	
PUMP PORT	Pump port 1	Optically isolated Gilbarco active current loop	Connection with Gilbarco fuel dispensers using 2 wires. One Gilbarco dispenser is to be connected to each of the pump ports.
	Pump port 2		
	Pump port 3		
	Pump port 4		
	Pump port 5		
	Pump port 6		

PCB BOARD CONNECTORS OVERVIEW



NOTE!

Jumpers XP9, XP10, XP11 serve for selection of interface:

- RS-232,
- RS-485 (half-duplex),
- RS-485 (full-duplex),
- RS-485 (half-duplex with control over RTS) – used for communication with PTS controller over fuel dispensers and ATG systems for petrol stations.

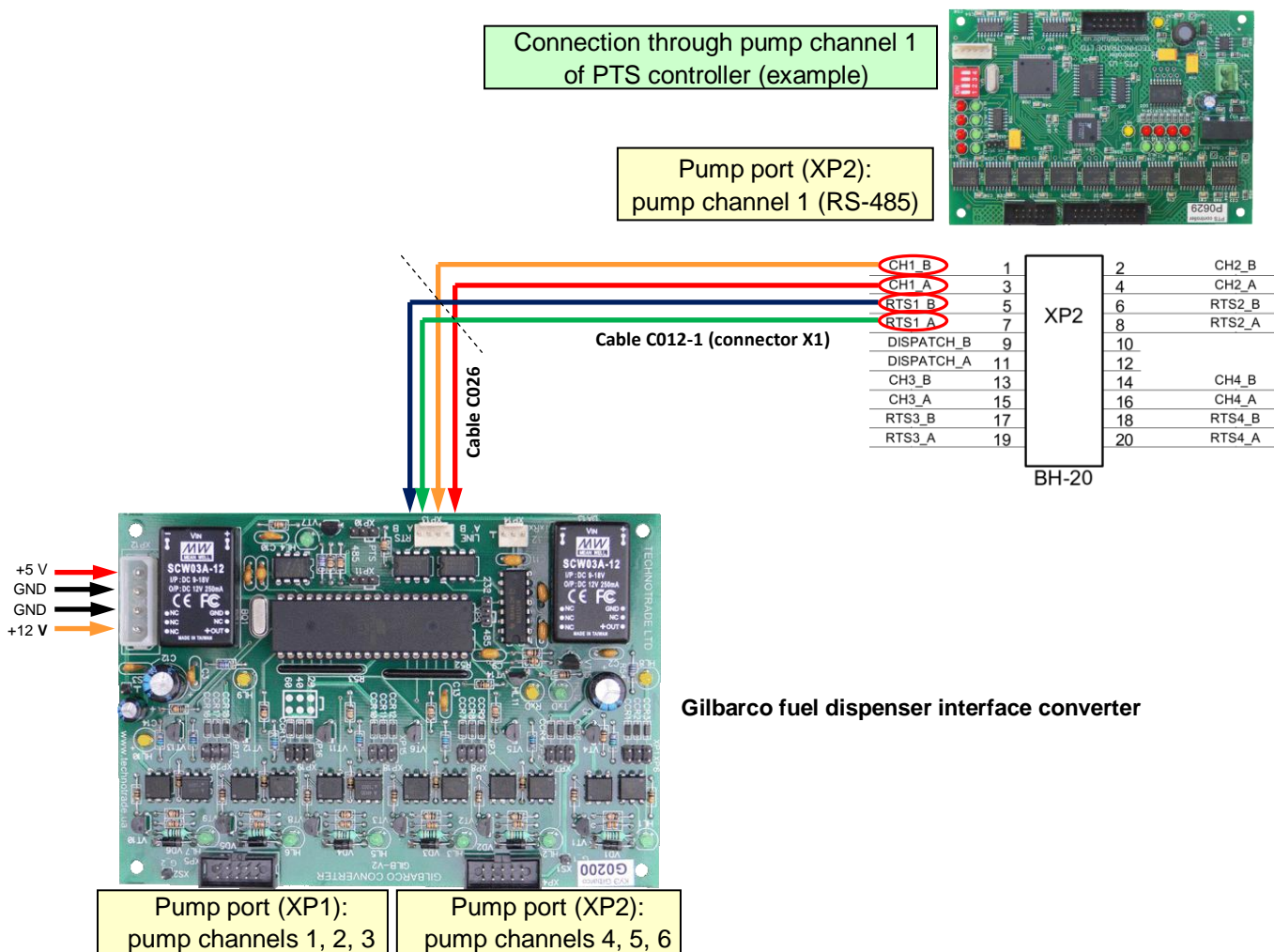
Jumpers for selection of current level in each of the pump channels are adjusted in accordance with an image located on PCB board, which indicates current level in pump channel in accordance with set jumpers. Possible current levels:

- 20 mA,
- 40 mA,
- 60 mA.

In case if there is no jumper set current level in pump channel will equal 0 and pump channel will not operate.

CONNECTION SCHEME TO PTS CONTROLLER

Information about PTS controller over fuel dispensers and ATG systems can be found on PTS controller web-page: http://www.technotrade.ua/fuel_pump_controller.html.

