P1DWB

Installation Manual

Manual Code:
D296WB00GB

MARPOSS

MANUFACTURER	MARPOSS S.p.A.
ADDRESS	Via Saliceto, 13 - Bentivoglio (BO) Italia - www.marposs.com
TYPE OF EQUIPMENT - MODEL	P1DWB Firmware V 2.0
FUNCTION	Measurement system for grinding machines
MANUAL CODE	D296WB00GB
ISSUE	January 2017
REVISION	October 2023
ORIGINAL LANGUAGE	Italian

MARPOSS S.p.A. is not obliged to notify customers of changes to the product.
The descriptions in this manual in no way authorize tampering by unauthorized personnel.
The warranty covering the equipment shall be void if any evidence of tampering is found.

This product conforms to the following directives:
- 2014/30/EU EMC directive
- 2011/65/EU RoHS & 2015/863/EU RoHS III

This product conforms to the following UK regulations:
- SI 2016/1091 The Electromagnetic Compatibility Regulations 2016
- SI 2012/3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

The applicable standards are:
- EN 61326-1 (EMC)
- EN 61010 - 1 (SAFETY)
- EN IEC 63000: RoHS

About the directive "**ROHS**" regulating the presence of certain hazardous substances in electrical and electronic equipment: http://www.marposs.com/compliance_detail.php/eng/rohs

For information about possible use in Marposs products of materials coming from conflict areas, refer to:
http://www.marposs.com/compliance_detail.php/eng/conflict_minerals

IK06

INFORMATION FOR USERS

Pursuant to the Standard IEC 62202 (corresponding to the Italian Standard CEI EN 62262-classification CEI 70-4) “Degree of protection against mechanical impacts”.
The equipment has an energy protection level equivalent to 1 J, corresponding to a rating of IK06 (ref. IEC 62262). The energy level was verified in accordance with the test defined in the Standard EN 61010-1: 2010 paragraph 8.2.2 (impact test). If the glass is broken, use the appropriate safety gloves when handling the object and contact customer service in order to replace the equipmen

INFORMATION FOR USERS

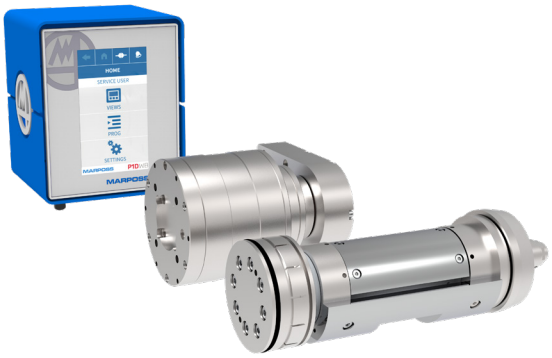
concerning the terms of the National Legislation enforcing the Directive UK SI 2013/3113 and 2012/19/EU on waste electrical and electronic equipment (WEEE).

The crossed out wheelie bin symbol that appears on the product or its packaging indicates that the product must be disposed of separately from other waste materials at the end of its working life.
The manufacture shall be responsible for organizing and handling separate collection of the equipment described in this manual at the end of its working life. Users who wish to dispose of the equipment must contact the manufacture and follow the procedures implemented by the latter for the separate collection of the equipment at the end of its working life.
Sorting the equipment to be disposed of into its component materials before recycling, treatment and environmentally compatible disposal helps to prevent potentially harmful effects on health and the environment and favours re-use and/or recycling of these materials.
Illegal disposal of the product by the user is punishable by the application of fines or other penalties as defined by the applicable regulation.

SUMMARY

1. GENERAL INFORMATION

1.1 Foreword



The P1DWB has been designed and built to be installed in machines, such as grinders, as a machining control accessory.
The P1DWB must be installed in accordance with the instructions provided in this manual and shall not conform to the European standards and directives listed on page 2 unless these conditions are fulfilled.
Any modification that alters the P1DWB construction specifications, whether mechanical or electrical, can only be performed by Marposs that will certify the compliance with the safety standards. Any modification or maintenance not indicated in this document shall be considered unauthorised.
Marposs declines all responsibility in case of any non-compliance with the above.

The descriptions and illustrations supplied with this documentation are not definitive. Marposs reserves the right to modify the product as and when necessary, in order to improve performance, or for any other reason, and without the obligation to update this document.
This document may not be reproduced or transmitted, either wholly or partially, in any form or medium without the prior permission of Marposs SpA.
Legal action will be taken in the event of any violations of this condition.

1.2 General Description of the System

The P1DWB system is designed to resolve the following types of problem on grinding machines:

- **Grinding wheel balancing**

The system can be used to solve the problems relating to grinding wheel unbalance, in order to optimise the quality of the product safely and quickly.

- **GAP Control:**

a. Grinding wheel-work-piece contact check:
Defining a noise threshold make it possible to detect the contact between the grinding wheel and the work-piece for the transition from the approach speed to the feed speed.
b. Grinding wheel position check
Defining a noise threshold makes it possible to detect the position of the grinding wheel with respect to a known reference point, as defined by a CNC elaboration process.
c. Dressing continuity check (grinder dressing)
By monitoring the acoustic emissions during the grinder dressing process it is possible optimize the dressing cycle. The dressing cycle may be considered complete when the sound emission is continuous and uninterrupted.

- **CRASH CHECK**

Definition of a correct noise threshold allows detection of accidental grinding wheel collisions.

The system is available in two versions:
• P1DWB Retraction - for measurement heads with retraction
• P1DWB Contactless – for contactless and GAP transmission measurement heads
Both versions, together with the respective functions, are described in the manual.

This system is compatible with, and can be used to replace, the old Marposs E78 and E82 electronic units, in addition, it is supplied complete with the P1DWB Software Tool application for the Windows ® operating system.

2. GENERAL WARNINGS

2.1 Warnings for users

This instruction manual provides all the specific information necessary for knowledge and correct use of the Marposs equipment in your possession.
THE BUYER MUST ENSURE THAT ALL PERSONNEL ASSIGNED TO INSTALL, OPERATE AND SERVICE THE EQUIPMENT READ THIS MANUAL.
The information contained in this manual is intended for use by the following categories of personnel:

- Marposs personnel, or personnel assigned by the manufacturer of the machine tool that will house the P1DWB (hereafter the “Customer”), who will be directly responsible for installing the equipment.
- Technical personnel employed by the end user (hereafter “the User”) who will be directly responsible for operating the Marposs equipment.
- Technical Personnel assigned by the User to carry out maintenance work on the production line where the P1DWB is installed.

The manual is an integral part of the equipment, therefore the user must ensure that it is always available and is kept good condition throughout the working life of the equipment.
The liability of Marposs is limited to correct use of the P1DWB as defined in this manual and its attachments.
Marposs shall provide the customer with a copy of this manual and its attachments.
Preparations that are the responsibility of the Customer.
The customer shall:

- Correctly position the P1DWB on its own machine and secure it.
- Make the electrical connections.
- Setup the P1DWB

The User shall:

- Program the P1DWB
- Perform the routine and extraordinary maintenance operations.

The safety of any system that incorporates this device and its accessories is the sole responsibility of the system assembler.

2.2 Testing and guarantee

Materials are guaranteed against defects, with the following limitations:
• DURATION OF THE WARRANTY: the warranty covers the product and all repairs carried out on it during the standard guarantee period.
• SUBJECT OF THE WARRANTY: the warranty applies to the product or its parts marked with the serial number or other identification systems used by Marposs.
The above guarantee applies unless other agreements are reached between Marposs and the Customer.

2.3 Requesting technical assistance and maintenance

In case of failures or faults that require the intervention of Marposs personnel contact your local technical support centre (for a complete list, go to: http://www.marposs.com/worldwide_addresses.php/eng).

2.4 How to order spare parts

To order spare parts please contact your closest Marposs centre (see: http://www.marposs.com/worldwide_addresses.php/eng)

2.5 Original version

This document was originally written in Italian.
In case of any dispute arising from translation errors and inaccuracies, even where carried out by Marposs, the definitive version shall be in Italian.

