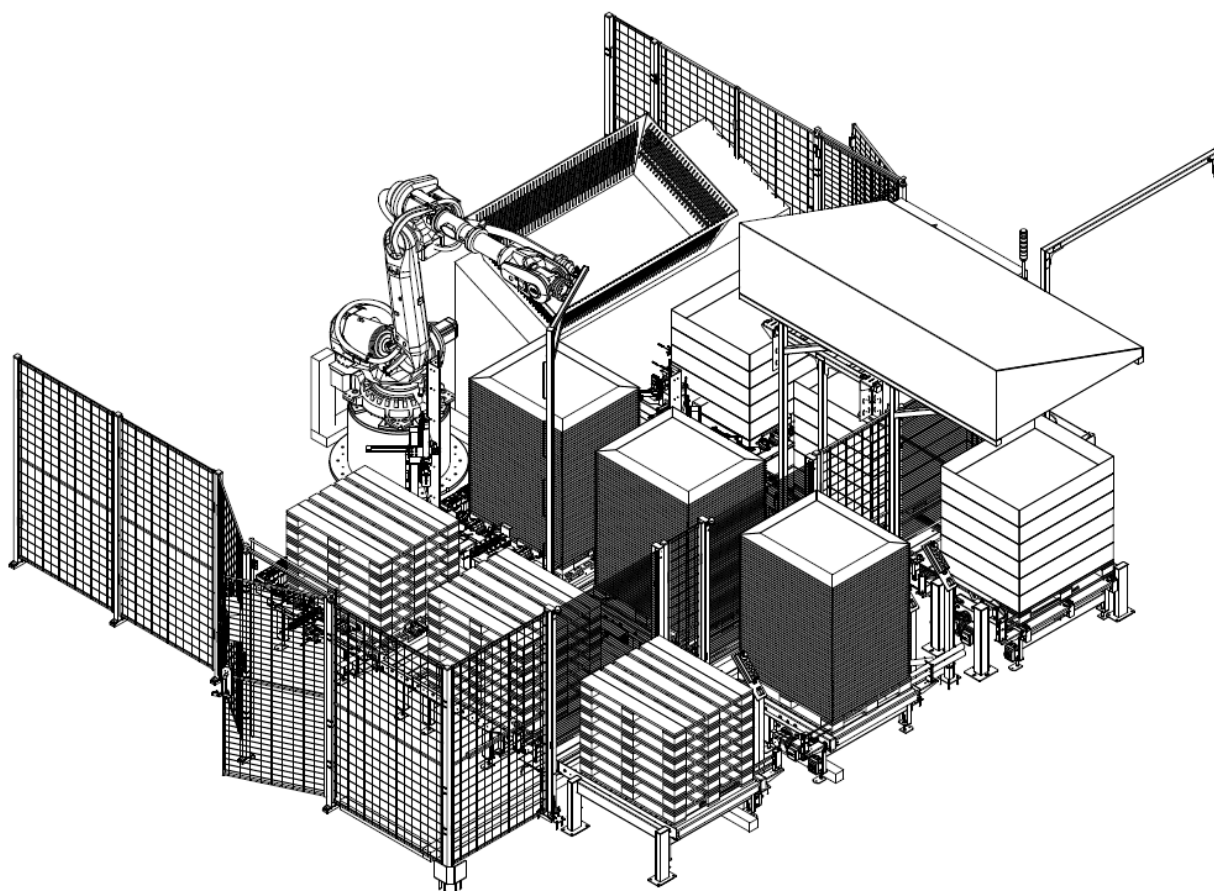


ABB ROBOTICS AND APPLICATION POLAND

Operating Manual

Unilever UK bottles depalletizing



NAME ROBOTIZED DEPALLETIZING STATION	OWNING ORGANIZATION Unilever Port Sunlight			
TYPE RDS/IRB6700/2019	DOCUMENT ID. 18-2256248 DTR 1-02	REV. A	LANG. ENG	PAGE 1/38

This page is intentionally left blank

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	2/38

Contents

1. System description	5
1.1. Operating modes	7
1.2. Light signalling	7
1.2.1. Signal column 1	7
1.2.2. Signal column 2	8
1.2.3. Main cabinet buttons	8
2. Operator panels	9
2.1. Operator panel 1	9
2.1.1. Main screen and navigation	10
2.1.2. "Digital signals diagnostics" screen	12
2.1.3. "Stack verification" screen	13
2.1.4. "Safety" screen	14
2.1.5. "Motors manual mode" screen	15
2.1.6. "Valves manual mode" screen	16
2.1.7. "Gripper" screen	17
2.1.8. "Inverters status" screen	18
2.1.9. "Parameters" screen	19
2.1.10. "Settings" screen	20
2.1.11. "Diagnostic" screen	22
2.1.12. "Alarms" screen	23
2.1.13. "Contact" screen	24
2.2. Operator panel 2	24
2.3. Operator panel 3	25
2.4. Operator panel 4	26
2.5. Operator panel 5	27
3. Control functions	29
3.1. Starting the machine	29
3.2. Pausing the machine	29
3.3. Stopping the machine	29
3.4. Full pallet on the Spacer Conveyor	29
3.5. Clear station procedure	29
3.6. Clear Pallet feeder procedure	29
4. Robot control	31
4.1. Robot activation	31
4.2. Switching the robot to the automatic mode	31
4.3. Przełączenie robota w tryb ręczny	32
4.4. Switch the robot off	33
4.5. Backup copy	34
4.5.1. Creating backup copy	34
4.5.2. Przywracanie kopii bezpieczeństwa	35
5. Alarms list	37

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	3/38

This page is intentionally left blank

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	4/38

1. System description



The manual is an important part of the machine. All information contained herein is intended to enable the equipment to be maintained in perfect condition and operated safely. Ensure that the manual is available to all operators of this equipment and is kept up to date with all subsequent amendments.

Operating system consists of control cabinets, operator panels and light columns, that are listed and described in table and shown in figure below.

Table 1. 1 System elements

Name	Symbol	Description
Main electrical cabinet	EC1	Electrical cabinet with main power supply and control components. On the front door is main power disconnecter and main operator panel.
Robot controller	RC	Robot control equipment is located in the robot controller
Main compressed air switch	MCA	Switch used to cut off compressed air power
Main power disconnecter	MPD	Disconnecter used to cut off power
FlexPendant	FP	Operator panel used to control robot.
Main operator panel	OP1	HMI panel with additional push-buttons and request key.
Operator panel 2	OP2	Operator panel used to control pallet feeder conveyor.
Operator panel 3	OP3	Operator panel used to control spacer conveyor for station 1 and empty pallet conveyor for station 2.
Operator panel 4	OP4	Operator panel used to control empty pallet conveyor for station 1 and spacer conveyor for station 2.
Operator panel 5	OP5	Operator panel with push-buttons and request key.
Main signal column	SC1	Signal column that informs operator about station state.
Verifier signal column	SC2	Signal column that informs operator if infeed stack is correct
Muting signal column	SC3, SC4, SC5	Signal columns that inform about muting status

TYPE RDS/IRB6700/2019	DOCUMENT ID 18-2256248 DTR 1-02	REV. A	LANG. ENG	PAGE 5/38
--------------------------	------------------------------------	-----------	--------------	--------------

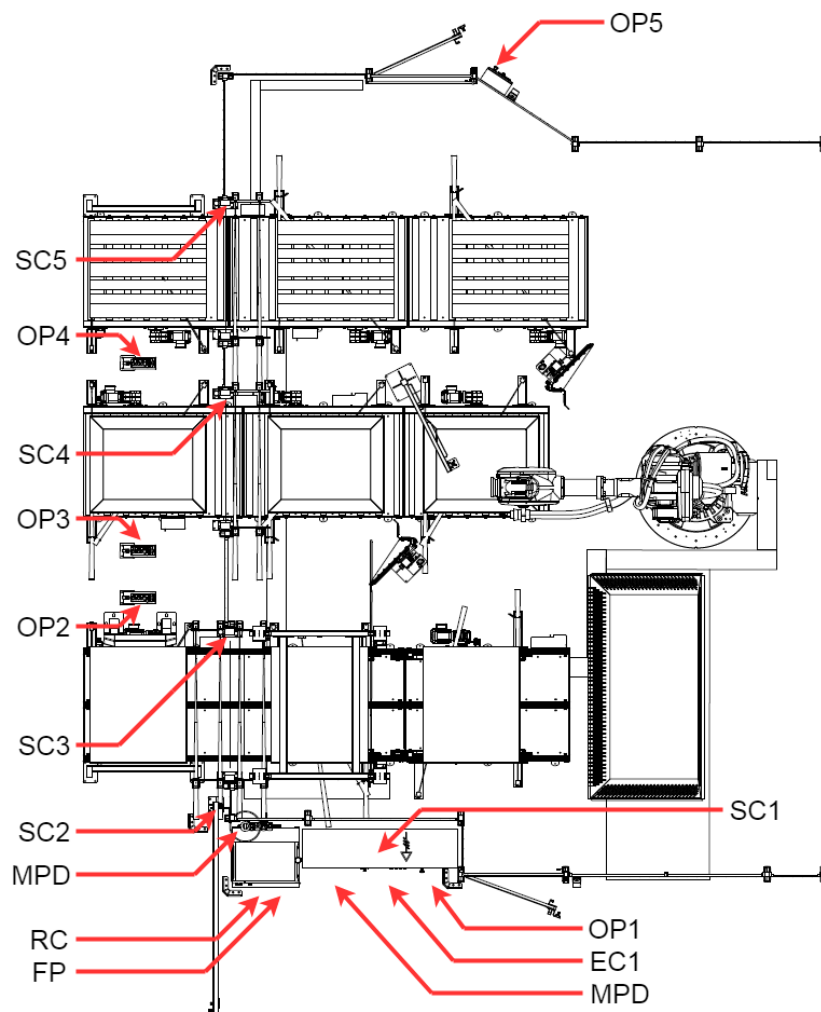


Fig. 1. 1 System 1 elements localization

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	6/38

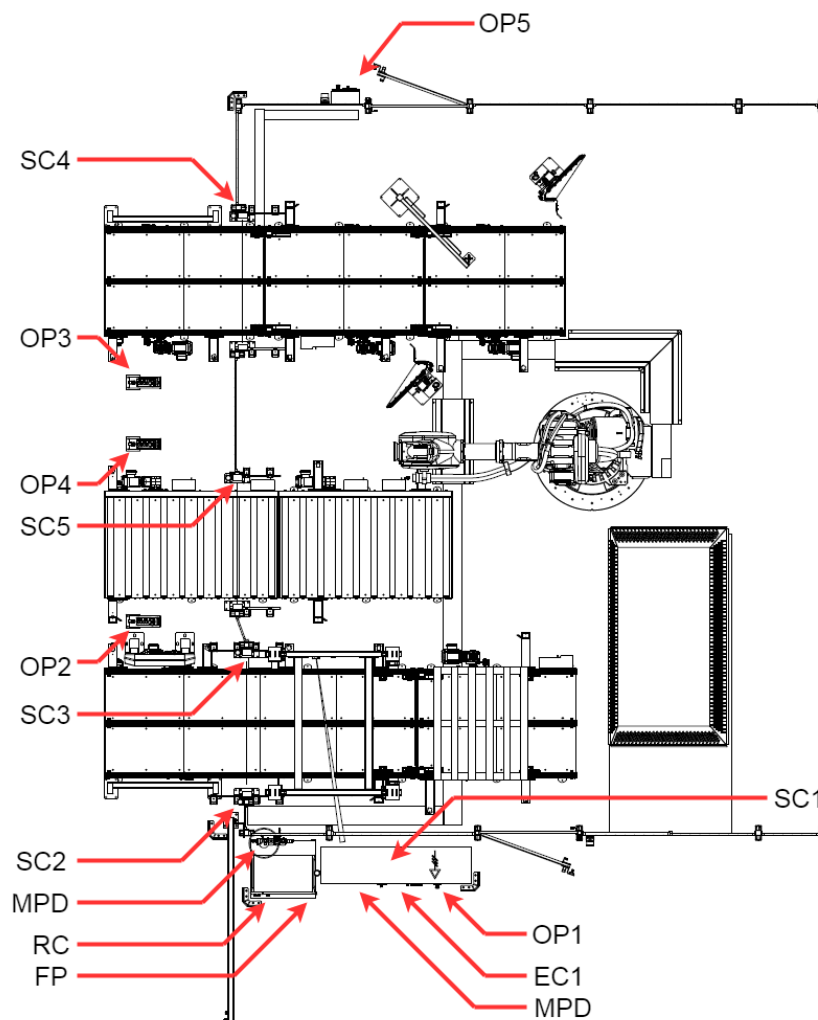


Fig. 1. 2 System 2 elements localization

1.1. Operating modes

Stations can be operate in 2 modes:

- Auto;
- Service.