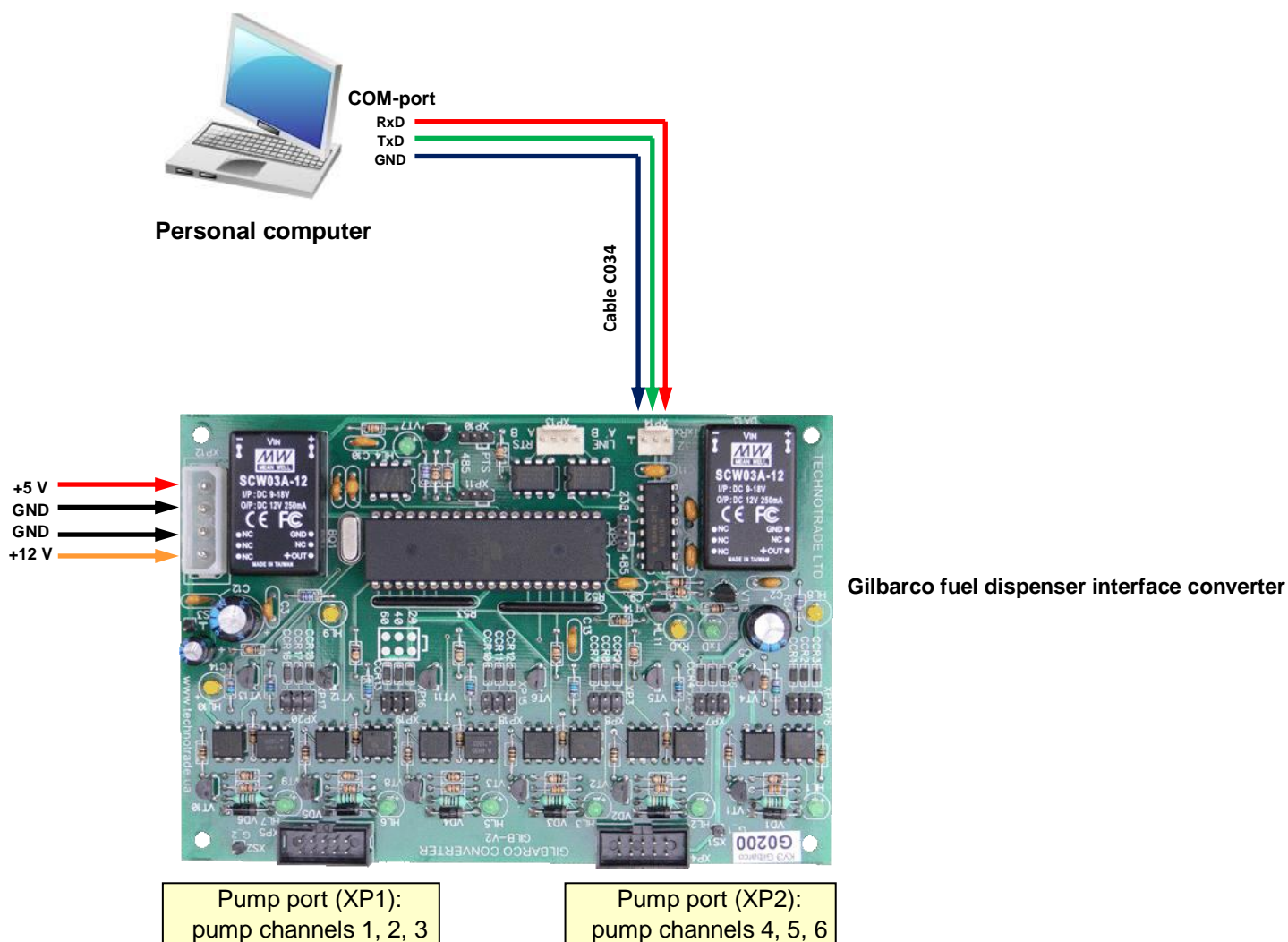


Position of jumpers and state of LEDs on the interface converter board:

- Jumper XP9 should be in position 485
- Jumper XP10 should be in position PTS
- Jumper XP11 should be in position PTS
- LED HL4 indicating normal operation of firmware should be shining
- LEDs HL8, HL9 and HL10 should be shining, which indicate presence of 5 V DC and 12 V DC on the board
- LEDs HL24 and HL25 should be blinking, which indicated communication with the PTS controller
- LED on pump channel, where the dispenser is connected (HL1 or HL2 or HL3 or HL5 or HL6 or HL7) should be constantly shining at closing of the current loop interface, if the LED is not shining - then current loop is not closed or connection is done incorrectly: '+' may by mistake be connected with '-' in dispenser pumphead
- On pump channel, where dispenser is connected, jumpers for setting of current level in the channel should be set (jumper XP1, XP2, XP3, XP6, XP7, XP8). If there is only 1 jumper – current in channel is 20 mA, 2 jumpers – 40 mA, 3 jumpers – 60 mA. If there are no jumpers set - no current in line.

CONNECTION SCHEME TO PC COM-PORT

Control over dispensers through the interface converter from a personal computer:

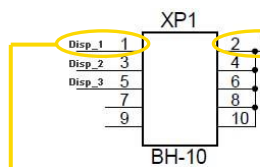


Position of jumpers and state of LEDs on the interface converter board:

- Jumper XP9 should be in position 232
- LED HL4 indicating normal operation of firmware should be shining
- LEDs HL8, HL9 and HL10 should be shining, which indicate presence of 5 V DC and 12 V DC on the board
- LEDs HL24 and HL25 should be blinking, which indicated communication with the PC
- LED on pump channel, where the dispenser is connected (HL1 or HL2 or HL3 or HL5 or HL6 or HL7) should be constantly shining at closing of the current loop interface, if the LED is not shining - then current loop is not closed or connection is done incorrectly: '+' may by mistake be connected with '-' in dispenser pumphead
- On pump channel, where dispenser is connected, jumpers for setting of current level in the channel should be set (jumper XP1, XP2, XP3, XP6, XP7, XP8). If there is only 1 jumper – current in channel is 20 mA, 2 jumpers – 40 mA, 3 jumpers – 60 mA. If there are no jumpers set - no current in line.