2.6 Authorised and unauthorised use

2.6.1 Intended use

The P1DWB has been designed and built to be installed on automatic machines such as grinders in order to manage the Marposs balancing head in the wheel vibration monitoring.
The system may be used:

- by competent trained personnel only
- only if it is in perfect working order. (Notify your local service centre and, if necessary, contact the specialized customer service technicians in the event of faults or malfunctions during operation, or if you are in any doubt about the correct operating procedures).

2.6.2 Unauthorised uses

Under no circumstance may the P1DWB be used for any purpose other than that for which it was designed. Any use that differs from the use described in this manual shall be considered unauthorised.

The following are also prohibited:
1. Modification of the original P1DWB configuration;
2. Connection of the P1DWB to power supplies other than those described in this manual;
3. Use the components for purposes not envisaged by Marposs.
4. Allow unauthorised personnel to carry out maintenance work on the system.
5. Removal of safety indications and warnings displayed on the equipment

All modifications or maintenance operations not covered by the technical documentation shall be considered arbitrary. Marposs declines all liability in the event of failure to comply with the abovebitrari.

2.7 Identification Labels and Pictograms

Various different text formats were used when preparing this manual. Various safety warnings have been defined.

2.7.1 Symbols used in the instruction manual

ATTENTION / WARNING
This type of note indicates a risk of damage to the electronic unit or other devices connected to it, or risk conditions for the operator or technician.

N.B.
Important information that may help the operator to use and understand the system is contained in boxes indicated by the letters “N.B.” in bold type.

ENVIRONMENTAL HAZARD
Recycle and/or dispose of in accordance with the applicable regulations in the destination Country.

CAUTION
Observe the procedures for handling devices that are sensitive to electro-static discharges. Failure to comply may cause malfunctions or damage the equipment.
For the P1DWB, this symbol is on the packaging of the I/O BOX (“4.6 Removing the P1DWB from its packaging” a pagina 18)

ELECTRIC SHOCK HAZARD
Dangerous voltages: There may be electric shock hazards when troubleshooting on live components.

GENERIC HAZARD
Warning sign that indicates the possibility of damage to things or a generic risk to people.
In the case of P1DWB, this symbol is associated with the rating IK, which means that the device has an impact protection level equivalent to 1 J, corresponding to a rating of IK06. If the glass is broken, use the appropriate safety gloves when handling the object and contact customer service in order to replace the equipment. (See page 6 for the complete reference to the regulation). The symbol is present both in the documentation and on the rear of the panel, in order to remind the user to consult the manual.

2.7.2 Symbols present on the equipment

Below there is a list of the pictograms on the device and referred to in the instruction manual:

CAUTION
Observe the procedures for handling devices that are sensitive to electro-static discharges. Failure to comply may cause malfunctions or damage the equipment.
For the P1DWB, this symbol is on the packaging of the I/O BOX (“4.6 Removing the P1DWB from its packaging” a pagina 18)

ELECTRIC SHOCK HAZARD
Dangerous voltages: There may be electric shock hazards when troubleshooting on live components.

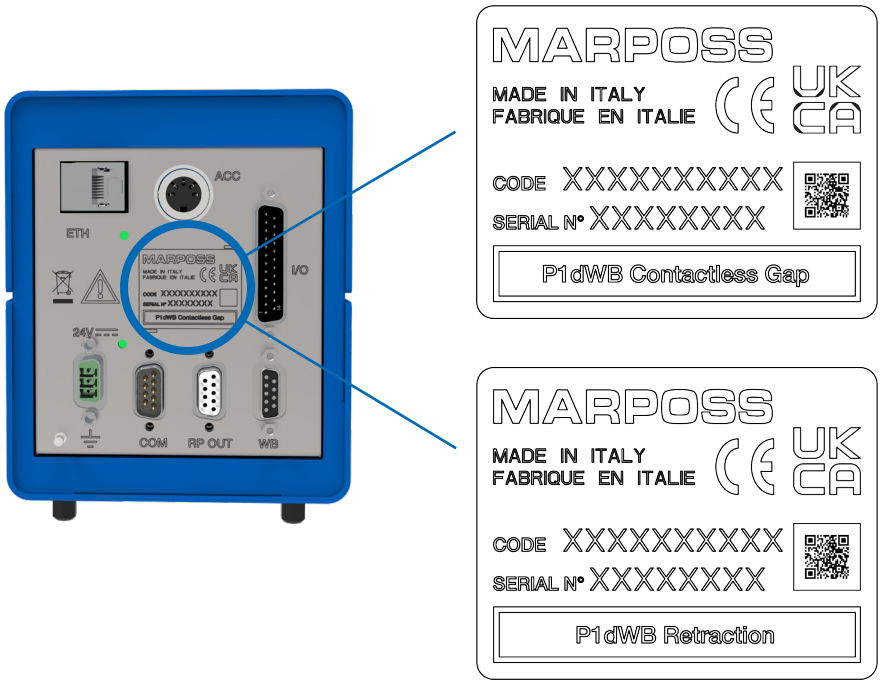
GENERIC HAZARD
Warning sign that indicates the possibility of damage to things or a generic risk to people.
In the case of P1DWB, this symbol is associated with the rating IK, which means that the device has an impact protection level equivalent to 1 J, corresponding to a rating of IK06. If the glass is broken, use the appropriate safety gloves when handling the object and contact customer service in order to replace the equipment. (See page 6 for the complete reference to the regulation). The symbol is present both in the documentation and on the rear of the panel, in order to remind the user to consult the manual.

2.7.3 Plates/markings on the P1DWB and components

P1DWB IDENTIFICATION PLATE

The identification plate is positioned at the rear of the P1DWB
The following information appears on the plate:

- The SERIAL No of the individual P1DWB
- CE and UKCA marking
- The Marposs product identification CODE.



N.B.
All the data listed on the plate must always be legible.
If a data plate is damaged or even partially illegible due to wear, ask MARPOSS for another one, quoting the data in these instructions or on the original data plate.

3. SAFETY DEVICES

3.1 General safety information

3.1.1 Reference directives

The P1DWB has been designed and manufactured in accordance with the directives indicated on page 5 and 6 of this manual.
The P1DWB must be managed by a machine tool used to machine mechanical parts, in compliance with the applicable safety standards for machinery equipment in the user's country.

3.1.2 Product conformity

The safety warnings are intended to prevent injuries to personnel and damage to both the P1DWB and the environment in which it is used. All operators are expected read the safety warnings, and respect them at all times.
The P1DWB is a state-of-the-art device that guarantees a high level of safety, provided all the appropriate safety measures are implemented during daily use.
The End User's responsibilities include defining such measures, and ensuring that they are implemented. Failure to observe the following instructions may result in serious injury as an indirect consequence of improper usage of the device. Device safety may only be guaranteed if the following instructions are adhered to.

WARNING
Any modification that alters the P1DWB design and/or build specifications may only be implemented by Marposs, who shall be responsible for certifying compliance with the safety standards.
Therefore the modifications or maintenance interventions not set out in this document shall be considered unauthorised.
Marposs declines all responsibility in case of any non-compliance with the above.

3.2 P1DWB User Categories and Duties

Installation technician: person qualified to install the P1DWB system inside the machine.
Duties:
1. lift, transport and store the P1DWB;
2. assemble and program the P1DWB;
3. remove the P1DWB.

Maintenance technician: person who is trained and qualified to carry out routine and extraordinary maintenance work on the P1DWB.
Duties:
1. routine maintenance;
2. extraordinary maintenance;
3. Notify Marposs customer service personnel of unexpected situations (e.g. wear, failures, breakages, errors, etc.) not set out in this document and therefore generated by unforeseen causes.

Operator: person assigned to activate the measurement acquisition cycle and monitor the correct operation of the P1DWB.
Duties:
1. Monitor the process
2. Modify the programmed parameters via the control panel, when necessary.

The operator is not required to intervene in any way while the P1DWB is operating.

3.2.1 Physical and mental health of the operator/installation personnel

The operator assigned to install the P1DWB must be aware of the dangers that may be created while installing machining equipment, and be capable of dealing with them.