Auto mode is a production standard mode. Service mode is a mode for maintenance work. It enables to manually move robots and conveyors.

1.2. Light signalling

1.2.1. Signal column 1

Table 1. 2 SC1 description

Type	Signal	Description
Buzzer	1s sound	An error occurred.

TYPE RDS/IRB6700/2019	DOCUMENT ID 18-2256248 DTR 1-02	REV. A	LANG. ENG	PAGE 7/38
--------------------------	------------------------------------	-----------	--------------	--------------

	Constant sound	Pallet feeder forklift area interrupt while conveyors are moving.
Red light	Constant	Unacknowledged error – station is not ready to start - check HMI and press reset error on alarms screen.
Yellow light	Flashing	Empty pallets or pallet with empty spacers have to be picked up.
Green light	Constant	Machine is running healthy

1.2.2. Signal column 2

Table 1. 3 SC2 description

Type	Signal	Description
Red light	Constant	Conveyors are moving. Do not interrupt forklift area. Interruption will cause buzzer sound (check main beacon buzzer functionality). When interruption is longer than specified period of time (setpoint on HMI), an error will occur and station will be stopped.
	Flashing	NOK pallet is being removed. Do not interrupt forklift area.
Green light	Constant	Forklift area is safe and ready to be occupied by forklift to prepare products
	Flashing	Forklift area is safe and being occupied (signal from forklift sensor)

1.2.3. Main cabinet buttons

Table 1. 4 Main cabinet buttons description

Type	Signal	Description
Green (START)	Constant	Machine is running healthy
	Flashing	All conditions for start are met. Station is ready for start. Otherwise light is off.
Blue (RESET)	Constant	Emergency stop and/or safety key and door are ready to reset.
Yellow (ENTRY REQ)	Constant	Waiting for entry request. Press button for 2 seconds to unlock request key.
	Flashing	Entry request is being performed. Wait until station will be fully stopped. If light is off machine is stopped and key is available to unlock doors.

TYPE RDS/IRB6700/2019	DOCUMENT ID 18-2256248 DTR 1-02	REV. A	LANG. ENG	PAGE 8/38
--------------------------	------------------------------------	-----------	--------------	--------------

2. Operator panels

2.1. Operator panel 1

Operator panel 1 is main operator panel. It is used to control most of the station components.

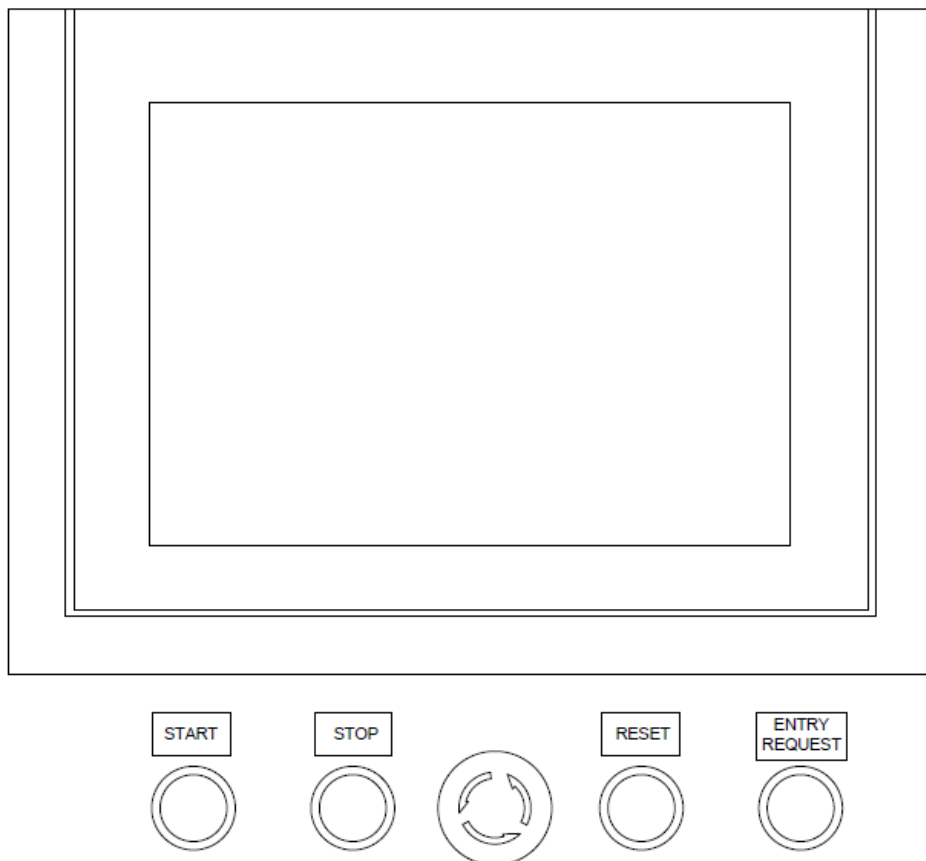


Fig. 2. 1 Operator panel 1

Operator panel 1 is the HMI panel with 4 push-buttons and 1 emergency stop. Push-buttons are described in the table below, HMI panels in chapters 2.1.x.

Table 2. 1 OP1 push-buttons

Button	Description
START	It starts the station in AUTO mode.
STOP	It stops the station.
RESET	It enables to reset station after emergency stop.
ENTRY REQUEST	It stops the station.

The figure below show screen, that appears after turning on the station.

TYPE RDS/IRB6700/2019	DOCUMENT ID 18-2256248 DTR 1-02	REV. A	LANG. ENG	PAGE 9/38
--------------------------	------------------------------------	-----------	--------------	--------------



Fig. 2. 2 Welcome screen on HMI panel

Touch the screen to go to the main screen.

2.1.1. Main screen and navigation

Main screen shows a state of sensors located on the conveyors:

- Green square – sensor detects something;
- Grey square – sensor does not detect anything.

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	10/38

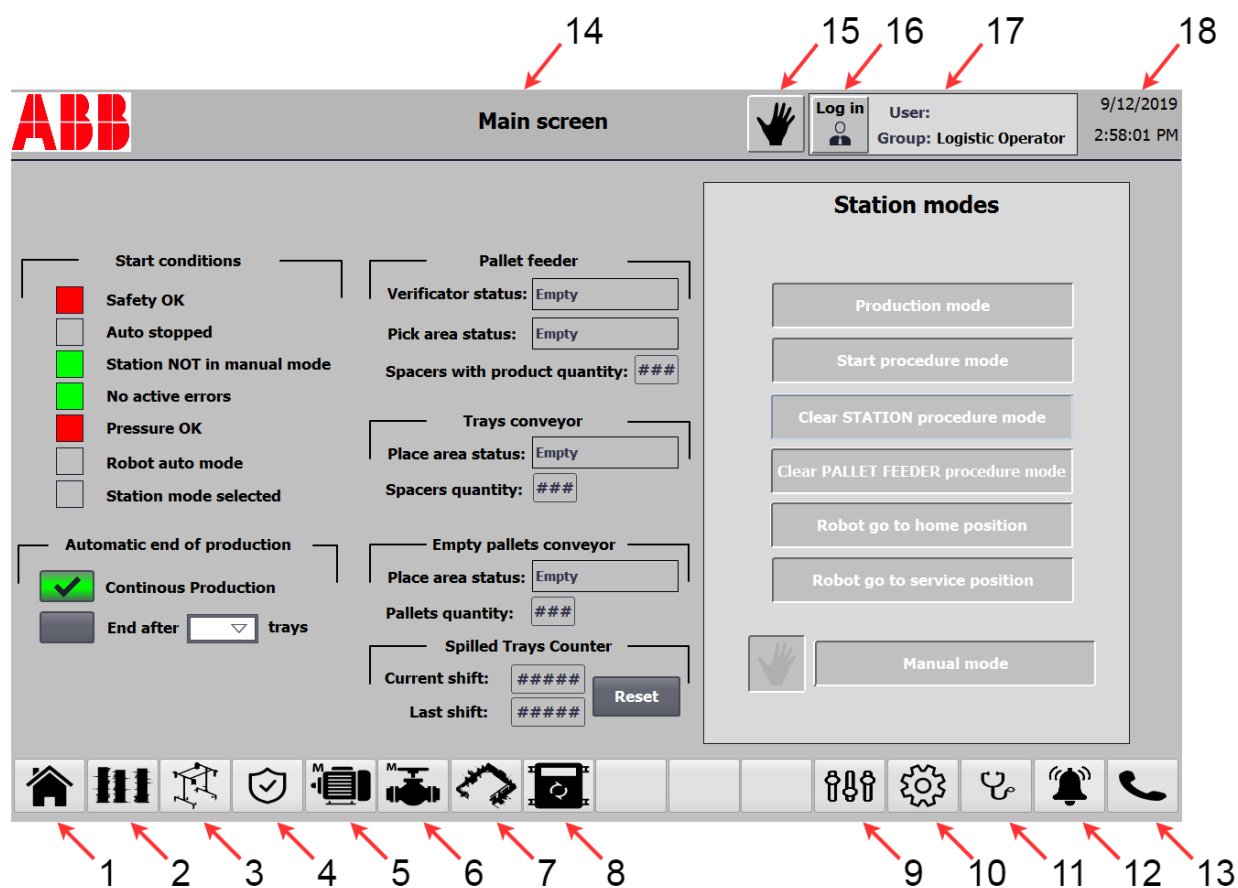


Fig. 2. 3 Main screen

Navigation buttons are located on every screen.

Table 2. 2 Navigation

No	Description
1	Opens "Main screen".
2	Opens "Digital signals diagnostic".
3	Opens "Stack verification" screen.
4	Opens "Safety" screen.
5	Opens "Motors manual mode" screen.
6	Opens "Valves manual mode" screen.
7	Opens "Gripper" screen.
8	Opens "Inverters Status" screen.
9	Opens "Parameters" screen.
10	Opens "Settings" screen.
11	Opens "Diagnostic" screen.
12	Opens "Alarms" screen.