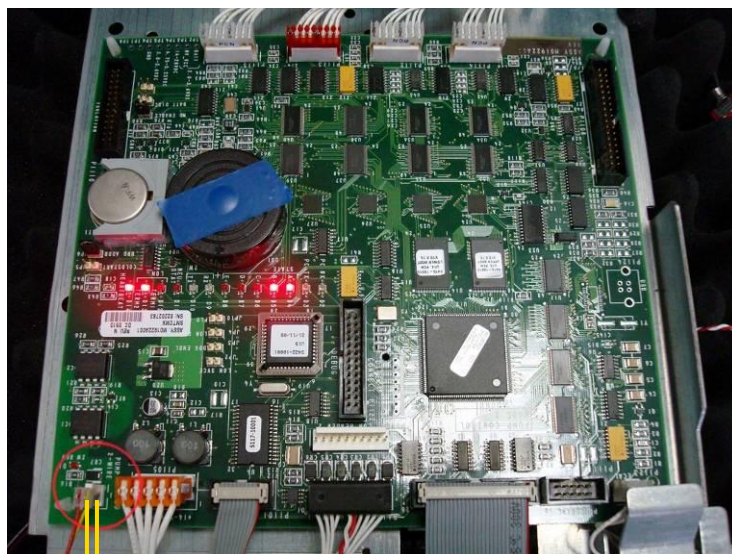
EXAMPLES OF FUEL DISPENSERS CONNECTION SCHEMES

Gilbarco dispenser connection scheme

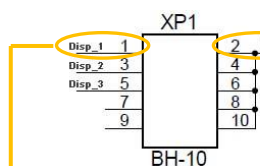


Connection through first channel of
Gilbarco converter (example)

Cable C027

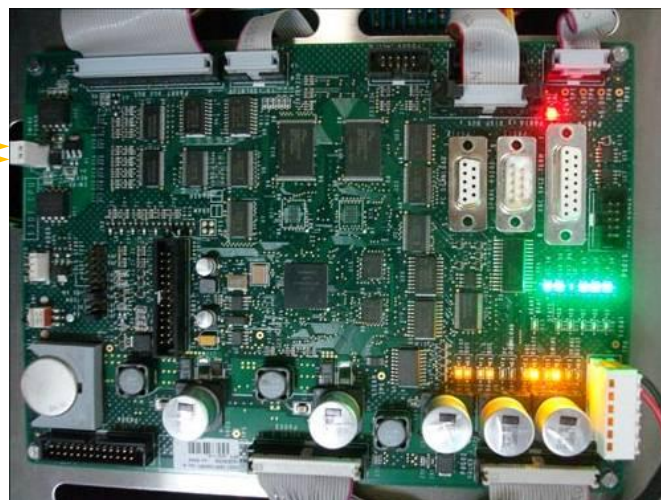


Gilbarco Encore 500 dispenser board

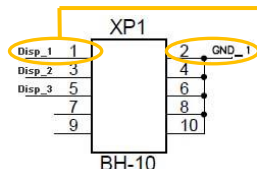


Connection through first channel of
Gilbarco converter (example)

Cable C027

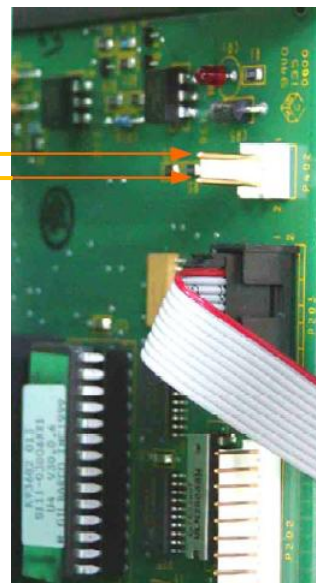


Gilbarco dispenser ASSY M06104A001 rev. B board

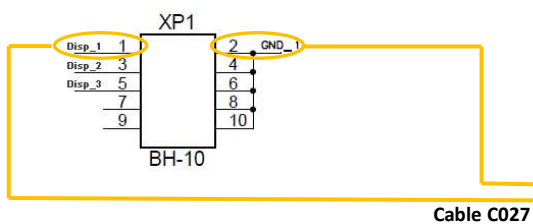


Connection through first channel of
Gilbarco converter (example)