3.2.2 Personal protection equipment (PPE)

The operators assigned to assemble and carry out maintenance on the P1DWB must use the following personal protective equipment:

INSTALLATION TECHNICIANS:

	SUITABLE CLOTHING		SAFETY SHOES
	SAFETY GLOVES		SAFETY GOGGLES

MAINTENANCE TECHNICIANS:

	SUITABLE CLOTHING		SAFETY SHOES
	SAFETY GLOVES		SAFETY GOGGLES

The operator must use only PPE that complies with the locally applicable directives.

IMPORTANT
In order to guarantee the complete safety of the operator, it is important to note that **this list is not exhaustive**. The operator must use both the mandatory personal protective equipment required in the specific production environment (plant) and that prescribed by the employer

3.3 Training

THE FINAL MACHINE DOCUMENTATION MUST BE READ
The training of operators assigned to normal operation must follow the instructions set out in the documentation of the final machine that the P1DWB is installed in, as this documentation cannot be exhaustive.

Personnel included in the following categories are obliged to read the instruction manual supplied with the equipment.

Installation technicians personnel assigned to transport, store and install the gauge, in order to:
- Ensure they are aware of the appropriate lifting and transport methods used for the parts of the P1DWB, as stipulated by Marposs, in order to prevent the risks associated with moving loads;
- Ensure they are aware of the correct storage procedures for the parts of the P1DWB in order to avoid damaging important parts, not only in terms of safety but also from an operational point of view;
- Ensure they are aware of the correct P1DWB installation procedures, such as wiring the electrical parts, in order to prevent assembly errors that could lead to dangerous situations for the health and safety of the operators.

Operators assigned to supervise normal operation of the equipment, in order to:
• Ensure they adhere to the applicable regulations governing use of the equipment, and that they read and following the instructions and other information provided in the attached documentation.

P1DWB maintenance technicians, in order to:
• Ensure they are aware of the correct procedures for carrying out scheduled and unscheduled maintenances activities on the P1DWB.

3.4 Electrical Dangers

Every effort has been made to adopt all the necessary safety and protection measures during the design phase, however some electrical dangers remain. These risks are listed below.

ELECTRICAL PARTS
The system is energized by an electrical power supply. Personnel may be exposed to the risk of electric shocks in the event of electrical faults or when working on electrical parts. Ensure that all electrical work is carried out exclusively by qualified personnel.
Display the appropriate warning signs. After deactivating the machine, and before starting working on its electrical parts, make sure that the control panel or system controls are not connected to the electrical power supply.

<u>Moreover, it is important to remember that:</u>
Incorrect actions by the operator can cause residual risks.
The risks and dangers generated by:

- Operator carelessness,
- Failure to comply with the information and instructions contained in these operating instructions,
- Deliberate tampering with the P1DWB or its safety devices,

Any modification that alters the P1DWB build specifications, whether mechanical or electrical, can only be performed by Marposs, which will certify compliance with the safety standards. Any modification or maintenance not indicated in this document shall be considered unauthorised.
Marposs declines all responsibility in case of any non-compliance with the above.

4. TRANSPORTATION. STORAGE

4.1 Personal protection equipment (PPE)

The operators assigned to transportation, storage and installation of the P1DWB must obtain and use the PPE indicated in this manual, as well as the mandatory PPE for the environment in which the P1DWB is used.

4.2 Training

The operators assigned to transportation, storage and installation of the P1DWB must be trained and informed as required by the applicable directives in the relative countries.

4.3 State of tools and equipment

The operators must use the equipment listed in the corresponding paragraphs when carrying out transportation, storage and installation operations.
It is important to ensure that the equipment and tools are in good condition and that they are not worn, excessively aged or fatigued in any way.
The tools must be selected in accordance with the applicable laws and regulations governing working tools and must be used in accordance with the manufacturers' instructions.

4.4 Taking delivery of the material

During packing, all the P1DWB technical material is thoroughly checked in order to ensure that no damaged material is shipped.
When unpacking the material, check that the P1DWB is in perfect condition and not damaged in any way. Notify Marposs immediately if it is damaged.

4.5 Packaging, handling, transport

4.5.1 Packaging

The P1DWB is protected with carton and an internal insert for handling and transportation.

4.5.2 Handling the package

No specific equipment is required for handling the package.

4.5.3 Transporting the package

The package containing the P1DWB must be transported on covered transport vehicles so that it and the P1DWB are not exposed to the weather.

4.5.4 Disposing of packaging materials

The packaging used for the P1DWB consists of materials that can be disposed of without exposing people, animals or property to any significant hazards.

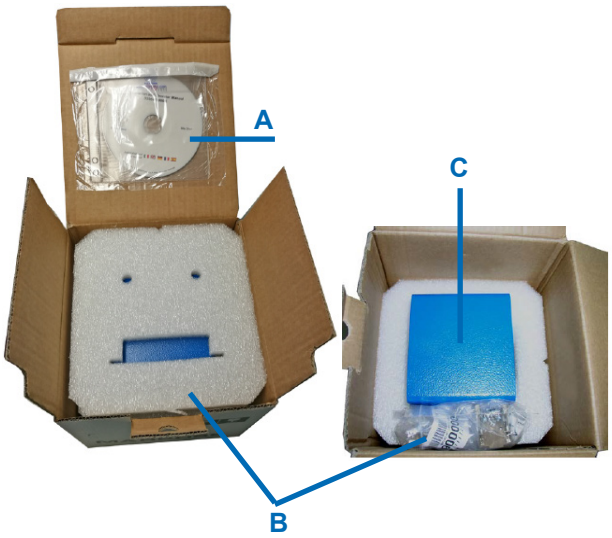
Operators or personnel responsible for disposing of the packaging should be aware that it consists of:
• Cardboard: external container and internal insert
• Polyurethane film: internal insert.

ENVIRONMENTAL HAZARD
The polyurethane film is NOT biodegradable. It must NOT be disposed of in the surrounding environment: recycle and/or dispose of materials in accordance with local regulations.

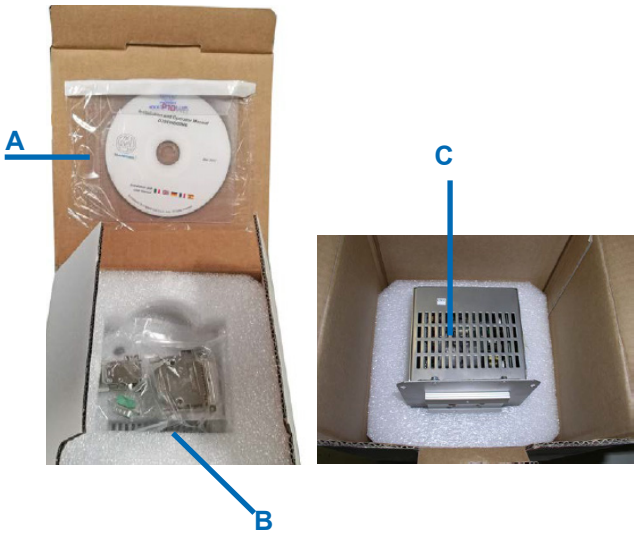
4.6 Removing the P1DWB from its packaging

Marposs has not indicated special devices for removing the P1DWB from the packaging.

VERSION WITH CASE



VERSION WITH RACK AND REMOTE PANEL



- Remove the CDs (A) from the packaging containing the instruction manuals (to be kept).
- Remove the connectors from the packaging (B)
- Finally, remove the P1DWB from the packaging (C)

ENVIRONMENTAL HAZARD
Failure to dispose of the packaging correctly may result in the following consequences: burning the plastic parts will release poisonous gases that may cause health problems..

CAUTION
Handle with care: observe the procedures for handling electrostatic sensitive devices. Failure to comply may cause malfunctions or damage the equipment.
Specifically, it is important to:

- Discharge any accumulated electrostatic charges by touching a metal surface that is connected to the building earth system;
- Take care not to touch the connector pins on the equipment while removing it from the packaging, while connecting it to the corresponding flying connector, or during operation. Avoid direct contact with the pins and contact through wires connected to the flying connectors. Follow these directions for both connectors with plastic caps and those without. Only remove the plastic caps to make the connections to the corresponding flying connectors. Always replace the plastic covers when it is necessary to disconnect one or more connector.