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	11/38

13 Opens “Contact” screen.

14 Actual screen.

15 Enables to switch to manual mode.

16 Log in another user.

17 Resets alarms.

18 Actual date and time.

2.1.2. “Digital signals diagnostics” screen

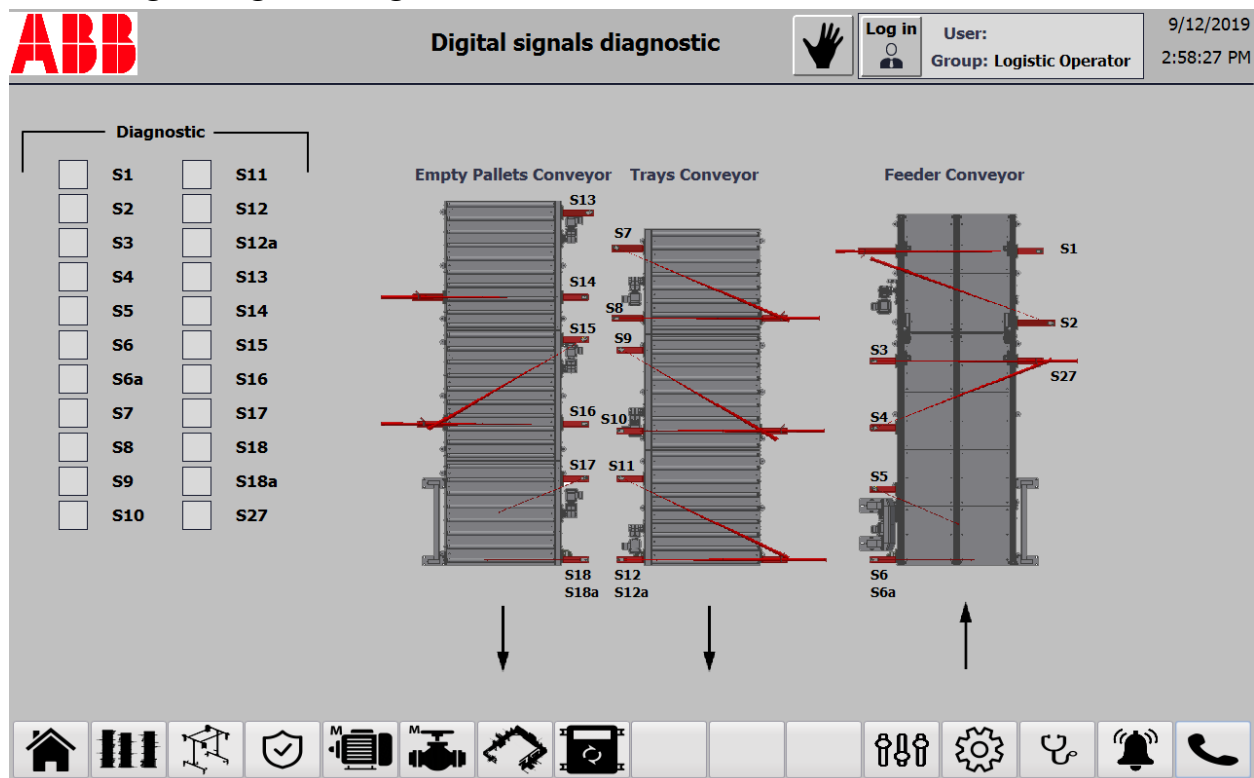


Fig. 2. 4 “Digital signals diagnostic” screen

2.1.3. “Stack verification” screen

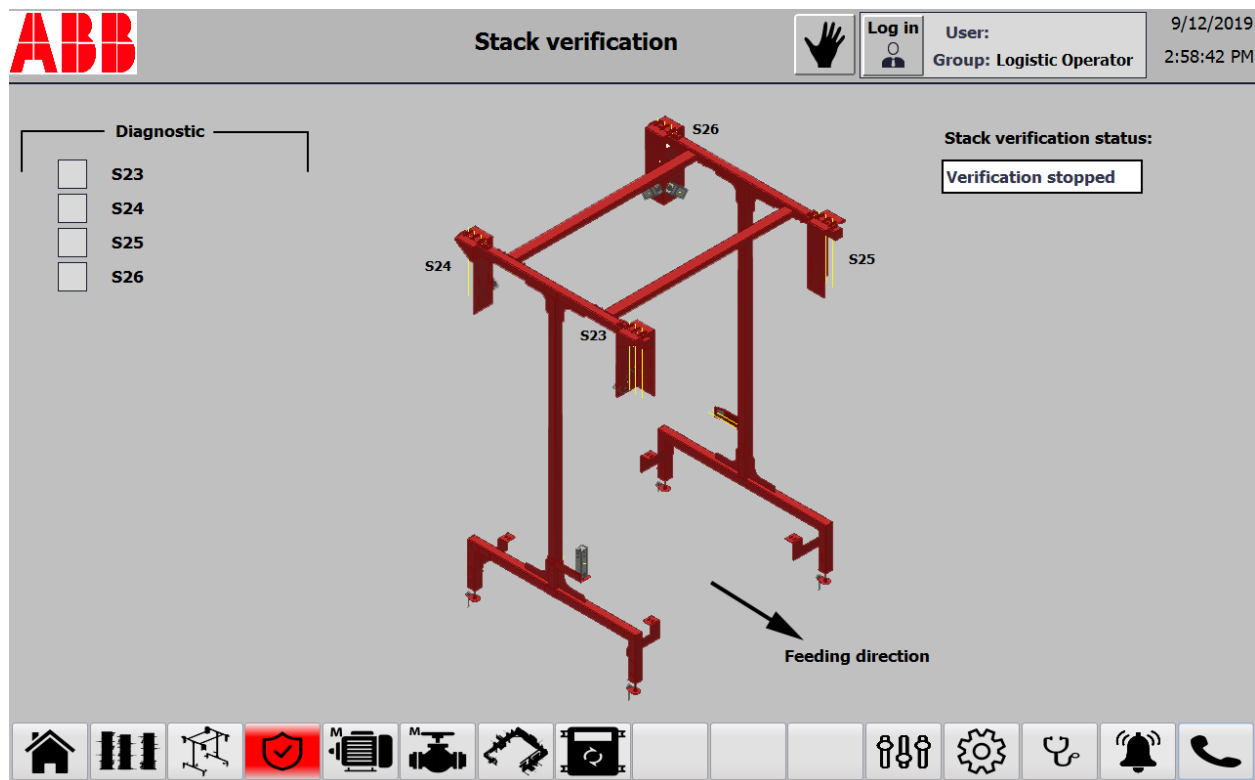


Fig. 2. 5 “Stack verification” screen

This screen shows the verification state.

Stack verification status informs if verification is running or stopped. Diagnostic shows state of 4 sensors responsible for verification.

- Green square – sensor detects tray;
- Grey square – sensor does not detect tray.

If at least one sensor detects tray, verification is failed and pallet with trays will be withdrawn.

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	13/38

2.1.4. “Safety” screen

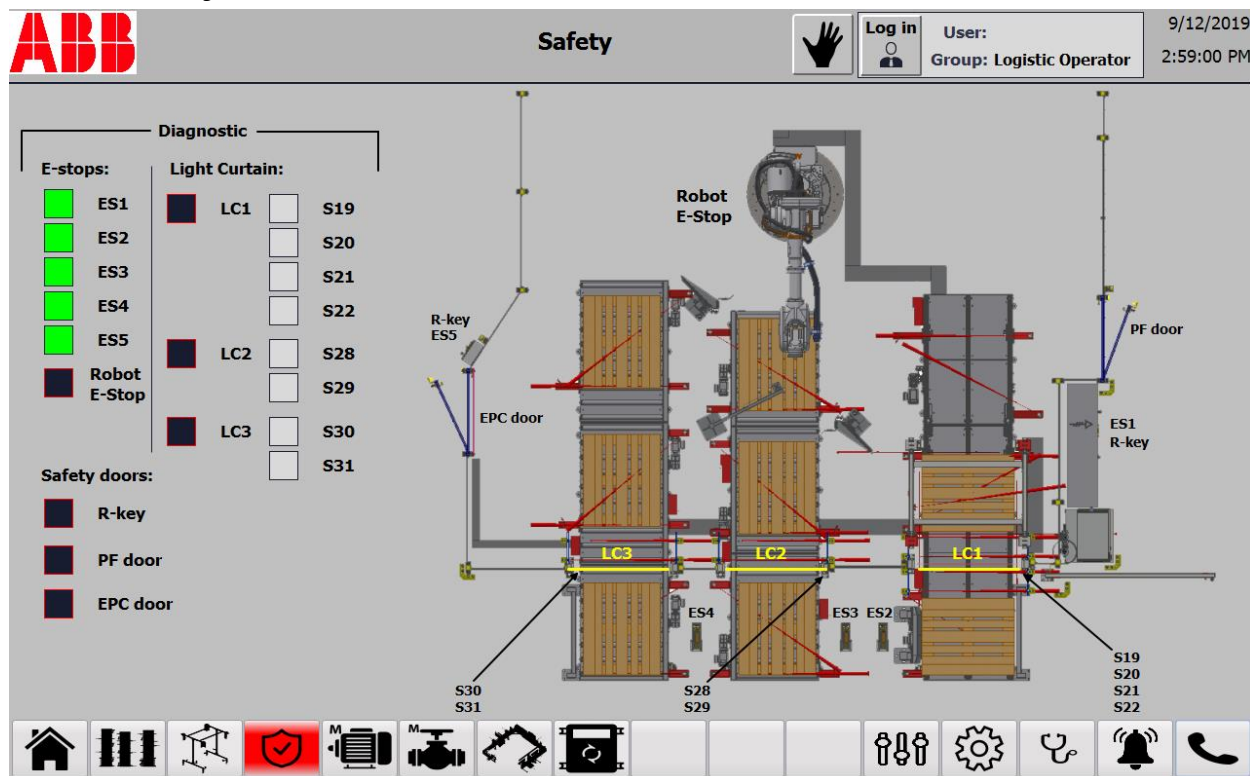


Fig. 2. 6 “Safety” screen

Safety screen informs about safety components state.

Diagnostic consists of Emergency stop buttons state, Safety doors state and Light curtains with muting sensors state.

Table 2. 3 Safety diagnostic

Diagnostic	Description
E-stops	<ul style="list-style-type: none"> Flashing red-black – E-stop button is pressed; Green – E-stop button is not pressed.
Safety doors	<p>PF door/EPC door:</p> <ul style="list-style-type: none"> Flashing red-black – doors are opened; Green – doors are closed. <p>R-key:</p> <ul style="list-style-type: none"> Flashing red-black – lack of at least one key in keyholes; Green – all keys are in keyholes.
Light curtains	<ul style="list-style-type: none"> Flashing red-black – light curtain is disrupted; Green – light curtains are not disrupted.
Muting	<ul style="list-style-type: none"> Green – sensor detects pallet; Grey – sensor does not detect pallet.