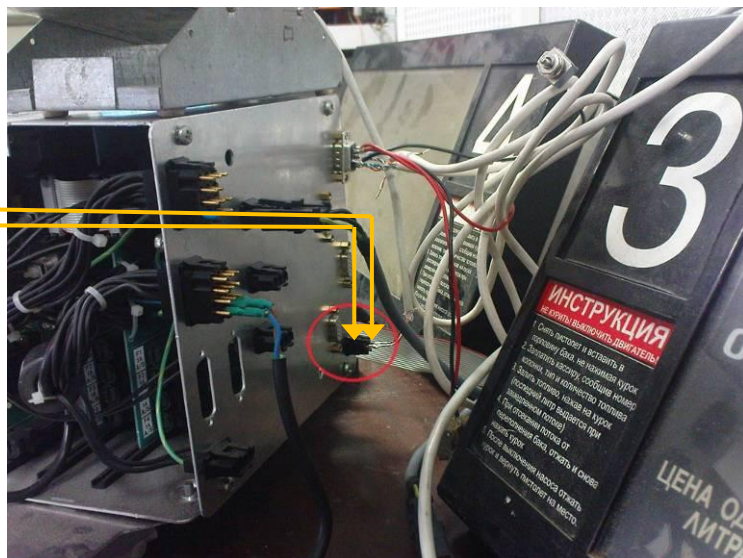
Cable C027



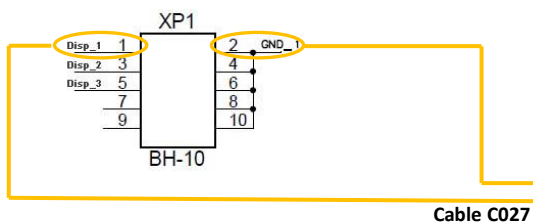
Gilbarco dispenser board



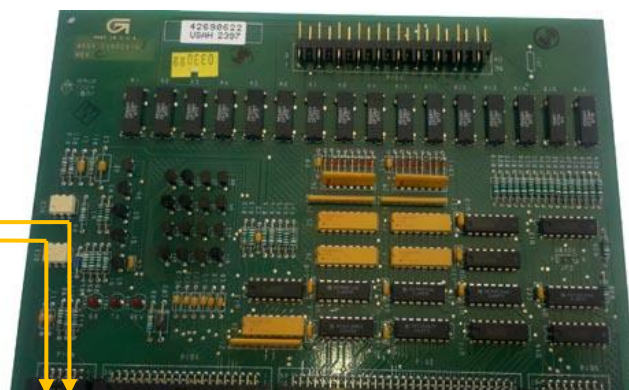
Connection through first channel of
Gilbarco converter (example)



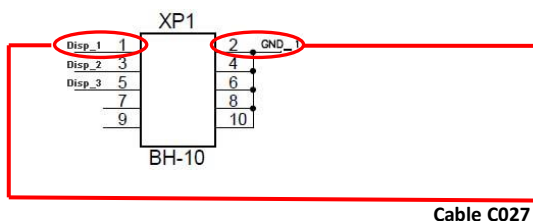
Gilbarco Euroline dispenser board



Connection through first channel of
Gilbarco converter (example)



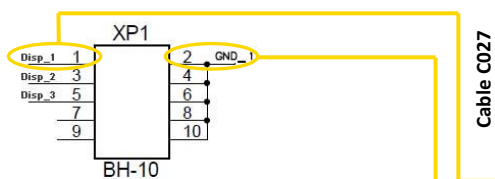
Gilbarco Highline / Dimension Assy dispenser board



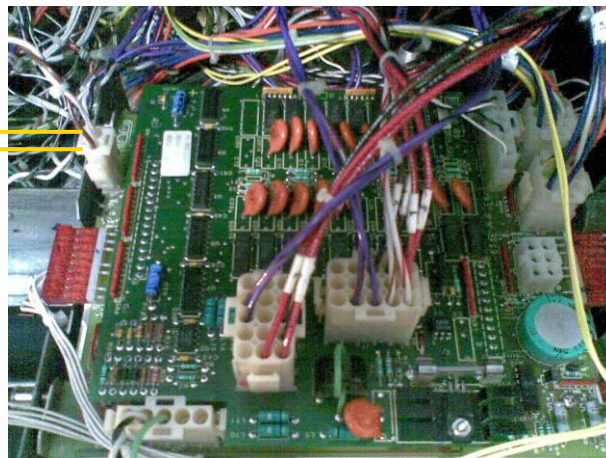
Connection through first channel of
Gilbarco converter (example)



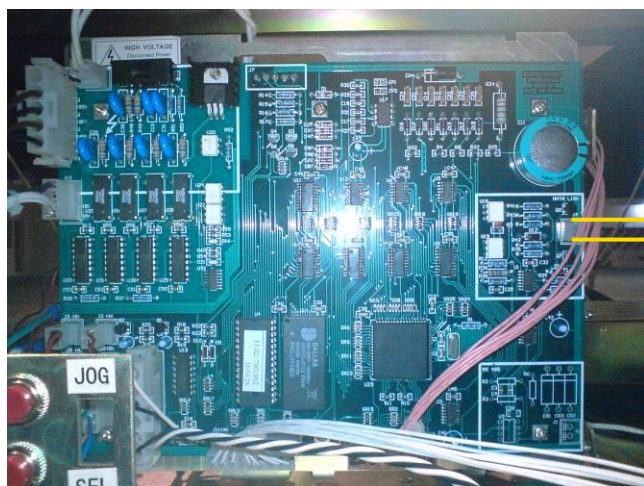
Gilbarco Endeavor dispenser board

Wayne Dresser dispenser connection scheme (current loop interface)

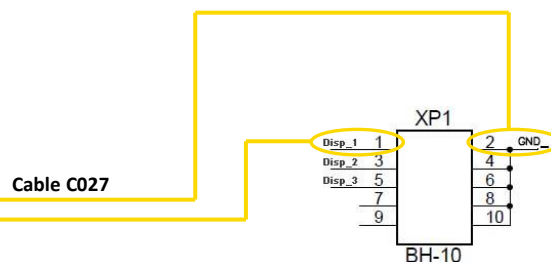
Connection through first channel of
Gilbarco converter (example)