5. ENVIRONMENTAL CONDITIONS

The mechanical and electronic components installed in the P1DWBhave been selected for their reliability and durability. The components meet the manufacturing safety requirements in force and have been designed to withstand temperatures from -20 °C to +70 °C (from -4 °F to 158 °F) during transport and storage.

5.1 P1DWB Storage Environment

The P1DWB must be stored in a covered area where dust and humidity levels are kept to a minimum.
The warehouse storage shelf must be level and smooth.
Do not rest other materials, even light items, on top of the P1DWB package or the P1DWB itself, as this may damage it.

5.2 P1DWB Working Environment

When installing the unit, the operator must check that the final machine has been designed and built to operate in the environmental conditions set out below.

TYPE OF ENVIRONMENT:

The P1DWB and the relative electrical components have been designed and built to be installed in a heavy industrial environment, and to be used only in closed environments where they are protected from the weather. Do not use the equipment in residential or light industrial environments.
The P1DWB panel must be located in a dry place outside the machine, while the measuring heads connected to it must be installed in a damp environment inside the machine.
Unless otherwise specified in the contract, the P1DWB can only operate regularly in the environmental conditions set out below. Environmental conditions other than those described may damage the machine or cause it to malfunction, giving rise to potential hazardous situations for the operator and exposed personnel.

AMBIENT AIR TEMPERATURE

The P1DWB components will operate correctly at temperatures from +5 to + 45 °C (41 to 113 °F).

OPERATING RELATIVE HUMIDITY

Relative humidity when in use 85% ≤ RH<90% max 2 months

ENVIRONMENTAL POLLUTION GRADE

Grade 2

ALTITUDE

The electrical components are designed to operate correctly up to 2000 m above sea level.

POLLUTANTS

The electrical components are adequately protected against the infiltration of solid bodies when using the P1DWBfor the intended purposes and in the specified operating environment.
Unless otherwise stated in the contract, the electrical components DO NOT have specific protections against contaminating agents such as dust, liquids, acids, corrosive gases, salt, etc.
If it is necessary to use the electrical components and the complete equipment in environments subject to such contaminating agents contact Marposs immediately. Marposs will check the suitability of the assembly based on the environments they are used in.

“NORMAL” ENVIRONMENTAL LIGHTING

The installation procedure must be carried out under “normal” lighting conditions, i.e. without dazzling the operators with too much light or causing them to strain their eyes in insufficient lighting.
The personnel responsible for installing the P1DWB must comply with the minimum requirements set out by the applicable laws in the respective countries in terms of natural and artificial lighting of the premises.
If there is poor lighting in the workplace the operator must use portable lighting equipment.

6. DESCRIPTION OF THE EQUIPMENT

6.1 P1DWB versions

The device is available in 6 different models, which may be identified as follows:

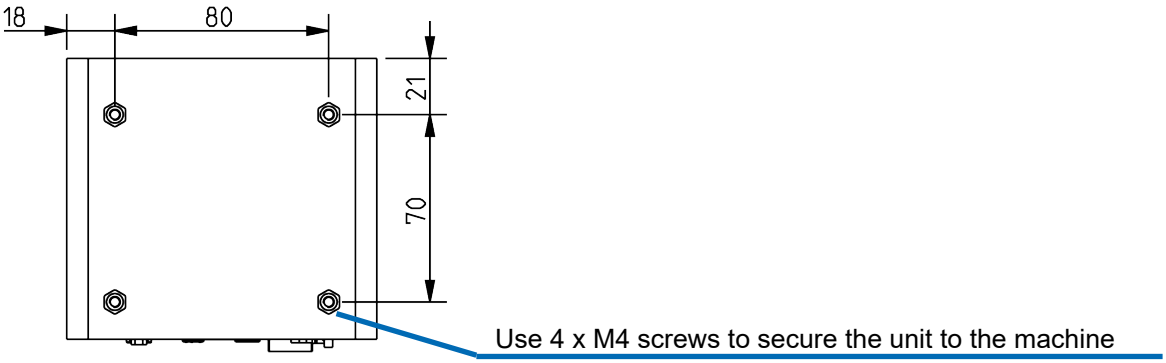
Contactless Gap

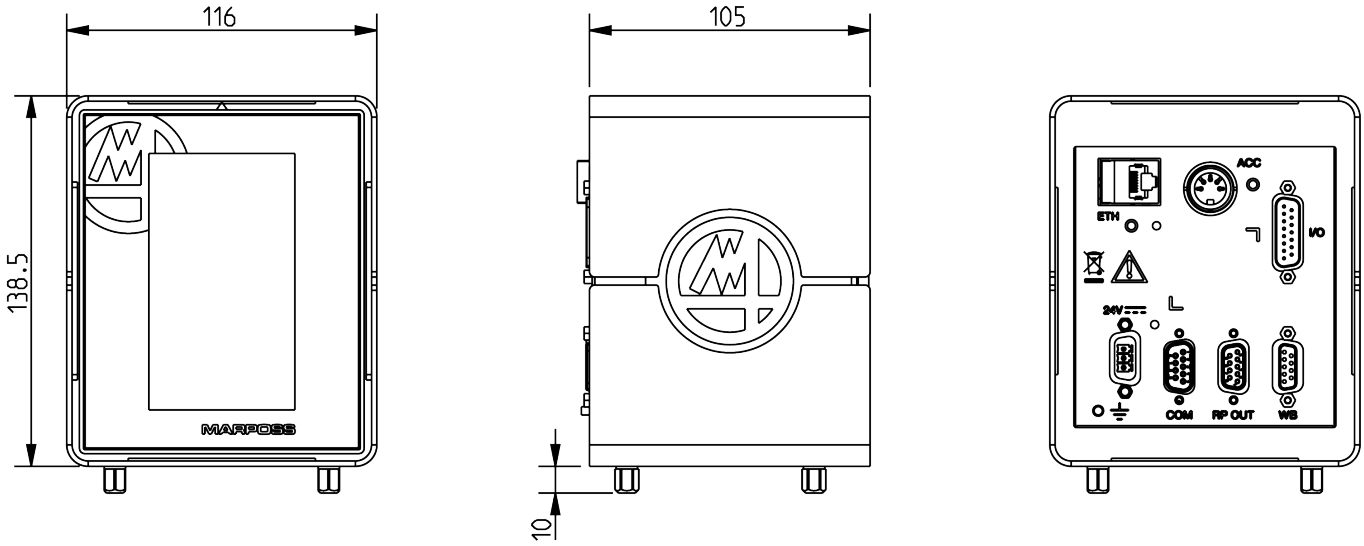
Retraction

VERSION WITH CASE		
	CG Version	R Version
	830WBC0100 P1DWB-CG Version with case - Contactless Gap	830WBR0100 P1DWB-R Version with case – Retraction
RACK VERSION		
	CG Version	R Version
	830WBC1100 P1DWB-CG Rack version - Contactless Gap	830WBR1100 P1DWB-R Rack version – Retraction
VERSION WITH REMOTE PANEL		
	CG Version	R Version
	830WBC2100 P1DWB-CG Version with remote panel - Contactless Gap	830WBR2100 P1DWB-R Version with remote panel – Retraction
	7708010004 **Remote panel**	