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	14/38

2.1.5. “Motors manual mode” screen

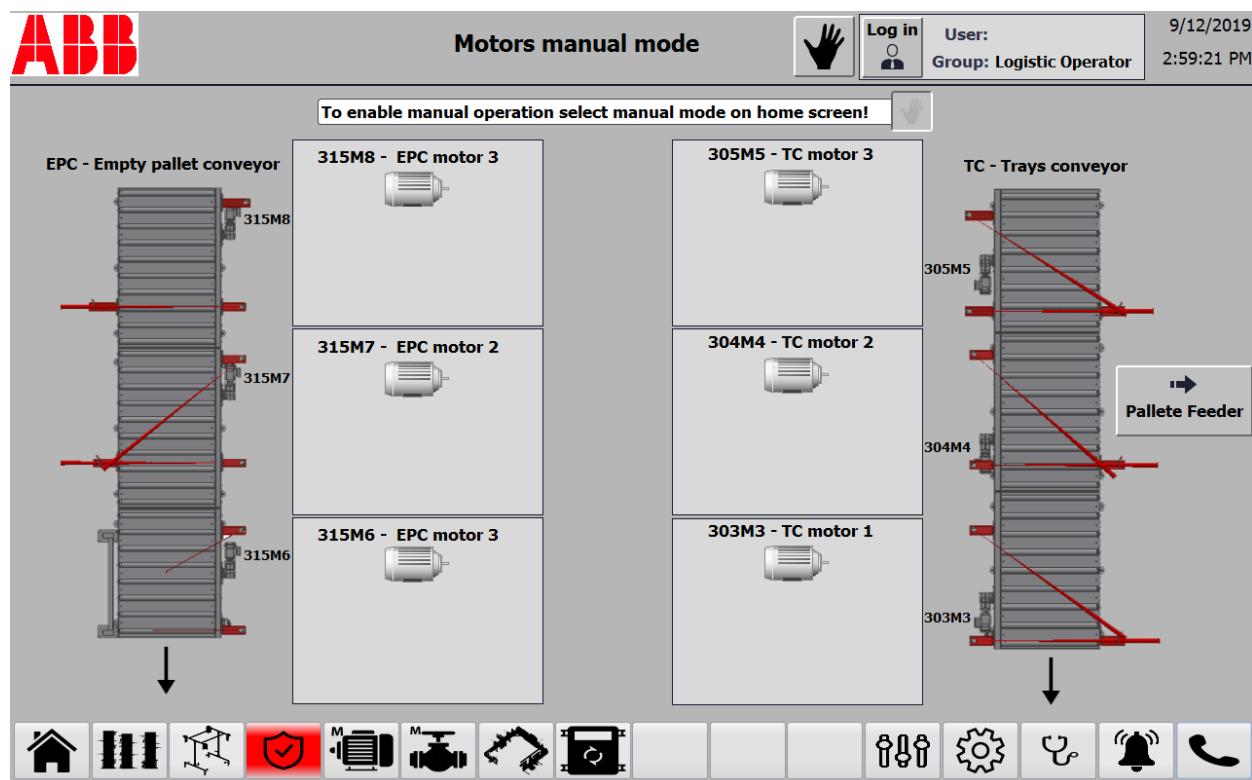


Fig. 2. 7 “Motors manual mode” screen 1

Screen enables to manually turn on sections of conveyors. Station must be in manual mode. In AUTO mode buttons are hidden.

Table 2. 4 Motors manual mode buttons

Button	Description
START FWD	It enables to turn on motor in conveying direction. It is green if pressed.
START REV	It enables to turn on motor in reverse direction. It is green if pressed.
STOP	It turn off motor. It is red if pressed.

TYPE RDS/IRB6700/2019	DOCUMENT ID 18-2256248 DTR 1-02	REV. A	LANG. ENG	PAGE 15/38
--------------------------	------------------------------------	-----------	--------------	---------------

2.1.6. “Valves manual mode” screen

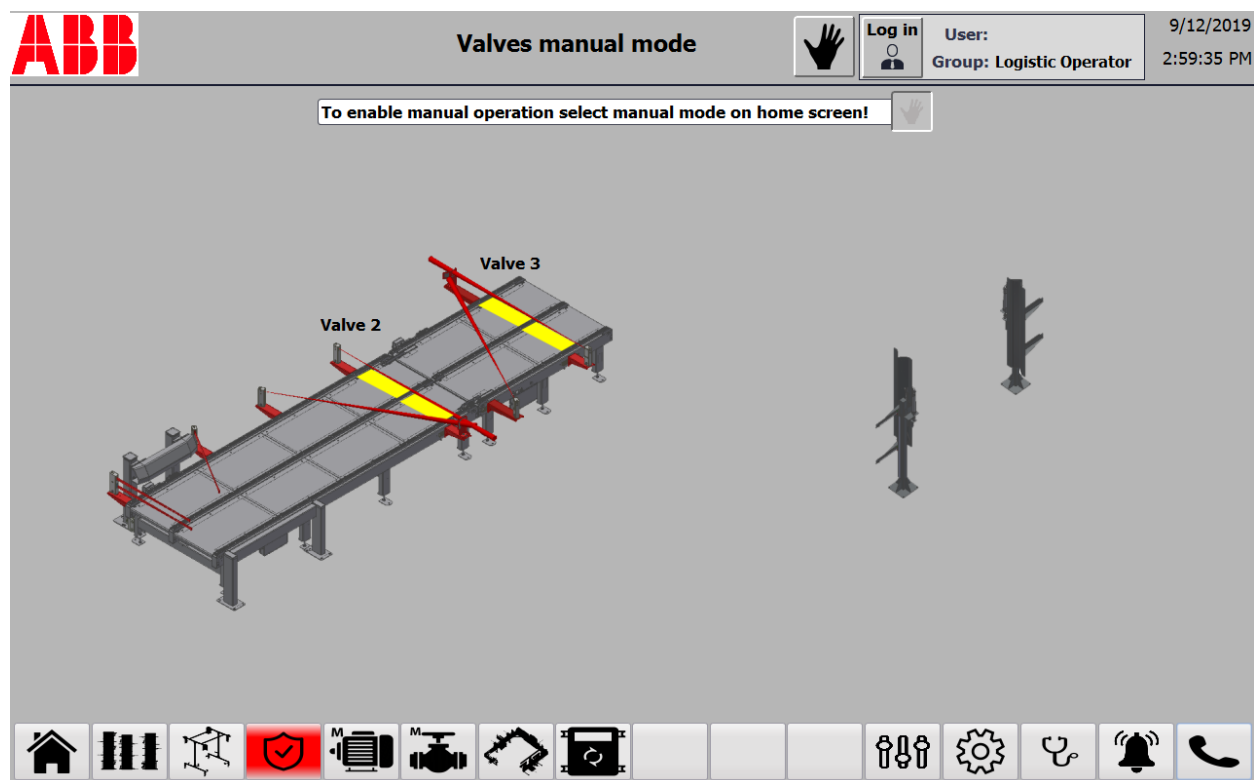


Fig. 2. 8 “Valves manual mode” screen 1

Screen enables to manually activate pneumatic valves. Station must be in manual mode. In AUTO mode buttons are hidden.

Table 2. 5 Valves manual mode buttons

Button	Description
OPEN	It enables to open actuator. It is green if pressed.
CLOSE	It enables to close actuator. It is green if pressed.

TYPE RDS/IRB6700/2019	DOCUMENT ID 18-2256248 DTR 1-02	REV. A	LANG. ENG	PAGE 16/38
--------------------------	------------------------------------	-----------	--------------	---------------

2.1.7. “Gripper” screen

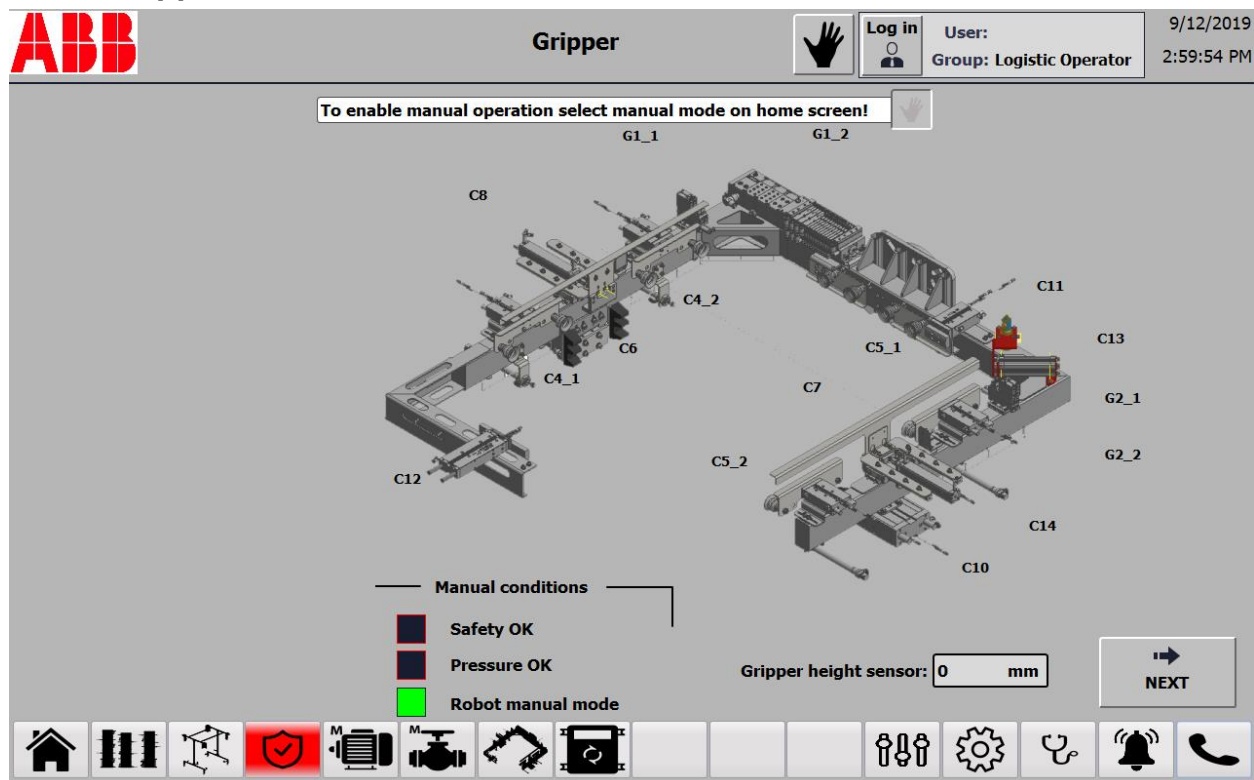


Fig. 2. 9 “Gripper” screen 1

Table 2. 6 Valves manual mode buttons

Element	Description
Safety OK	It shows if safety is OK
Pressure OK	It shows if air supply is switched on
Robot manual mode	It shows if robot is in manual mode

TYPE RDS/IRB6700/2019	DOCUMENT ID 18-2256248 DTR 1-02	REV. A	LANG. ENG	PAGE 17/38
--------------------------	------------------------------------	-----------	--------------	---------------