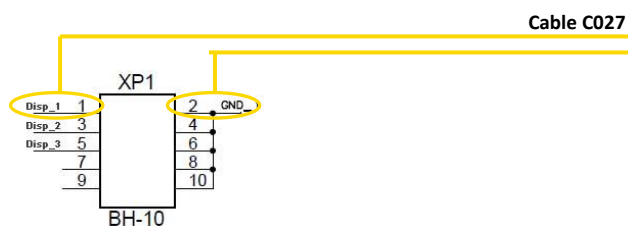
Wayne Dresser dispenser board



Wayne Dresser dispenser board



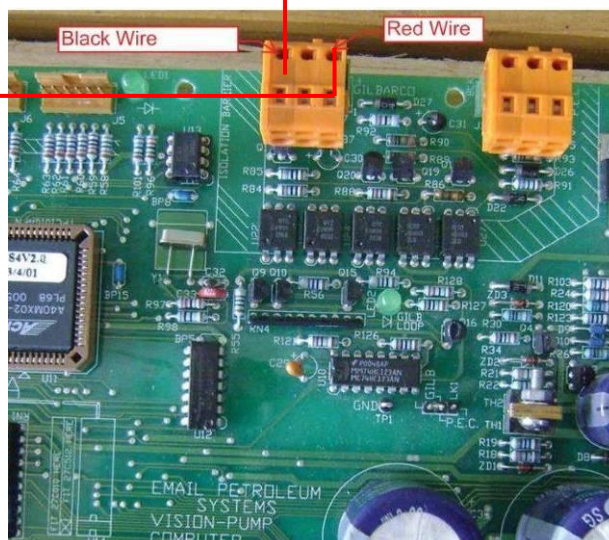
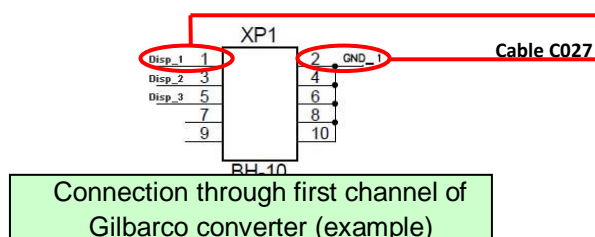
Connection through first channel of
Gilbarco converter (example)



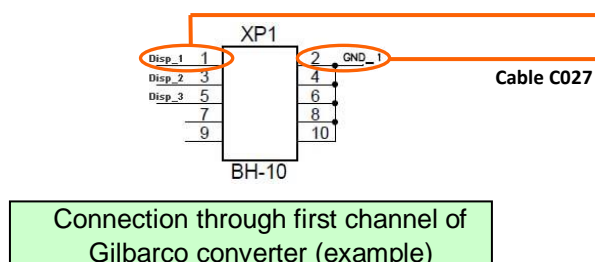
Connection through first channel of
Gilbarco converter (example)