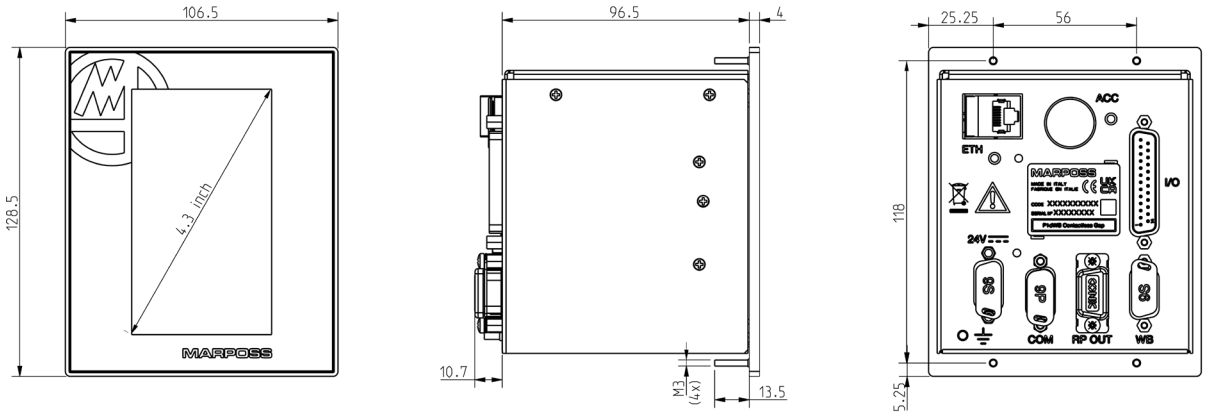
6.2 Size

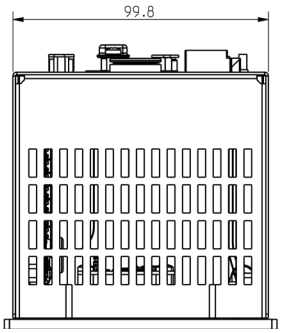
P1DWB SIZE AND VOLUMES: CASE VERSIONS





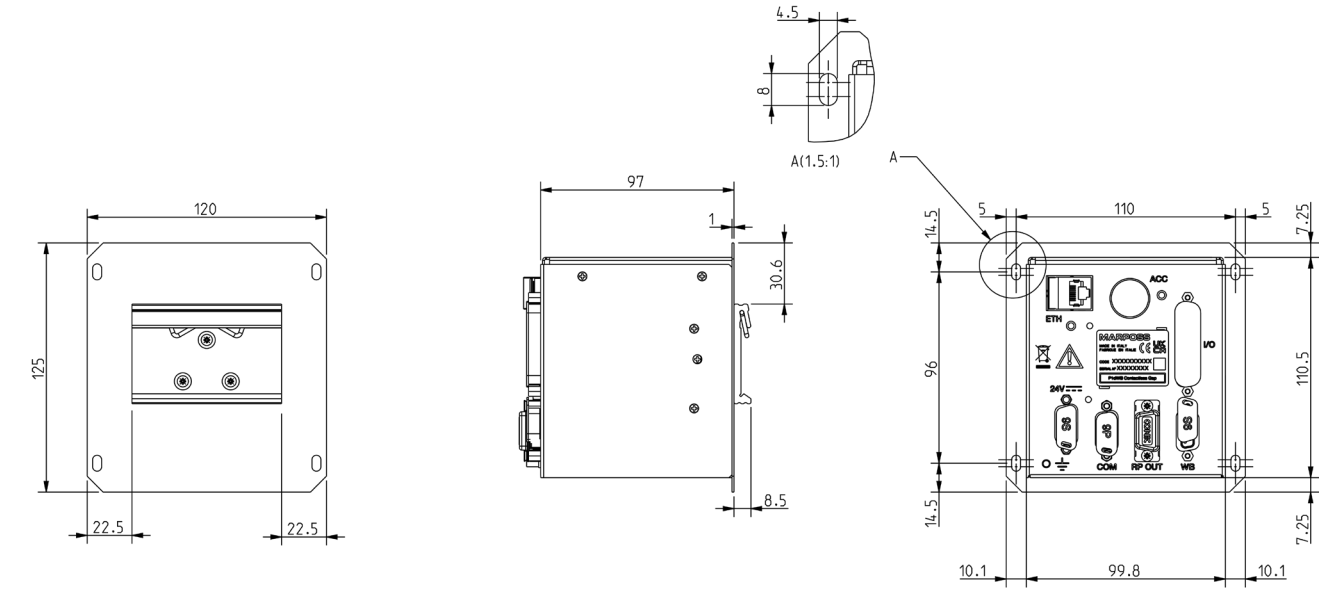
P1DWB SIZE AND VOLUMES: RACK VERSION

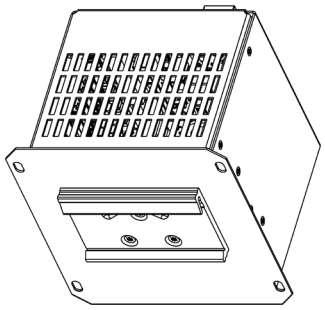


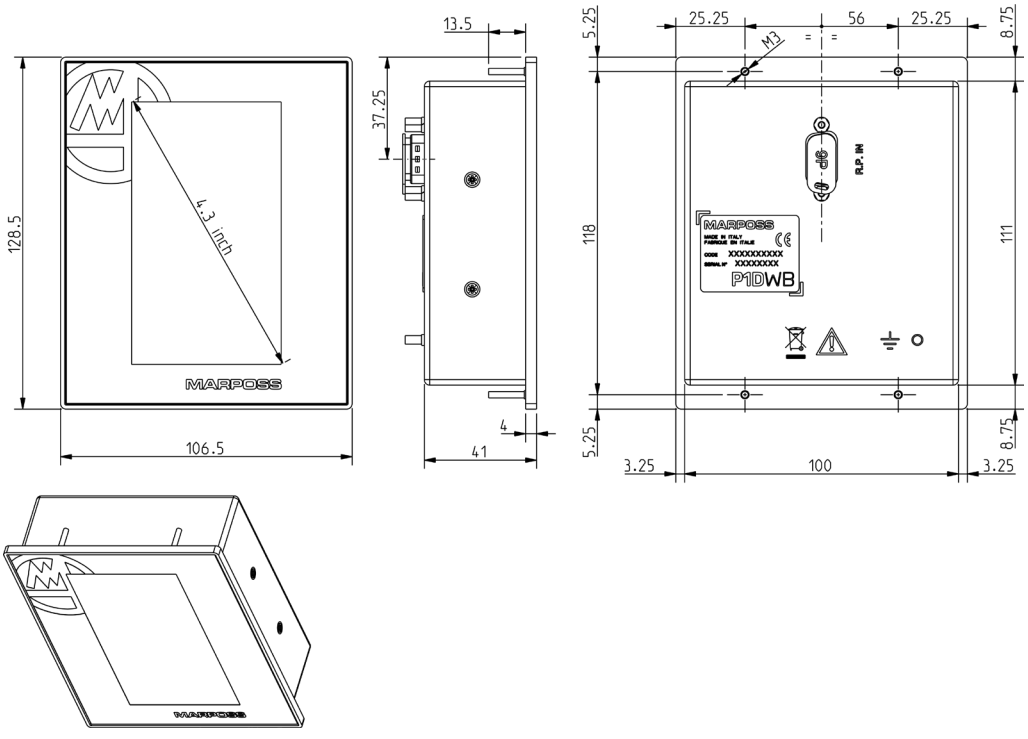


ATTENTION
The rack version requires a fire-resistant covering irrespective of whether it is fitted with the front or remote panel.