2.1.8. “Inverters status” screen

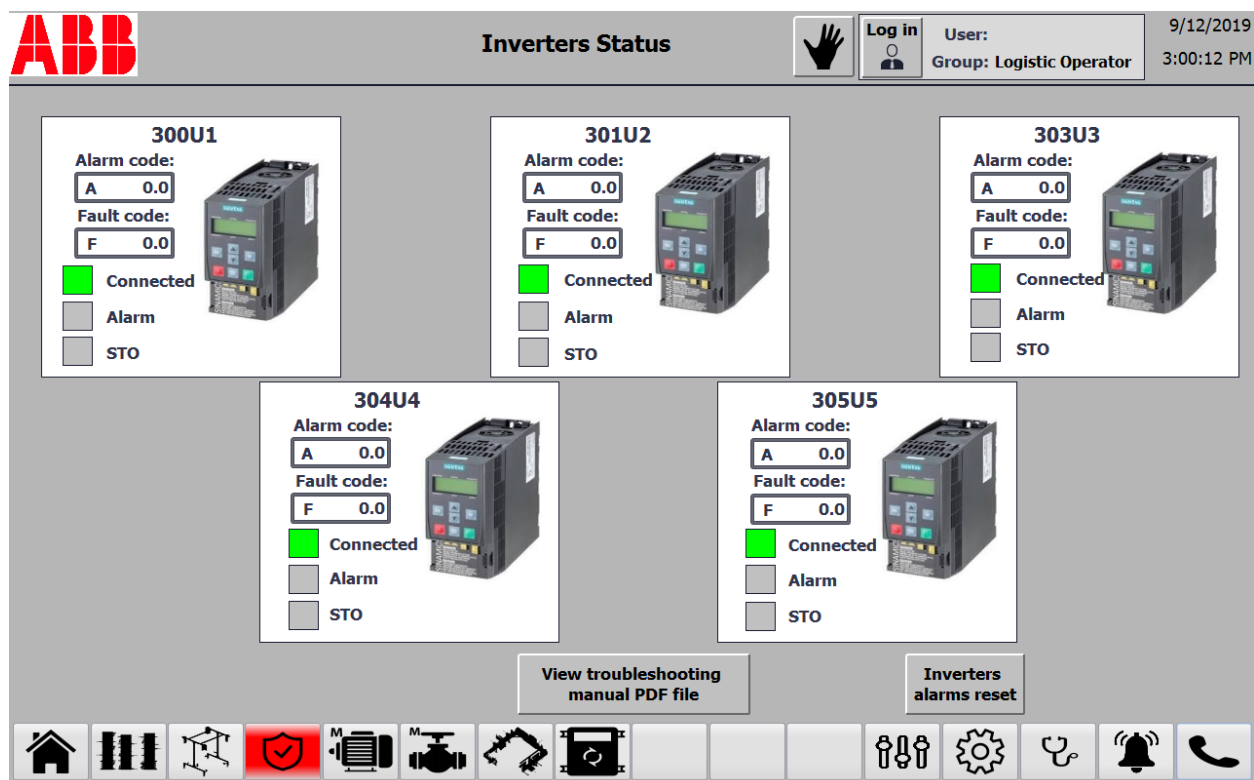


Fig. 2. 10 “Inverters status” screen

Element	Description
Connected	Shows if inverter is connected
Alarm	Shows if inverter has any problems
STO	Shows if STO is OK
View troubleshooting manual PDF file	Enables to open PDF file with manual
Inverts alarms reset	Enables to reset inverters alarms

TYPE RDS/IRB6700/2019	DOCUMENT ID 18-2256248 DTR 1-02	REV. A	LANG. ENG	PAGE 18/38
--------------------------	------------------------------------	-----------	--------------	---------------

2.1.9. "Parameters" screen

ABB Parameters Log in User: Group: Logistic Operator 9/12/2019 3:00:27 PM

Motors	Pallette feeder	Trays conveyors
300M1 Velocity SP: 0 %	Transfer pallet on 300M1 timeout: 0 s	PLC - Robot signal exchange timeout: 0 s
301M2 Velocity SP: 0 %	Transfer pallet on 301M2 timeout: 0 s	Transfer pallet on 304M4 timeout: 0 s
303M3 Velocity SP: 0 %	Time to move pallet after forklift leave: 0 s	Transfer pallet on 305M5 timeout: 0 s
304M4 Velocity SP: 0 %	Time to forklift area occupation alarm: 0 s	
305M5 Velocity SP: 0 %	Time to allow forklift to enter: 0 s	

Valves	Empty pallet
V1 Time to error: 0 s	PLC - Robot signal exchange timeout: 0 s
V2 Time to error: 0 s	Transfer pallet on 315M7 timeout: 0 s
V3 Time to error: 0 s	Transfer pallet on 315M8 timeout: 0 s

Robot parameters

Fig. 2. 11 "Parameters" screen 1

ABB Parameters Log in User: Group: Logistic Operator 9/12/2019 3:05:29 PM

Pallet feeder	Trays conveyors	Empty pallet conveyors
Offset X: 0.0 mm	Offset X: 0.0 mm	Offset X: 0.0 mm
Offset Y: 0.0 mm	Offset Y: 0.0 mm	Offset Y: 0.0 mm
Offset Z for Pick Product: 0.0 mm	Offset Z for Place Spacer: 0.0 mm	Offset Z for Place Pallet: 0.0 mm
Offset Z for Pick Pallet: 0.0 mm	Offset Z for Place Pallet: 0.0 mm	Offset Z for Pick Pallet: 0.0 mm
	Offset Z for Palce End Pallet: 0.0 mm	Offset Z for Pick Pallet rotated Gipper: 0.0 mm

Close spacer	Other parameters
Offset 1 to close spacer: 0 mm	Max number spacers at stack: 0
Offset 2 to close spacer: 0 mm	Max number pallets at stack: 0
Offset 3 to close spacer: 0 mm	Layer height: 0
	Spacer close height: 0

Back

Fig. 2. 12 "Parameters" screen 2

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	19/38

Table 2. 7 Parameters description

Element	Description
Motors	Enables to set up speed of the motors in % of the maximum speed.
Pallet feeder	Enables to set up maximum time for transfer pallet (in seconds). When time is up, alarm will appear.
Trays conveyors	Enables to set up maximum time for transfer pallet (in seconds). When time is up, alarm will appear.
Valves	Enables to set up maximum time (in seconds) to error for valves.
Empty pallet	Enables to set up maximum time for transfer pallet (in seconds). When time is up, alarm will appear.
Pallet feeder	Enables to modify picking offsets (in mm) for pallet feeder.
Trays conveyors	Enables to modify placing offsets (in mm) for trays conveyors.
Empty pallet conveyors	Enables to modify picking and placing offsets (in mm) for empty pallet conveyors.
Close spacer	
Other parameters	

2.1.10. “Settings” screen

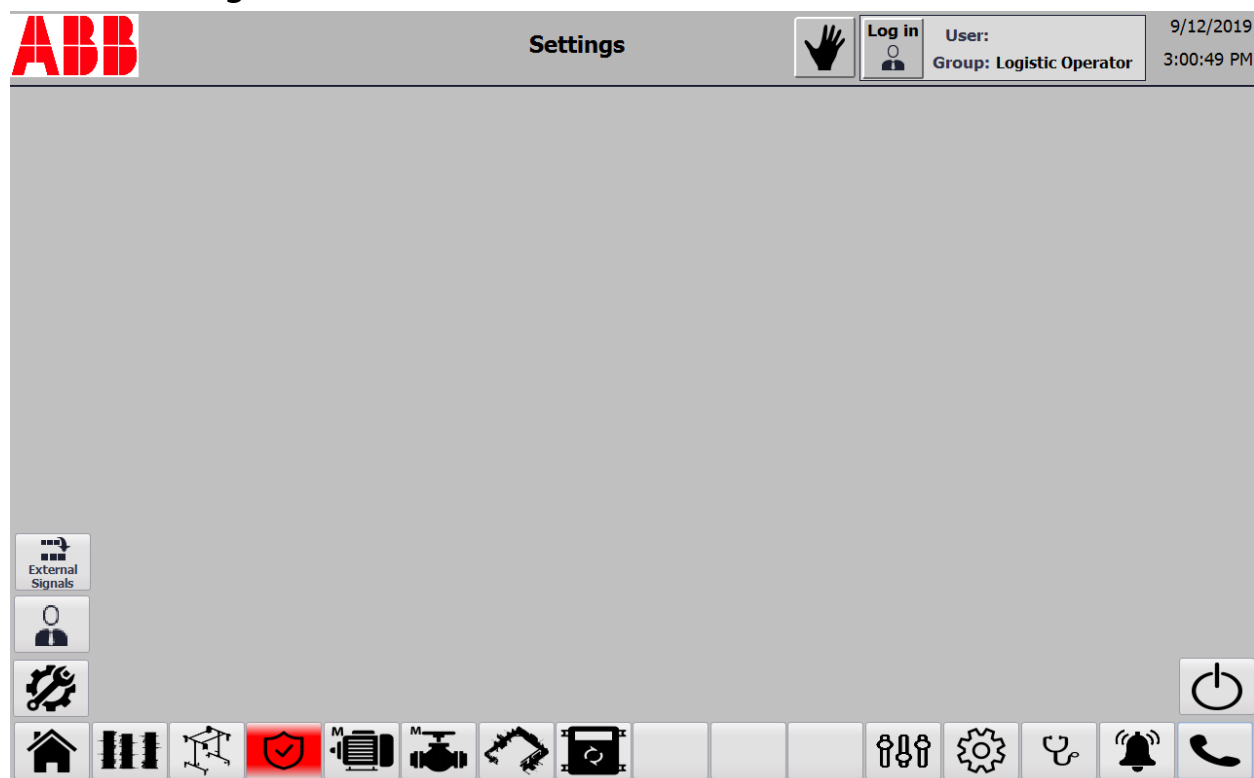


Fig. 2. 13 “Settings” screen

Settings screen enables to turn off the HMI.

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	20/38

Button	Description
1	Opens “External signals” screen
2	Opens “Log in” screen
3	Opens “Settings” screen

ABB **Welcome screen** **Log in** **User:** 9/12/2019
Group: Logistic Operator 3:10:15 PM

PLC -> Robot

- ☐ EPC entry permission
- ☐ EPC place empty
- ☐ EPC place present
- ☐ PF empty pallet
- ☐ PF pallet with product
- ☐ TC entry permission
- ☐ TC place empty
- ☐ TC place present

Pallet conveyors stack verification status: Empty

Area empty Empty pallet Pallet with product

Pallet feeder conveyors pick status: Empty

Area empty Empty pallet Pallet with product

Trays conveyors status: Empty

Area empty Pallets present Full stack

Empty pallet conveyors status: Empty

Area empty Pallets present Full stack

Navigation icons: Home, List, Robot, Shield, Motor, Valve, Arm, Crane, Empty, Full, Settings, Stethoscope, Bell, Phone.

Fig. 2. 14 “External signals” screen

Login

User:

Password:

OK Cancel

Fig. 2. 15 “Log in” screen

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	21/38

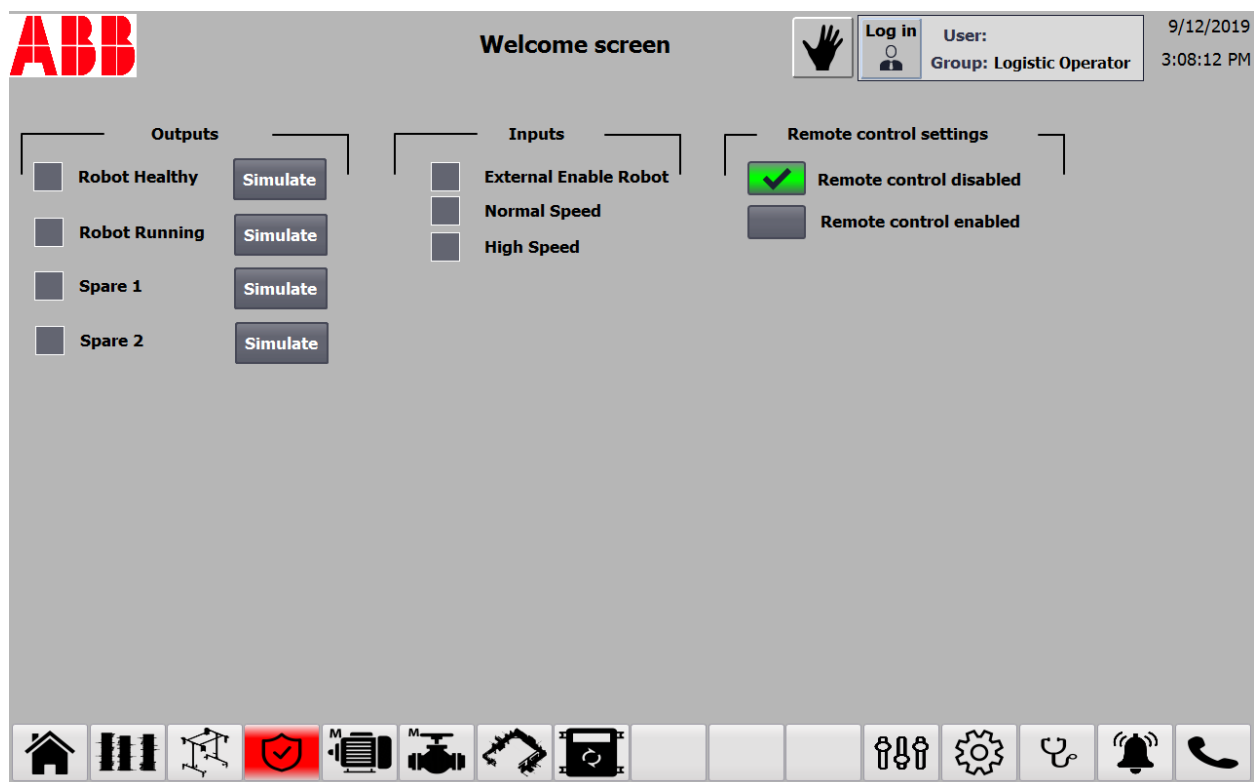


Fig. 2. 16 "Settings" screen

2.1.11. "Diagnostic" screen

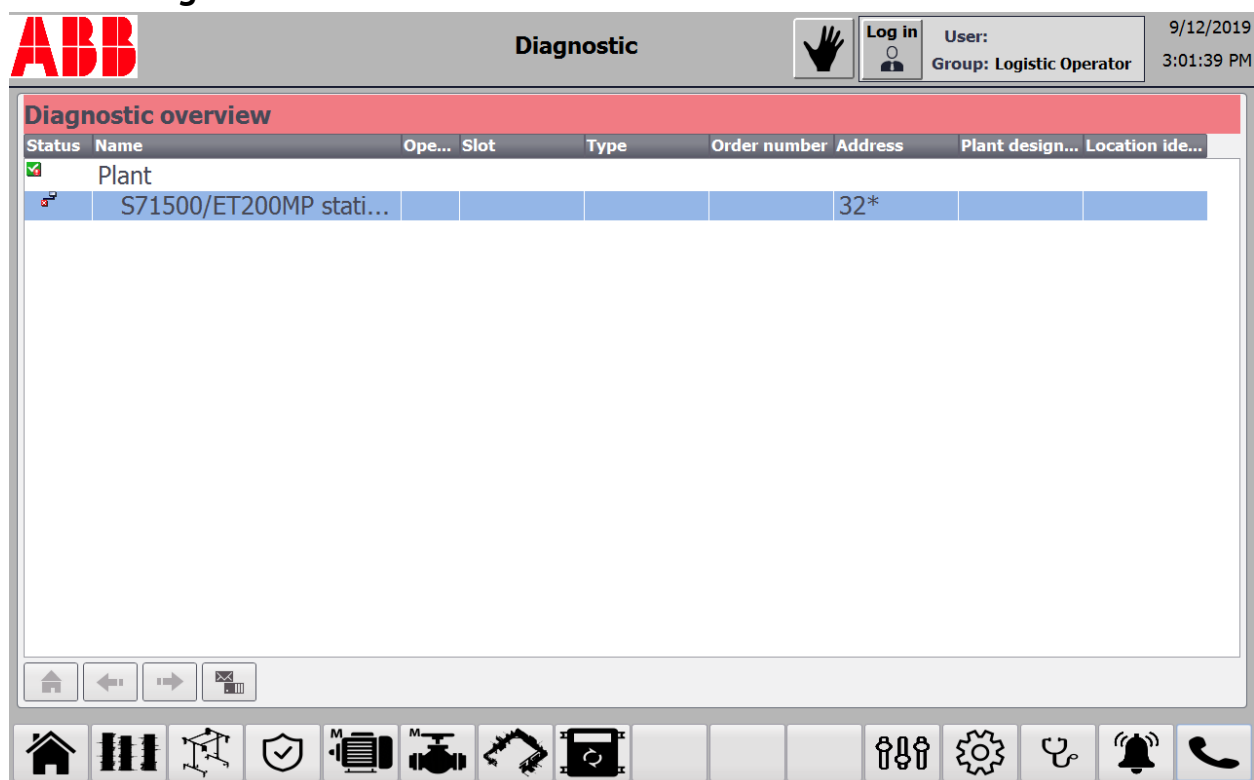


Fig. 2. 17 "Diagnostic" screen

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	22/38

2.1.12. "Alarms" screen

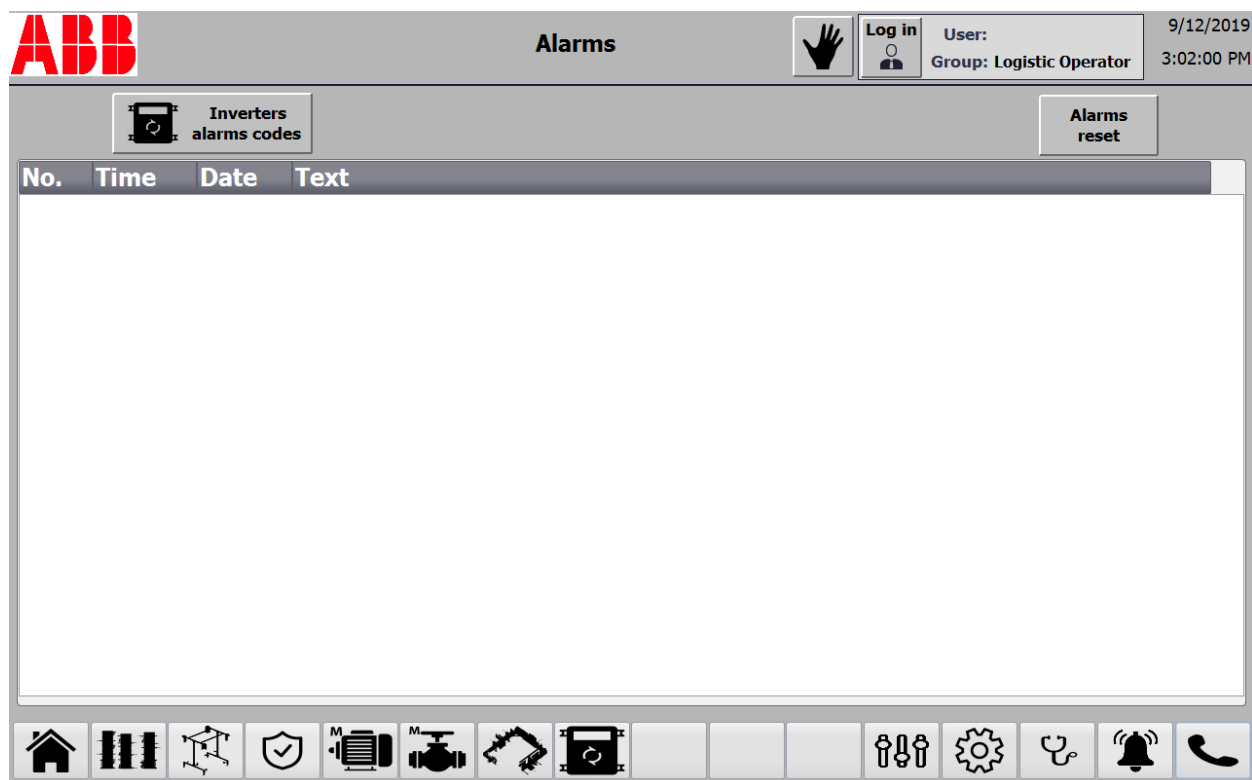


Fig. 2. 18 "Alarms" screen

This screen shows actual alarms. Station can't be started until alarms are reset. Alarms list in chapter 5.

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	23/38

2.1.13. “Contact” screen

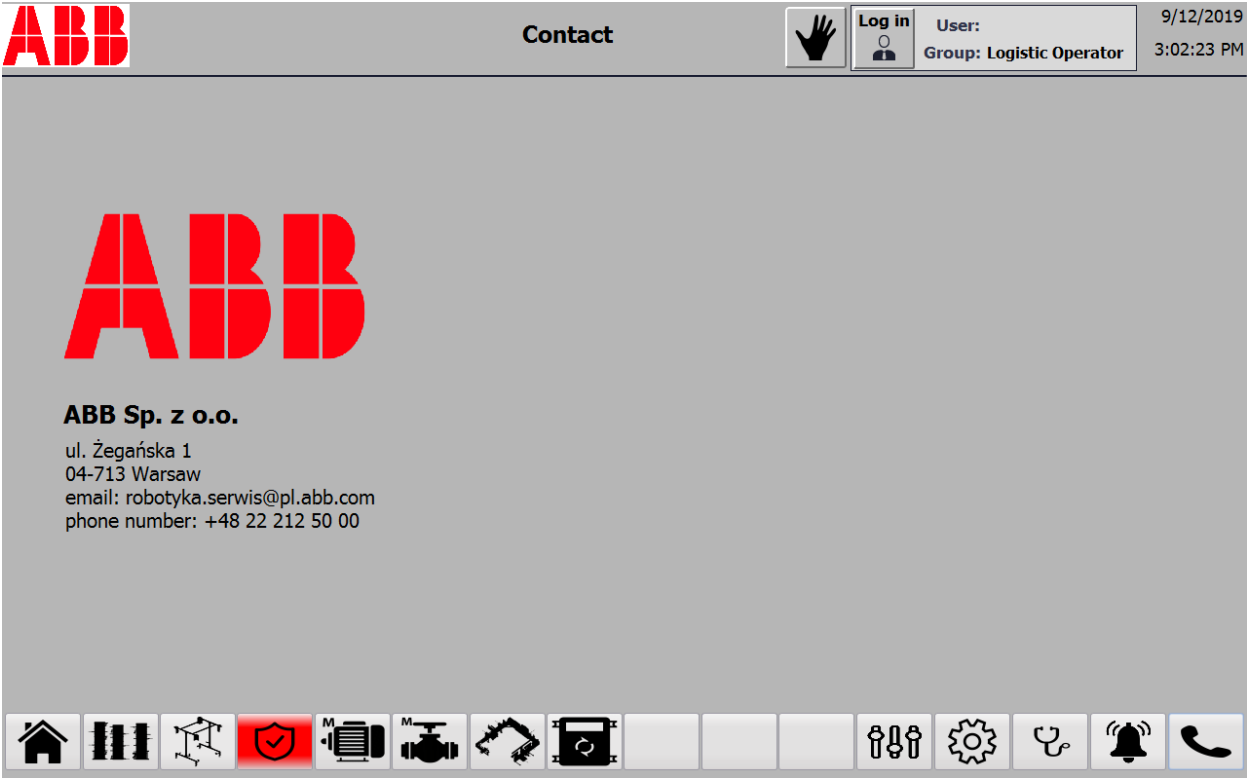


Fig. 2. 19 “Contact” screen

Screen with manufacturer contact information.

2.2. Operator panel 2

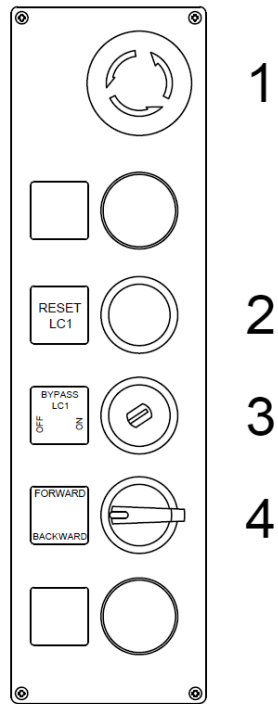


Fig. 2. 20 Operator panel 2 view

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	24/38

Table 2. 8 OP2 description

No	Description
1	Emergency Stop button
2	Reset LC1 – enables to reset light curtain after disrupt.
3	BYPASS LC1 – enables to use switch no 4
4	Switch that enables to start conveying forward or backward if bypass is on.