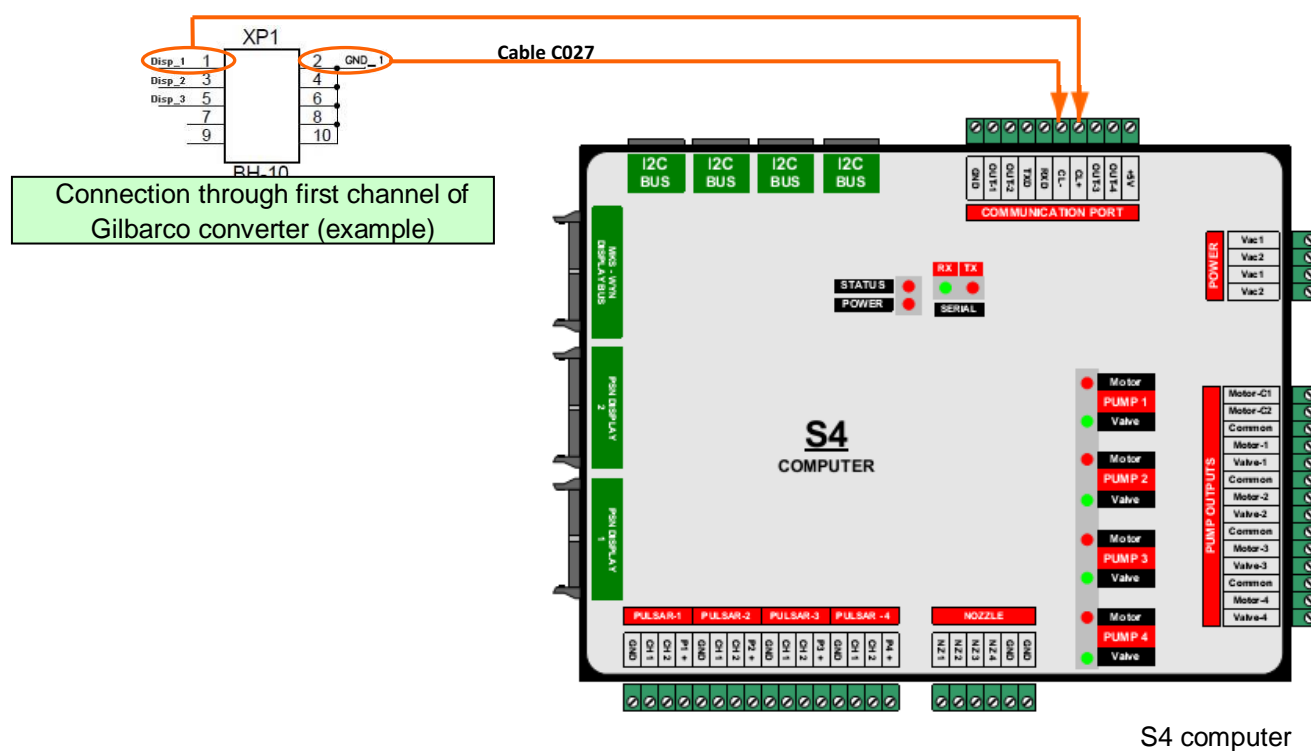
Wayne Dresser dispenser iGEM board

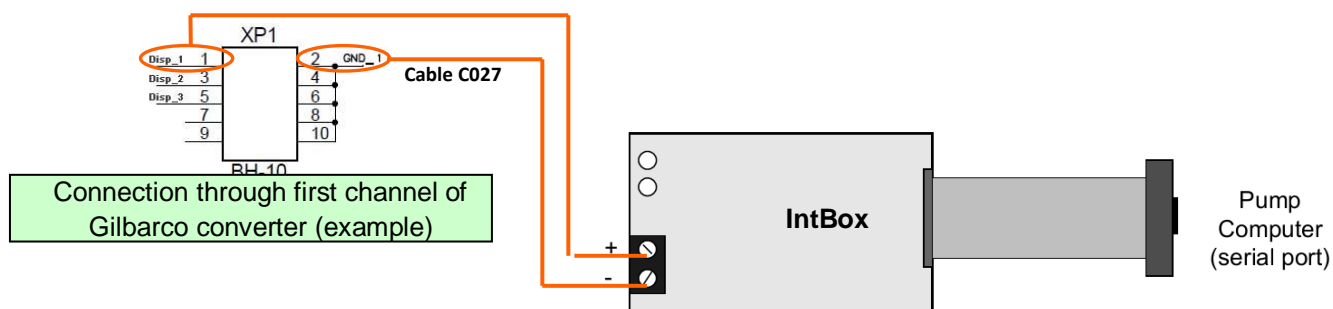
Batchen Email dispenser connection scheme

Batchen dispenser board



Batchen dispenser board

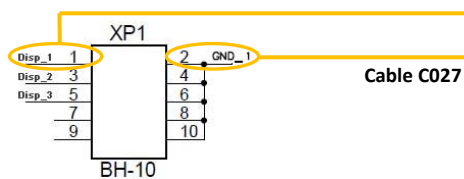
PETPOSAN-S4 / MEKSAN-S4 / EUROPUMP-S4 dispensers connection scheme

PETPOSAN-Beta / EUROPUMP-Beta dispensers connection scheme

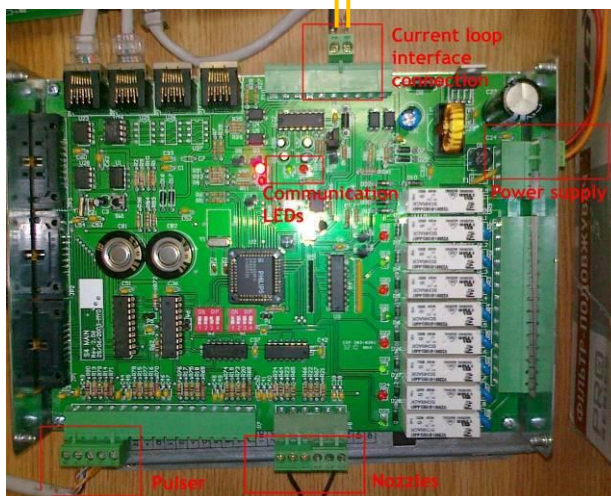
Petposan-Beta CPU



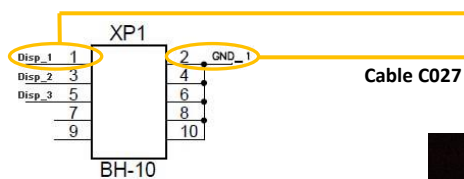
EuroPump dispenser connection scheme



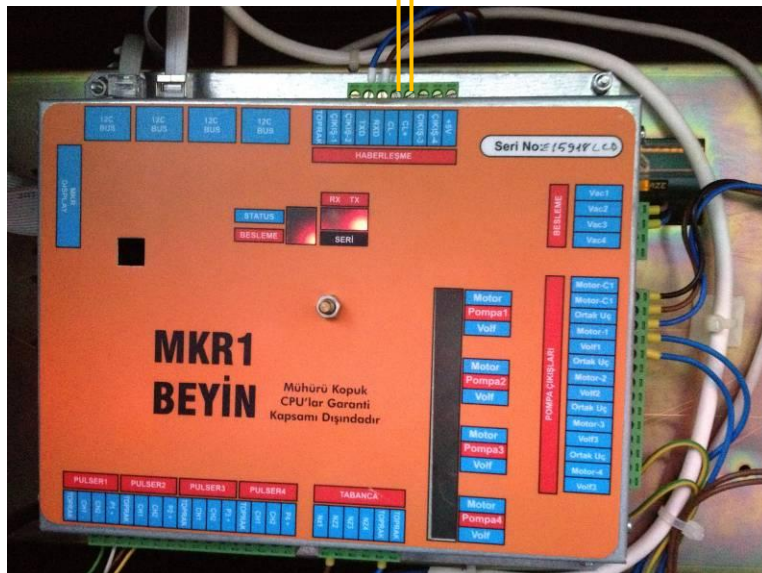
Connection through first channel of
Gilbarco converter (example)