P1DWB SIZE AND VOLUMES: REMOTE PANEL VERSION







6.3 Techical Specifications

Structure	Rack, Case or Remote panel
Version	P1DWB _R P1DWB _CG
Power supply	24 Vdc SELV type (-15% / +20%) ⎓ this symbol indicates direct current.
Current consumption	0.8 A
Operating temperature	Between +5° and +45° C
Storage temperature	Between -20° and +70° C
Humidity	Storage <90% Shipping <90% In use <85% ≤ RH<90% max 2 months
Weight	Rack 900 gr. – Case 2000 gr
Protection rating (Standard IEC 60529)	IP54 - Front panel IP 40 - Product
I/O signal connections	P1DWB -R version: D-SUB male 15 pin connector P1DWB-CG version: D-SUB male 25 pin connector.
I/O signals	Sink & Source
Output signal rate	1 ms
Serial Interface	RS232 RX and TX only
Display	LCD Touchscreen display. Resolution 272x480 pixel – Size 4.3”
RPM measurement range	Between 0 and 99.999 RPM
Tunable unbalance range	from 60 to 30.000 RPM

Controls	Gap & Crash
Thresholds	Programmable
Electrical Safety Standard	EN 61010-1
EMC Standard	EN 61326-1

7. P1DWB INSTALLATION

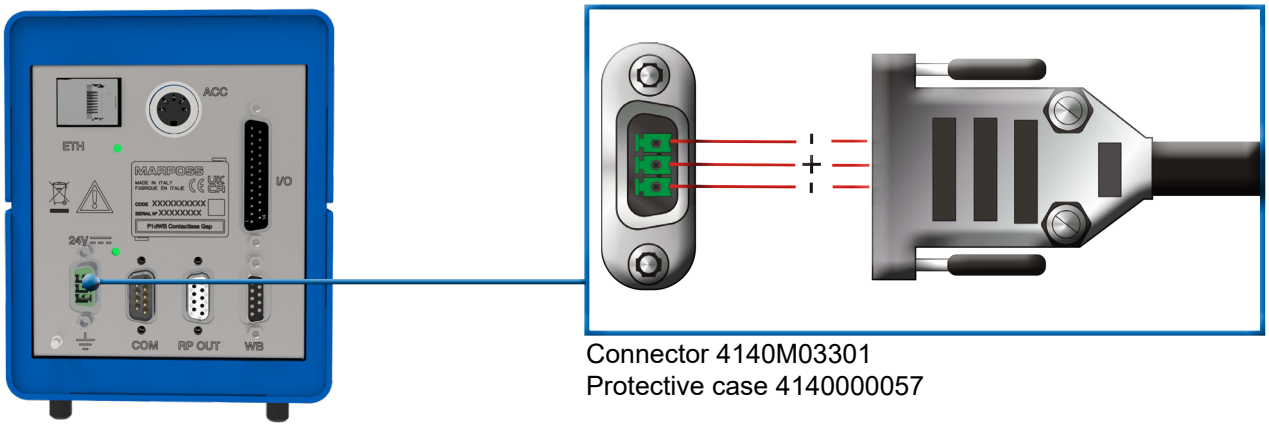
CONNECTOR	DESCRIPTION
POWER 24 VDC ⎓	24 VDC type SELV (-15% / +20%) electrical power supply (as per EN 60950-1) connector
⏚	Functional earth stud (M4)
RP OUT	Output for remote panel connection (D-SUB female 9 pin connector)
COM	Serial RS232 interface for connection to an external PC (D-SUB male 9 pin connector)
WB	Balancing head connector (D-SUB female 9 pin connector) or RPM proximity sensor.
ACC	Vibration sensor/accelerometer sensor connector (Amphenol 5 pin connector)
I/O	Machine PLC I/O connection: • D-SUB male 15 pin connector for P1DWB with retraction • D-SUB male 25 pin connector for P1DWB with contactless
ETH	RJ45 LAN connection port
	There are two LEDs on the rear of the unit: • P1DWB status LED • Ethernet Port Status LED

7.1 Connecting the power supply

POWER specifications:

Voltage: 24 VDC (±20%) SELV type as defined by EN 60950-1
Consumption: current: 0.8 A
The Phoenix connector is supplied with the equipment and features knurled-headed screws for manual tightening.
We recommend fitting a 2 A circuit breaker switch upstream of the machine during installation and operation.

N.B.
The maximum power cable cross section that is compatible with this connector is 1.5 mm².

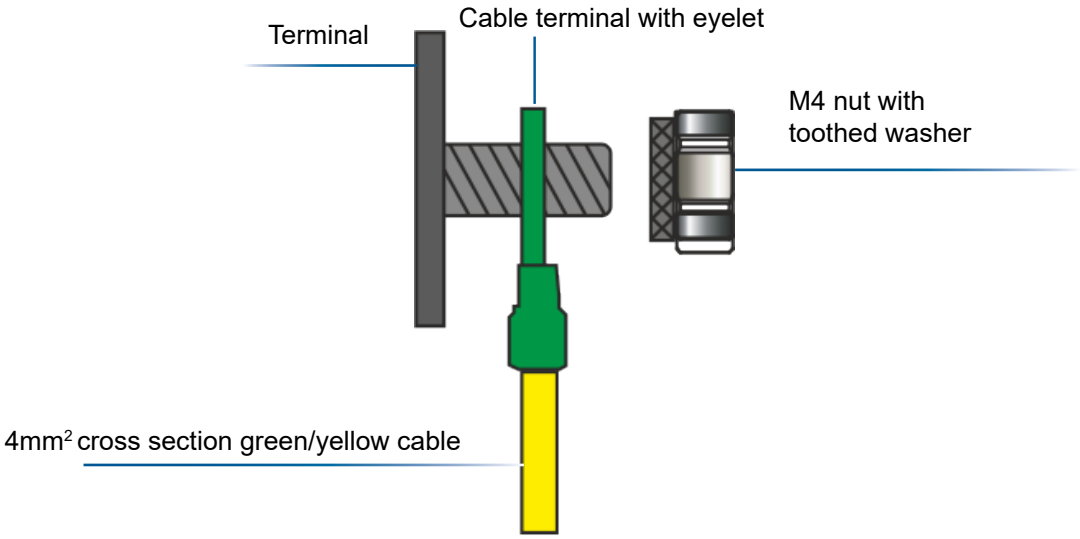


Connector 4140M03301
Protective case 4140000057

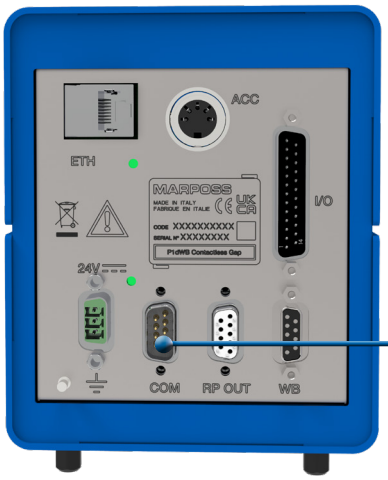
If the positive line (24 Vdc) of the device power supply is connected to the frame, the negative pole (0 V) must be protected by a fast-blow 2 A fuse with a minimum rating of 30 Vdc.
In any event, the fuse must be selected so that its rating does not exceed the maximum current limit of the machine power supply.

7.2 Functional Earth Connection

Connect the drawer to earth via the dedicated terminal (identified by ⏚).
The earth connection is made by connecting the terminal to the centre of mass of the machine the drawer is installed on. Use the shortest possible connection.
Use yellow/green cable with a cross section of at least 4 mm².



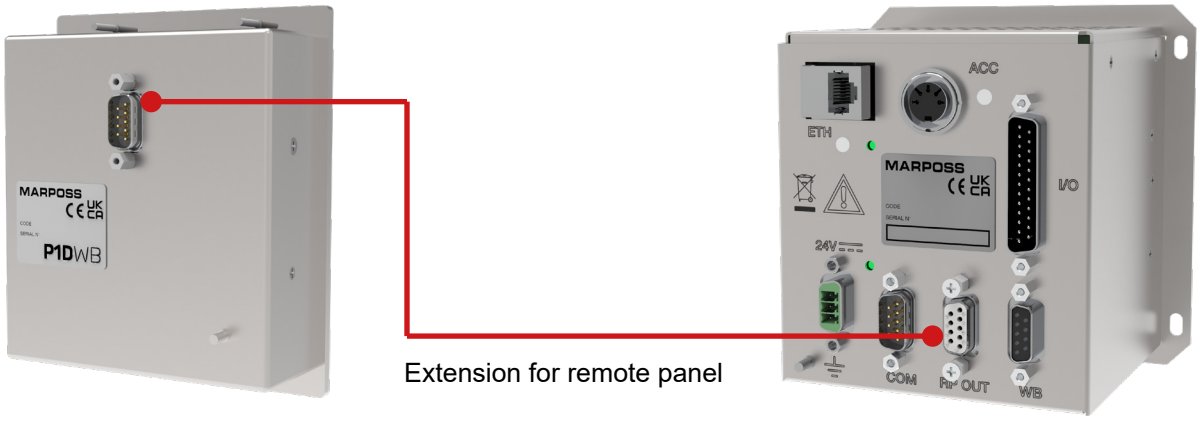
7.3 Connecting the remote panel



D-SUB female 9 pin for the connection to the remote panel.