2.3. Operator panel 3

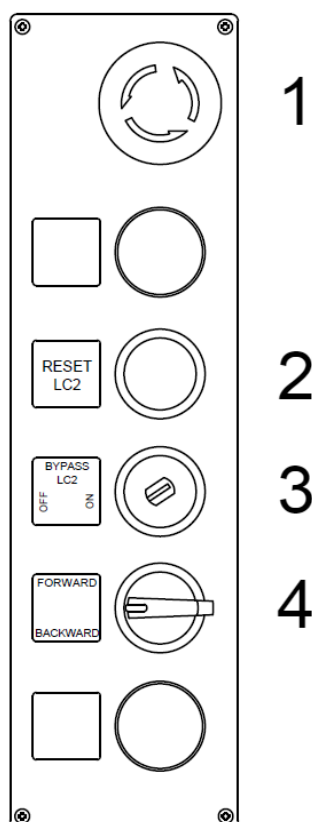


Fig. 2. 21 Operator panel 3 view

Table 2. 9 OP3 description

No	Description
1	Emergency Stop button
2	Reset LC2 – enables to reset light curtain after disrupt.
3	BYPASS LC2 – enables to use switch no 4
4	Switch that enables to start conveying forward or backward if bypass is on.

TYPE RDS/IRB6700/2019	DOCUMENT ID 18-2256248 DTR 1-02	REV. A	LANG. ENG	PAGE 25/38
--------------------------	------------------------------------	-----------	--------------	---------------

2.4. Operator panel 4

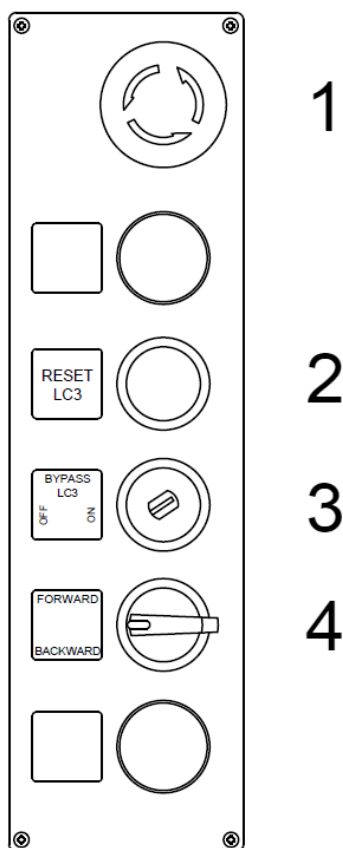


Fig. 2. 22 Operator panel 4 view

Table 2. 10 OP4 description

No	Description
1	Emergency Stop button
2	Reset LC3 – enables to reset light curtain after disrupt.
3	BYPASS LC3 – enables to use switch no 4
4	Switch that enables to start conveying forward or backward if bypass is on.

TYPE RDS/IRB6700/2019	DOCUMENT ID 18-2256248 DTR 1-02	REV. A	LANG. ENG	PAGE 26/38
--------------------------	------------------------------------	-----------	--------------	---------------

2.5. Operator panel 5

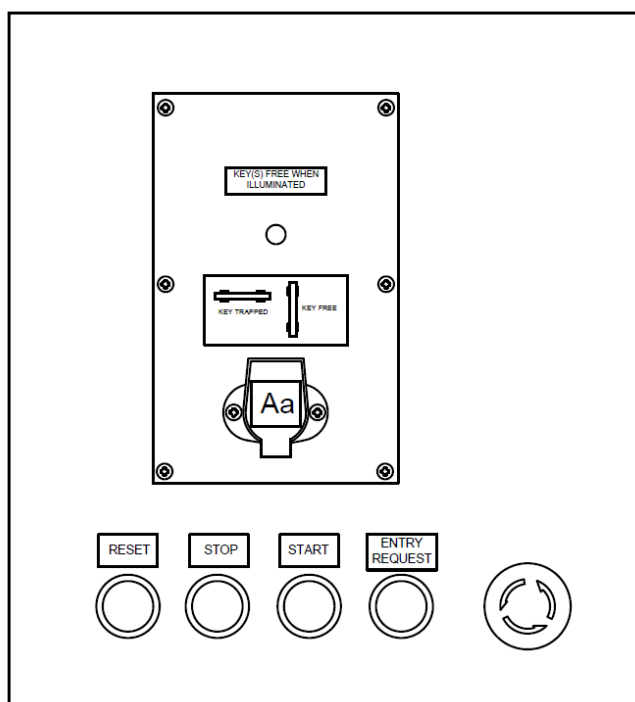


Fig. 2. 23 Operator panel 5 view

Table 2. 11 OP5 description

Button	Description
START	It starts the station in AUTO mode.
STOP	It stops the station.
RESET	It enables to reset station after emergency stop.
ENTRY REQUEST	It stops the station.

TYPE RDS/IRB6700/2019	DOCUMENT ID 18-2256248 DTR 1-02	REV. A	LANG. ENG	PAGE 27/38
--------------------------	------------------------------------	-----------	--------------	---------------

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	28/38

3. Control functions



Operator can't add empty pallets into the empty pallets stack. It may be a reason of collision robot's gripper with empty pallets stack.

3.1. Starting the machine

To perform start of the machine, all of the start conditions have to be met. That includes:

- Safety OK – all safety circuits are closed. If not, refer to Main screen to check which safety device causes the problem.
- All service doors are locked and keys in their keyholes;
- Robot in Auto – Robot automatic cycle is selected on FlexPendant.
- Select “Production mode” on Main screen.
- Start of the machine can be performed via “Start” button on the OP1 or OP5.

If station is empty starting procedure needs to be done. When Robot in Auto is selected:

- Press “Start procedure mode” on Main screen.
- Place empty pallet on spacer conveyor.
- Press “Start” button on the OP1 or OP5.

3.2. Pausing the machine

It is possible to pause production without breaking cycle.

- By pressing "Entry request" button on OP1 or OP5
- By pressing "Pause" button on OP1 or OP5

3.3. Stopping the machine

There are multiple ways in which the machine can be stopped:

- By pressing the “Stop” button on the HMI
- When critical error occurs (i.e. emergency circuit break, drive fault)

3.4. Full pallet on the Spacer Conveyor

Robot needs at least 3 pallets on the Empty pallets conveyor to flip a pallet and place it on the top of trays stack. System can be deadlocked if operator manually takes a pallet.

To return to production station needs to be restarted.

3.5. Clear station procedure

To start clearing station select:

- “Clear STATION procedure mode” on Main screen.
- Press “Start” button on the OP1 or OP5.

3.6. Clear Pallet feeder procedure

To start clearing pallet feeder select:

- Clear PALLET FEEDER procedure” on Main screen.
- Press “Start” button on the OP1 or OP5.

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	29/38


This page is intentionally left blank

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	30/38

4. Robot control


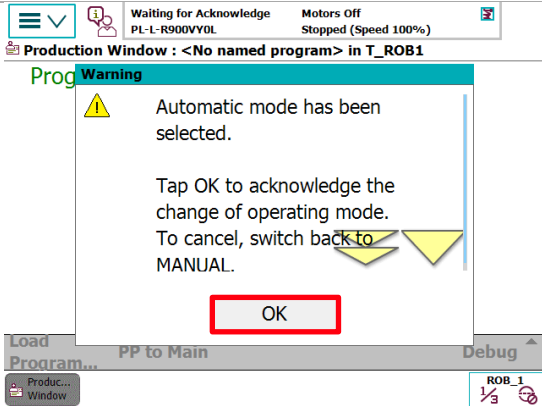
4.1. Robot activation

Table 4. 1 Robot activation

Action	View
Switch on the robot's power supply. To do so, use the disconnecter on the IRC5 control rack by setting it in the "ON" position.	 A photograph of the ABB IRC5 control rack. A red arrow points to the 'Main switch' which is a toggle switch currently in the 'ON' position. The ABB logo is visible on the right side of the rack.

4.2. Switching the robot to the automatic mode


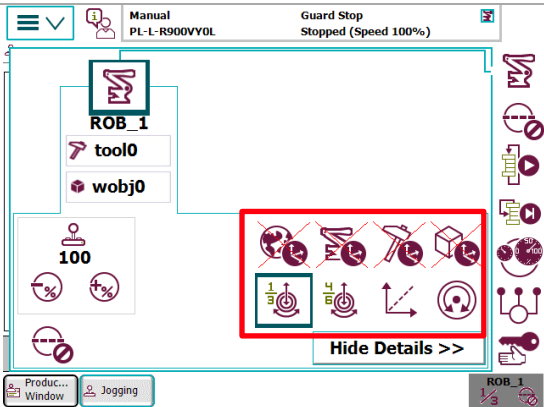
Table 4. 2 Switching the robot to the automatic mode

Action	View
Switch the robot into the AUTO mode with the key switch on the IRC5 controller.	 A close-up photograph of a key switch on the IRC5 controller. The switch is currently in the 'MANUAL' position. A red circle highlights the 'AUTO' position, and a red dot is placed on the 'AUTO' label.
Confirm switching to the automatic mode on the FlexPendant panel. Touch the "OK" box.	 A screenshot of the FlexPendant screen. At the top, it says 'Waiting for Acknowledge PL-L-R900VY0L' and 'Motors Off Stopped (Speed 100%)'. Below that, a 'Production Window' shows '<No named program> in T_ROB1'. A 'Warning' dialog box is displayed in the center with the text: 'Automatic mode has been selected. Tap OK to acknowledge the change of operating mode. To cancel, switch back to MANUAL.' The 'OK' button at the bottom of the dialog is highlighted with a red box.
Turn On motors	
Check if the motors are switched on	Auto PL-L-R900VY0L Motors On Stopped (Speed 100%)

TYPE RDS/IRB6700/2019	DOCUMENT ID 18-2256248 DTR 1-02	REV. A	LANG. ENG	PAGE 31/38
--------------------------	------------------------------------	-----------	--------------	---------------

4.3. Przełączenie robota w tryb ręczny

Tabela 4. 1 Przełączenie robota w tryb ręczny

Action	View
Switch the robot to the manual mode with a key switch on the IRC5 controller	
Select action from the robot menu. In order to move the manipulator, select the coordinate system, hold the Deadman switch and move the joystick.	