EuroPump dispenser board

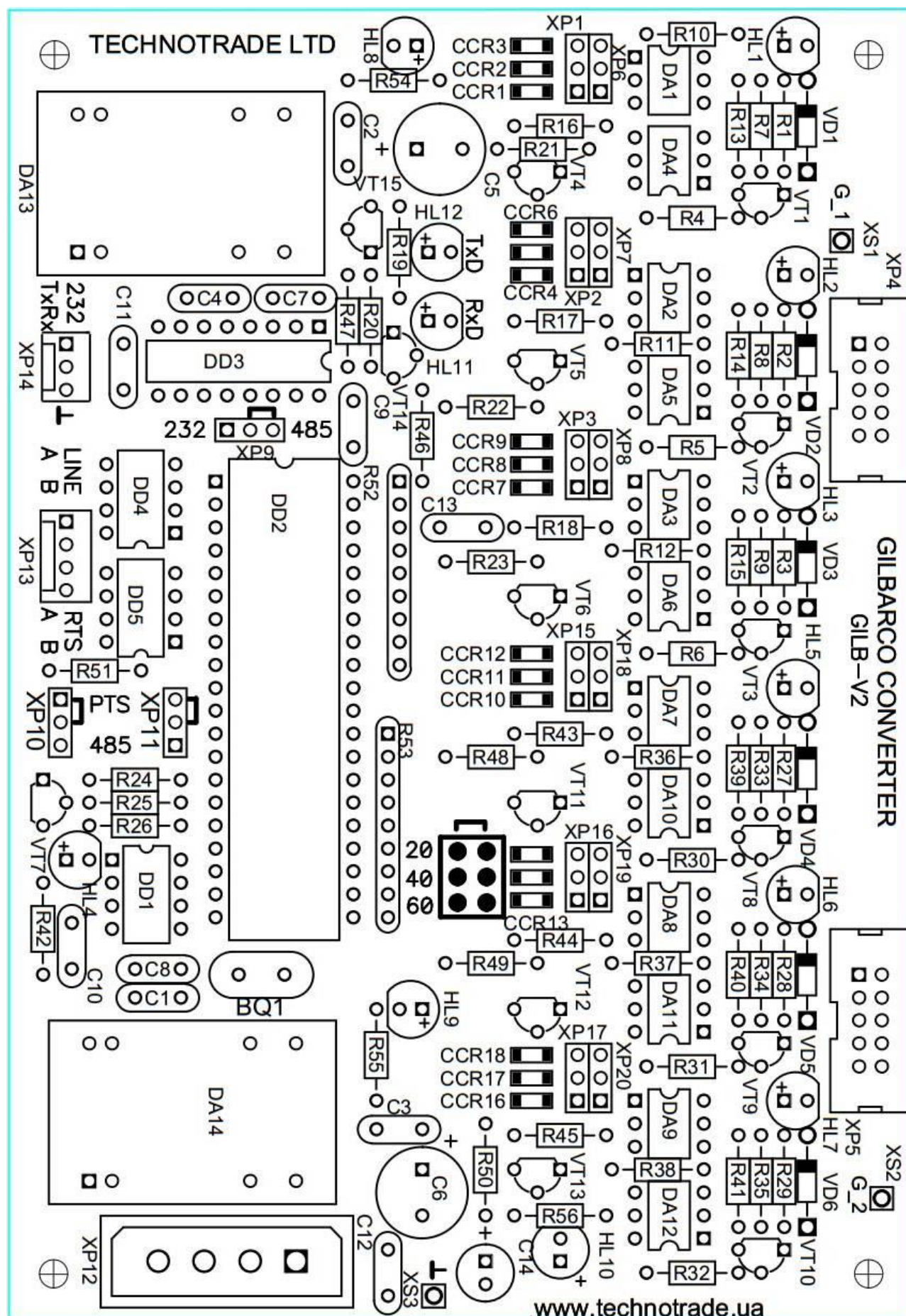
Mekser dispenser connection scheme

Connection through first channel of
Gilbarco converter (example)