This connector is protected by a metal cap, which should only be removed if it is necessary to connect the unit to the remote panel.

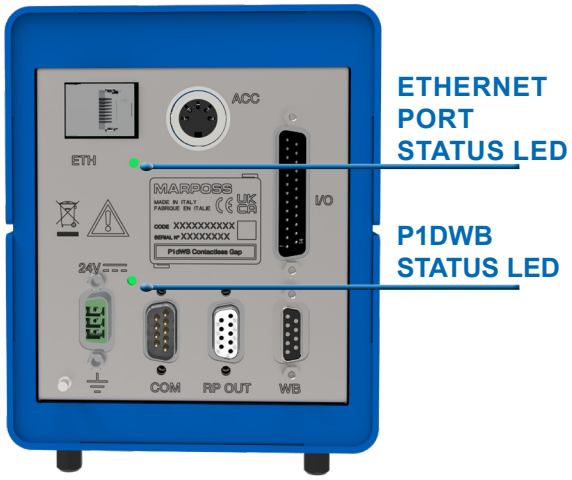
7.3.1 Extension for remote panel



Extension for remote panel

EXTENSION FOR REMOTE PANEL	
Length (m)	**Code Number**
6	6737959030
10	6737959032
15	6737959034
20	6737959036

7.5 Status LED



The LED positioned next to the Ethernet connector may indicate the following states:

GREEN LED: ETH link active at 10 Mps

ORANGE LED: Ethernet link active at 100 Mps

Variable LED: communication activity in progress.

The status LED positioned next to the power supply may indicate the following states:

GREEN LED: the unit is switched on and the power supply voltage is correct.

ORANGE LED: There is communication between the CPU board and the Remote Panel

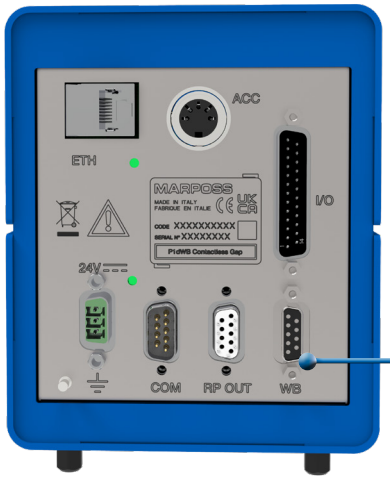
Flashing GREEN LED: There are power supply or excess current consumption problems inside the P1DWB unit, which may cause malfunctions.

7.4 Connecting a PC

The COM or Ethernet port is used for connecting to an external PC, where the “P1DWB TOOL SW” software supplied with the unit may be installed.

The P1DWB TOOL SW is a service software tool, used by Marposs service, which is connected to the P1DWB unit via a COM port, and can be used to perform the same functions as the unit directly from the PC.

8. CONNECTING BALANCING HEADS OR RPM SENSOR



Connector for balancing heads or RPM sensor for pre-balancing function.

There are two types of balancing heads FT (Flange Type) and ST (Spindle Type), which are subdivided as follows, depending on the type of transmission:

Balancing heads with retractable contacts:

- ✓ **FT R** Flange Type Head with Retractable contacts
- ✓ **ST R** Spindle Type Head with Retractable contacts

Balancing Heads with contactless transmission

- ✓ **FT C HG** Contactless + GAP Flange Type Head
- ✓ **ST C HG** Contactless + GAP Spindle Type Head
- ✓ **FT C H** Contactless Flange Type Head
- ✓ **ST C H** Contactless Spindle Type Head

The letters **H** (Home) and/or **G** (GAP) indicate the presence of the corresponding optional Home (neutral position of the weights) and GAP&CRASH AE sensors on the balancing head.

Various different balancing heads may be used, depending on which version of P1DWB is in use:

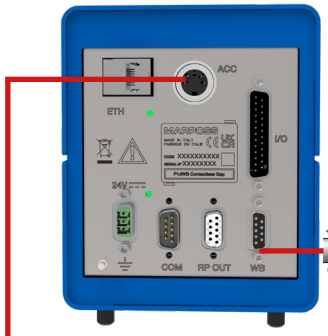
P1DWB –R	P1DWB –CG
✓ FT Contacts ✓ ST Contacts	✓ FT contactless sH ✓ ST contactless sH ✓ FT contactless sH + GAP ✓ ST contactless sH + GAP

Note: sH = Home position sensor

If only pre-balancing function is available, the RPM sensor must be connected to the connector called “WB” D-SUB 9 pin using the cable code 6738032001.

NOTA
In the case of old electronics upgrading, the transmission can be E82 / E78 type.

PRE-BALANCING WITH COMPENSATION WEIGHT



Extension cod.

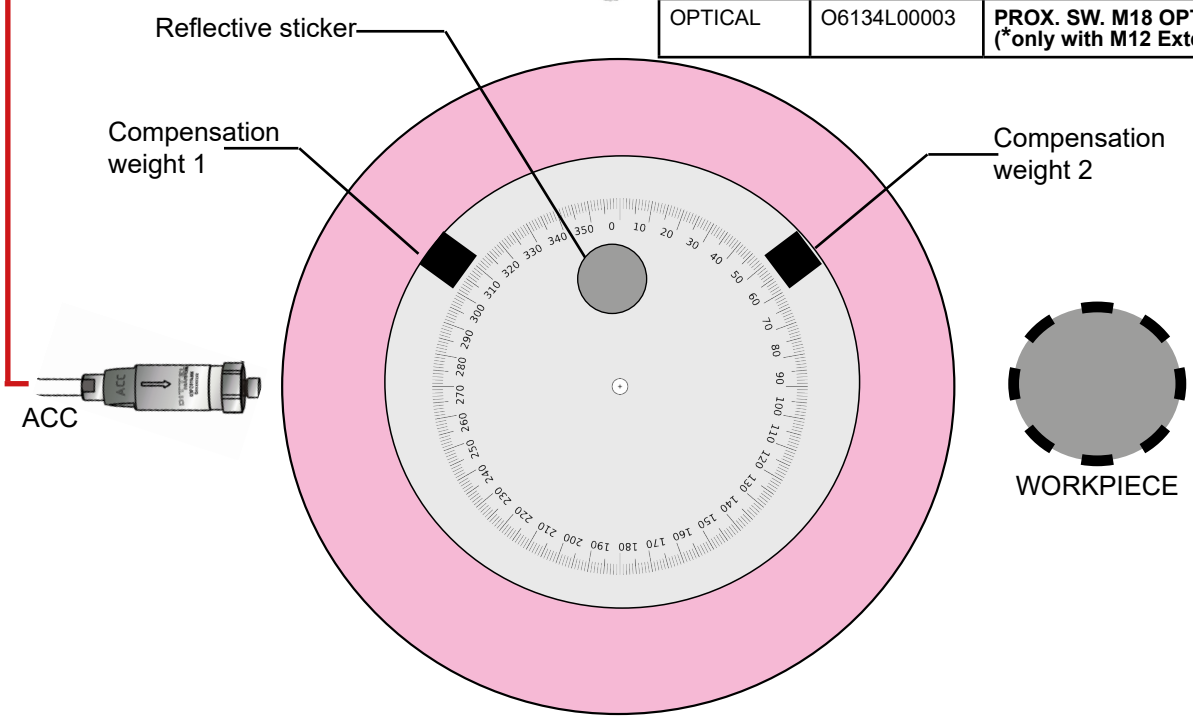
6738032001	**P1DWB EXTENSION RPM - PNP**
6738032002	**P1DWB EXTENSION RPM - NPN**