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	32/38

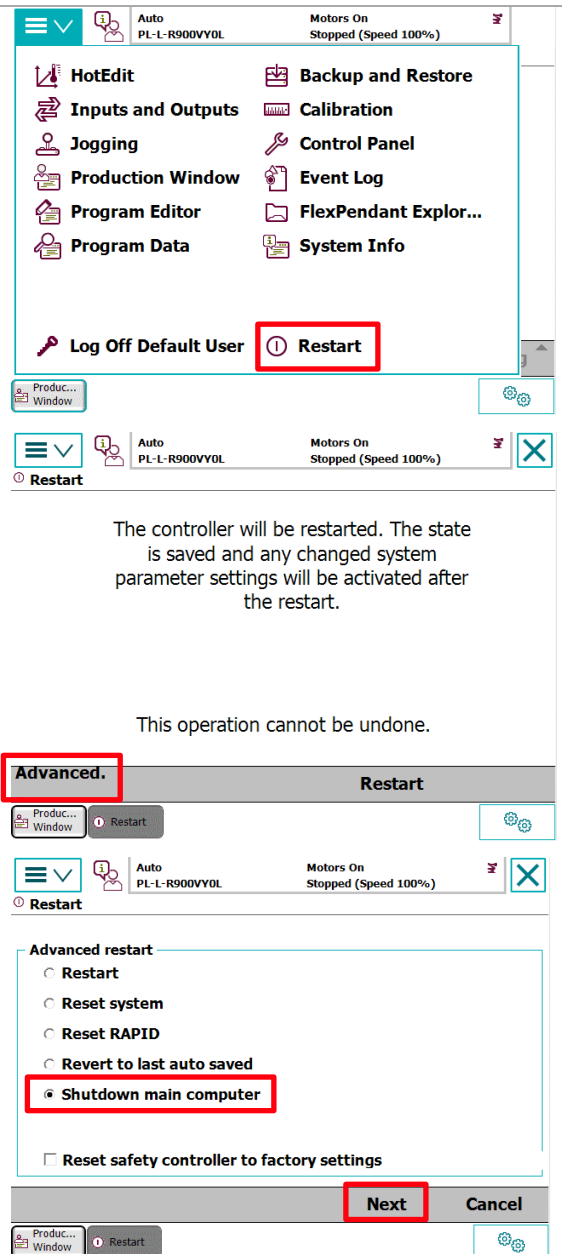
4.4. Switch the robot off

Tabela 4. 2 Wyłączenie robota

Action

Make sure that robot is stopped.

Follow the steps presented in the column on the right.



TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	33/38

Switch the disconnecter in the OFF position



4.5. Backup copy

IRC5 system enables to create backup copies. Backup contains all system parameters and programs. It enables to create new system or upload previous settings.



It is recommended to create backup copy after every changes in the program.
Failure to make a backup copy may result in the loss of programs created or modified since the previous backup.

4.5.1. Creating backup copy

Tabela 4. 3 Tworzenie kopii bezpieczeństwa

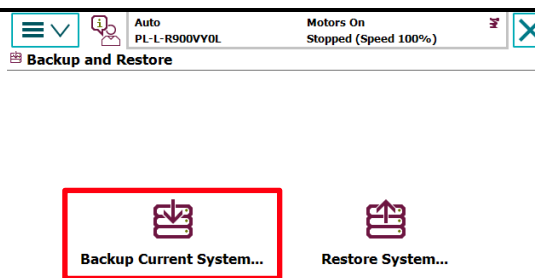
Działanie	Widok
Wybierz ABB Menu, a następnie Backup and Restore (Tworzenie i przywracanie)	

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	34/38

Wybierz Backup Current System (Utwórz kopię zapasową bieżącego systemu)

Kopię można wykonać na:

- dysku robota hdOa
- pamięci typu Flash – PenDrive
- komputerze – w RobotStudio Online

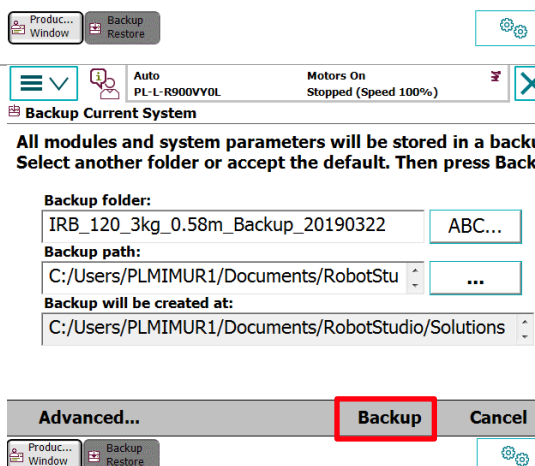


Przy pomocy przycisków nawigacyjnych wybierz nazwę i ścieżkę dostępu.

Domyślnie nazwa ma postać:

Nazwa systemu +Backup+data

Wybierz Backup (Utwórz kopię zapasową)



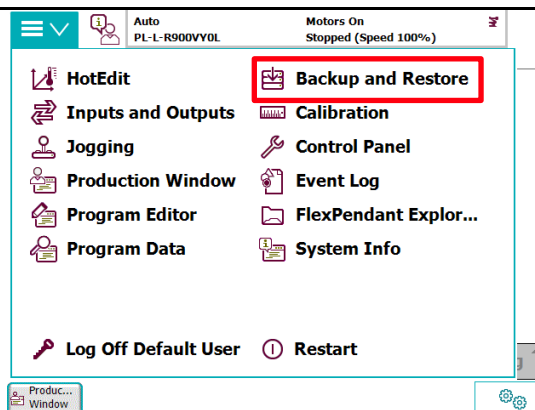
4.5.2. Przywracanie kopii bezpieczeństwa

Tabela 4. 4 Przywracanie kopii bezpieczeństwa

Działanie

Wybierz ABB Menu, a następnie Backup and Restore (Tworzenie i przywracanie)

Widok

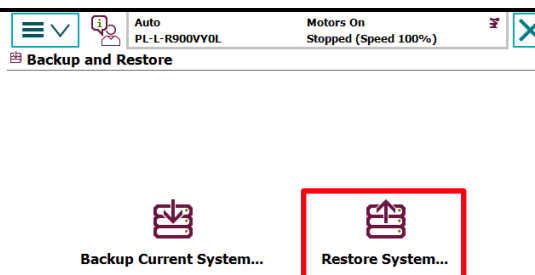


TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	35/38

Wybierz Restore System (Utwórz kopię zapasową bieżącego systemu)

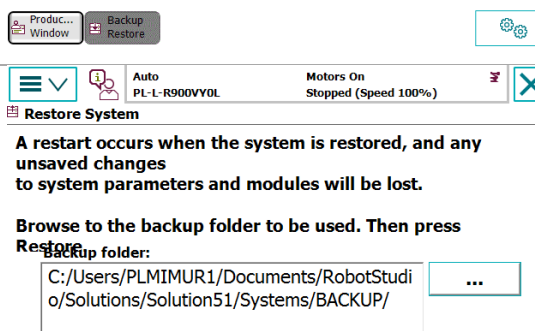
Kopię można przywrócić z:

- dysku robota hdOa
- pamięci typu Flash – PenDrive
- komputerze – w RobotStudio Online

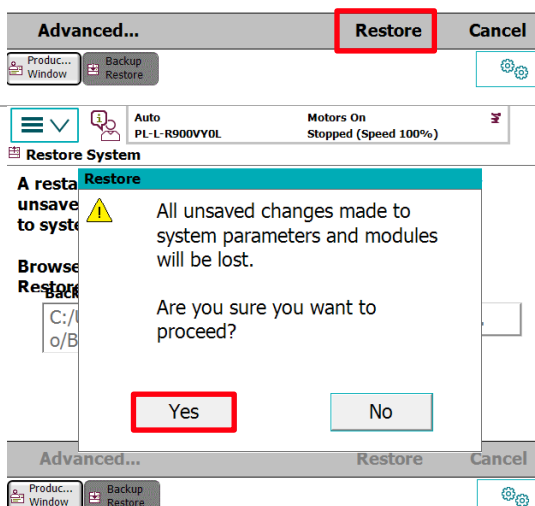


Przy pomocy przycisków nawigacyjnych wybierz nazwę i ścieżkę dostępu Kopi bezpieczeństwa, którą chcemy przywrócić.

Następnie wybierz pole Restore (Przywróć)



Potwierdzić informację o utracie wszystkich niezapisanych danych przez wybór pola Yes (Tak)



System zostanie przywrócony a następnie automatycznie zresetowany.

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	36/38

5. Alarms list

In general, HMI panel should be primary device to diagnose station's faults. However in some cases it is necessary to use Robot's FlexPendant panel.

Table 5.1 Alarms list

ID	Name	Alarm text [en-US], Alarm text
1	Discrete_alarm_1	
2	Discrete_alarm_2	
3	Discrete_alarm_3	
4	Discrete_alarm_4	
5	Discrete_alarm_5	
6	Discrete_alarm_6	
7	Discrete_alarm_7	
8	Discrete_alarm_8	
9	Discrete_alarm_9	Empty Pallette Conveyors - No signal from sensor "S13" while PLACE area status is NOT "empty"
10	Discrete_alarm_10	Empty Pallette Conveyors - Signal from "S13" detected while PLACE area status is "empty"
11	Safety_Circuit	Safety circuit alarm
12	Discrete_alarm_12	Empty Pallette Conveyors - Robot signal exchange timeout - did not get "Robot Ended signal"
13	Air_Pressure	Air pressure circuit alarm
14	300M1 drive fault	300M1 drive fault
15	301M2 drive fault	301M2 drive fault
16	303M3 drive fault	303M3 drive fault
17	304M4 drive fault	304M4 drive fault
18	305M5 drive fault	305M5 drive fault
19	Robot error	Robot error
20	Discrete_alarm_11	Empty Pallette Conveyors - CNV 315M8 - pallet transfer timeout - no signal from S16
21	Discrete_alarm_13	Empty Pallette Conveyors - CNV 315M7 - pallet transfer timeout - no signal from S18/S18a
22	Discrete_alarm_14	Pallette Feeder Conveyors - No signal from sensor "S2" while PICK area status is NOT "empty"
23	Discrete_alarm_15	Pallette Feeder Conveyors - No signal from sensor "S4" while CHECK area status is NOT "empty"
24	Discrete_alarm_16	Pallette Feeder Conveyors - Signal from "S2" detected while PICK area status is "empty"
25	Discrete_alarm_17	Pallette Feeder Conveyors - Signal from "S4" detected while CHECK area status is "empty"
26	Discrete_alarm_18	Pallette Feeder Conveyors - CNV 300M1 - pallet transfer timeout - no signal from S3
27	Discrete_alarm_19	Pallette Feeder Conveyors - CNV 300M1 - pallet transfer timeout - no signal from S6/S6a
28	Discrete_alarm_20	Pallette Feeder Conveyors - CNV 301M2 - pallet transfer timeout - no signal from S1
29	Discrete_alarm_21	Pallette Feeder Conveyors - Stopper V1 opening timeout
TYPE RDS/IRB6700/2019	DOCUMENT ID 18-2256248 DTR 1-02	REV. A
		LANG. ENG
		PAGE 37/38

30	Discrete_alarm_22	Pallette Feeder Conveyors - Stopper V1 closing timeout
31	Discrete_alarm_23	Pallette Feeder Conveyors - Stopper V2 opening timeout
32	Discrete_alarm_24	Pallette Feeder Conveyors - Stopper V2 closing timeout
33	Discrete_alarm_25	Spacers Conveyors- No signal from sensor "S7" while PLACE area status is NOT "empty"
34	Discrete_alarm_26	Spacers Conveyors - Signal from "S7" detected while PLACE area status is "empty"
35	Discrete_alarm_27	Spacers Conveyors - Robot signal exchange timeout - did not get "Robot Ended signal"
36	Discrete_alarm_28	Spacers Conveyors - CNV 305M5 - pallet transfer timeout - no signal from S10
37	Discrete_alarm_29	Spacers Conveyors - CNV 304M4 - pallet transfer timeout - no signal from S12/S12a
38	Discrete_alarm_30	Spacers Conveyors - Pusher V3 opening timeout
39	Discrete_alarm_31	Spacers Conveyors - Pusher V3 closing timeout
40	Discrete_alarm_32	
41	Discrete_alarm_33	
42	Discrete_alarm_34	
43	Discrete_alarm_35	
44	Discrete_alarm_36	
45	Discrete_alarm_37	
46	Discrete_alarm_38	
47	Discrete_alarm_39	

TYPE	DOCUMENT ID	REV.	LANG.	PAGE
RDS/IRB6700/2019	18-2256248 DTR 1-02	A	ENG	38/38