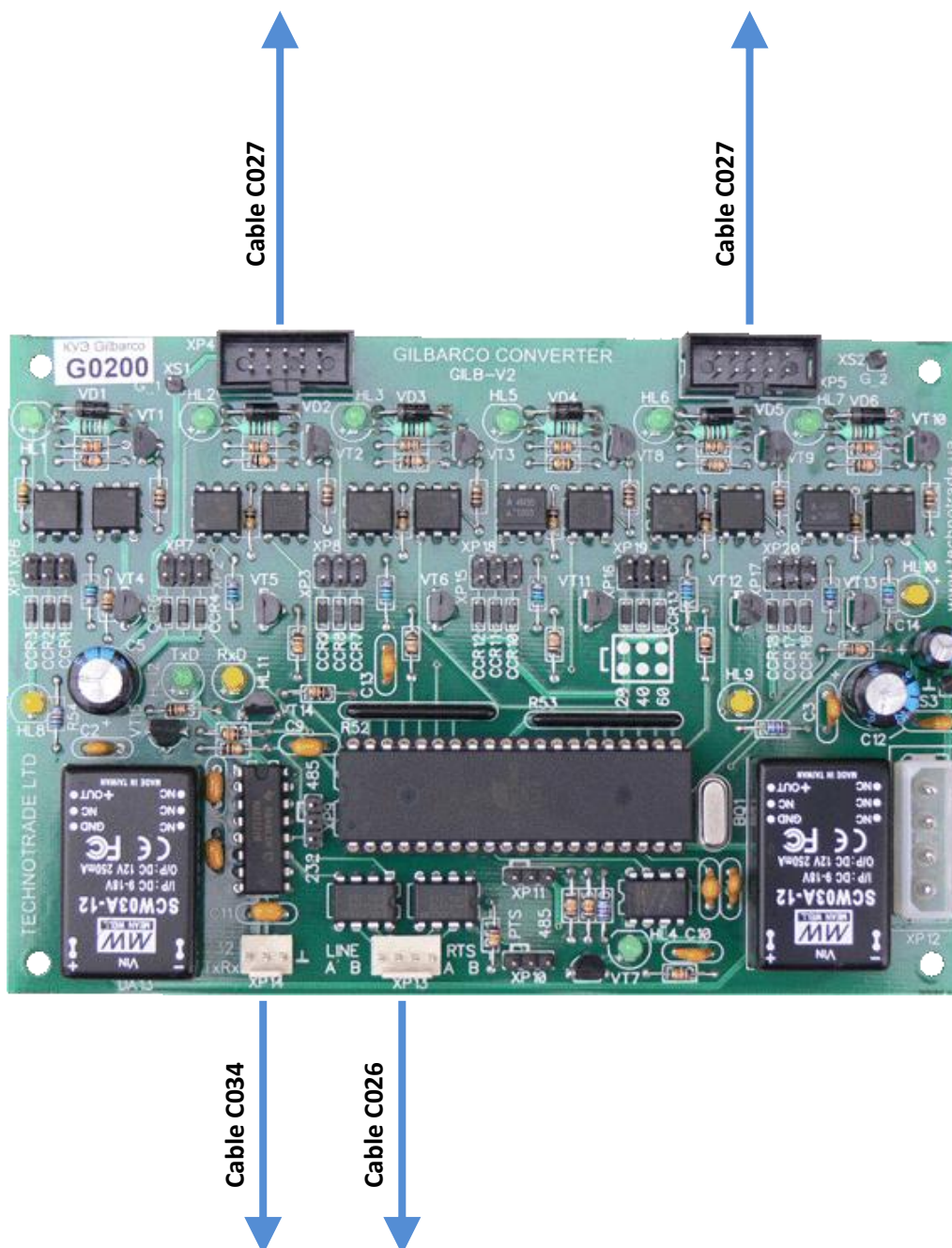


Mekser dispenser board

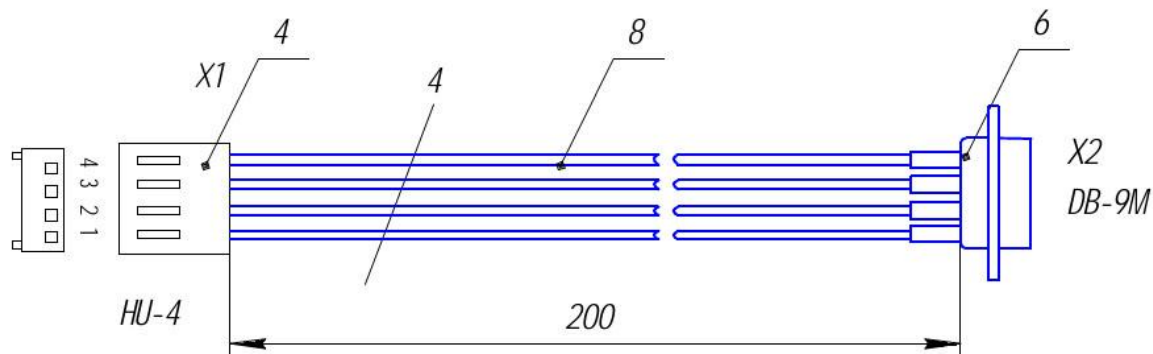
PCB MOUNTING BOARD



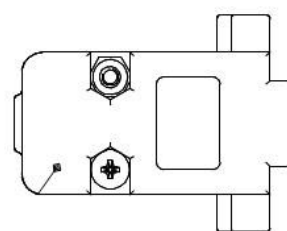
CABLINGS



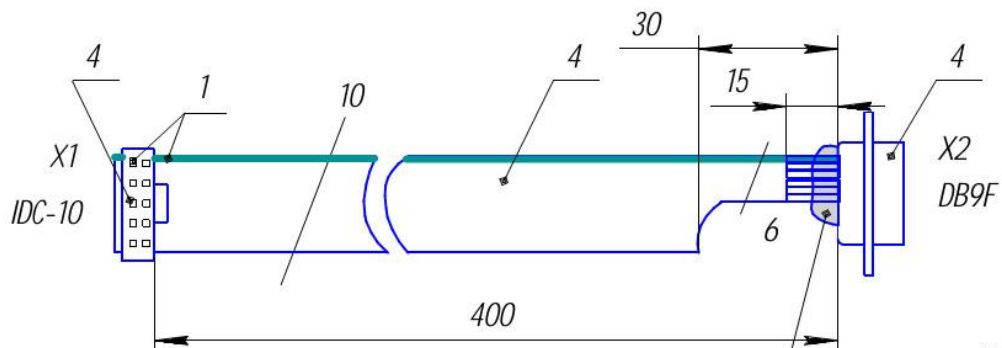
CABLE C026



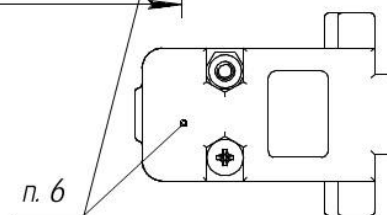
<i>XP1</i>	<i>XP2</i>
1	3
2	1
3	7
4	5

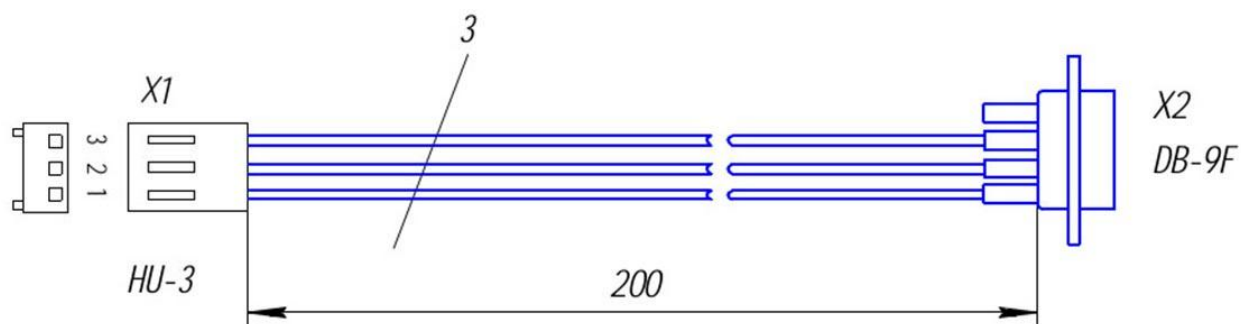


CABLE C027



<i>XP1</i>	<i>XP2</i>
1	1
2	2
3	3
4	4
5	5
6	6



CABLE C034

X1	X2
1	2
2	3
3	5