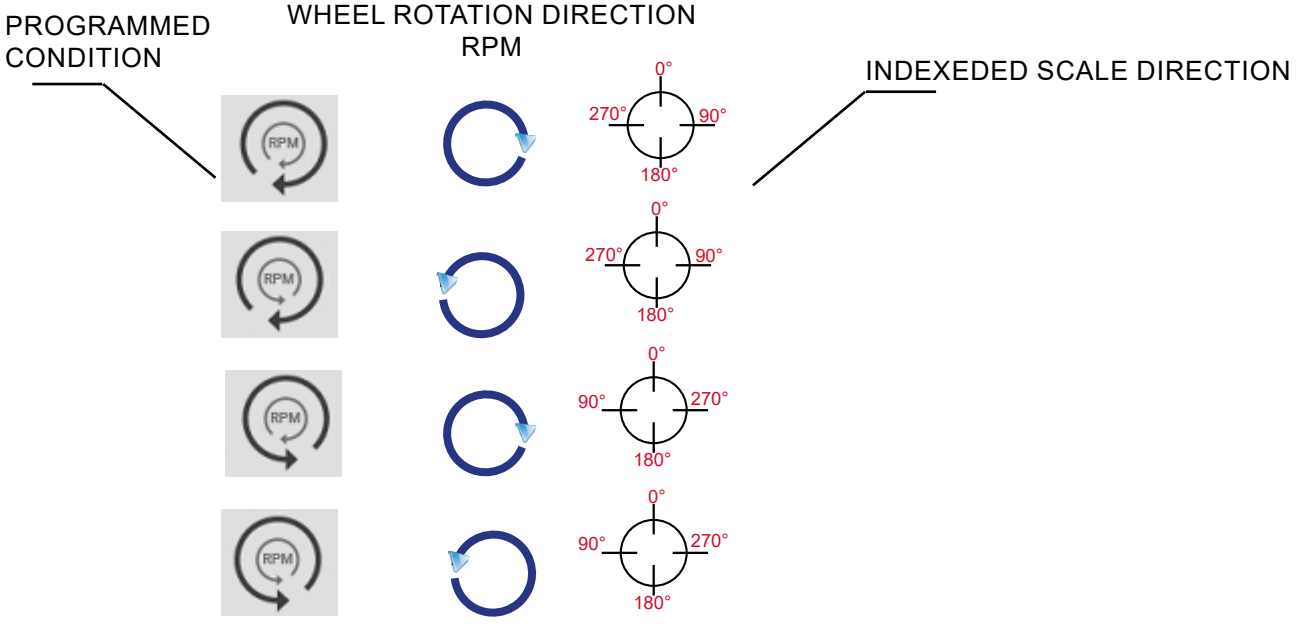
Extension cod.

6735599028	**P1DWB EXTENSION RPM EXTERNAL M12 10m ***
6735599029	**P1DWB EXTENSION RPM EXTERNAL M12 5m ***
6735599030	**P1DWB EXTENSION RPM EXTERNAL M8 5m**
6735599031	**P1DWB EXTENSION RPM EXTERNAL M8 10m**
6735599033	**P1DWB EXTENSION RPM EXTERNAL M8 15m**

RPM Sensor code

INDUCTIVE	O6134L00002	**DSG-M8 NPN CP PROX. SWITCH**
	O6134L00001	**DSG-M8 PNP CP PROX. SWITCH**
	O6134L00005	**DSG-M12 PNP CP PROX. SWITCH**
	O6134L00006	**DSG-M12 NPN CP PROX. SWITCH**
OPTICAL	O6134L00003	**PROX. SW. M18 OPTICAL CP (*only with M12 Extension cable)**





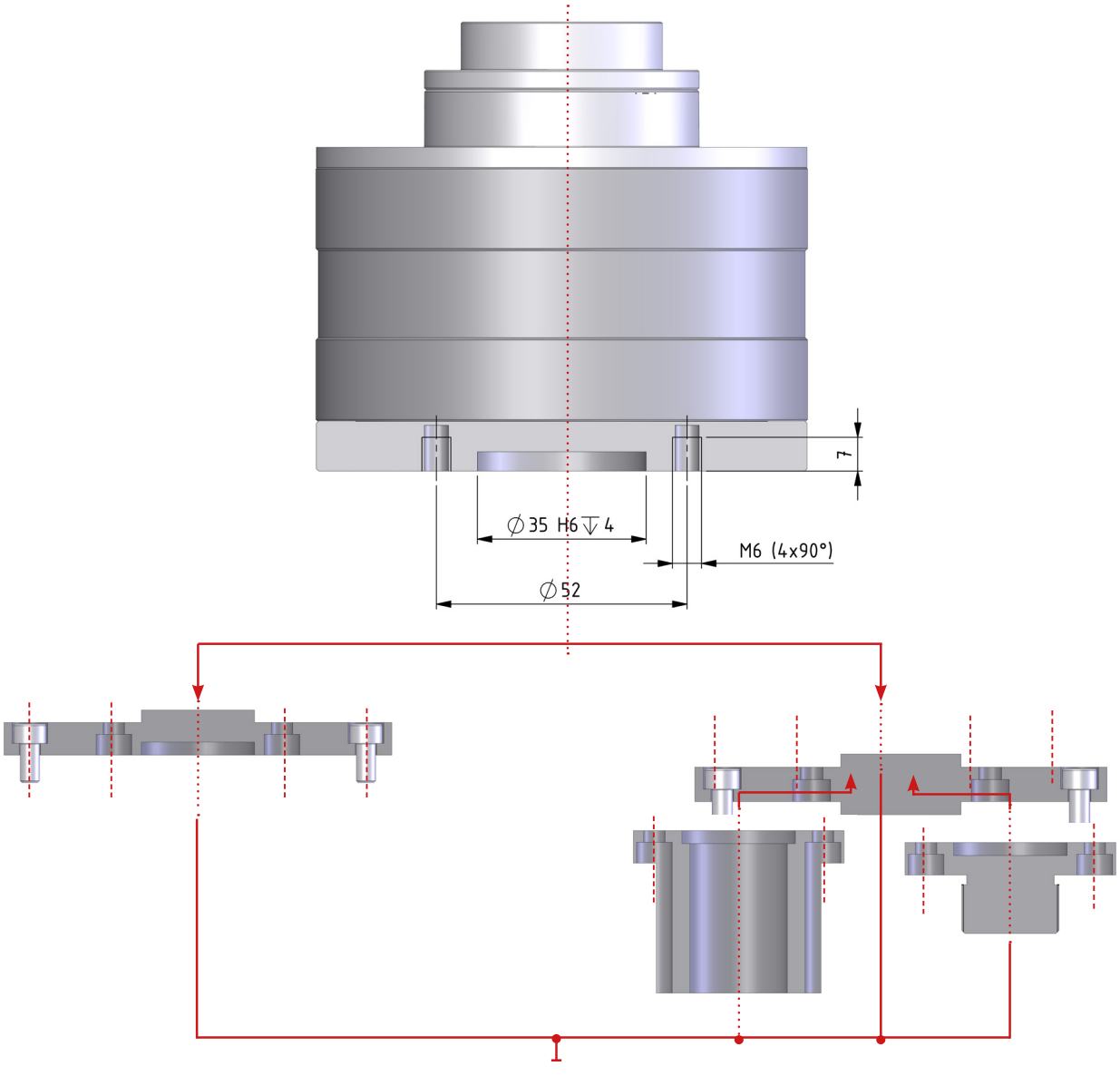
8.1 Installing “FT” balancing heads

The FT type heads may be secured to the grinding wheel locking nut or the grinding wheel mounting flange using a suitable mounting adaptor (see figure below).
In order to ensure that the system functions correctly, the flange must guarantee that the head is centred with respect to the spindle, within a tolerance of 50µm (.002”).

The type of mounting adaptor must be defined on an ad hoc basis, depending on the form and dimensions of the spindle. The machine manufacturer shall be responsible for producing this part.

Warning
To avoid hazardous mechanical stresses that could damage the balancing head, DO NOT loosen the grinding wheel locking nut when the balancing head is balancing head is secured to it.

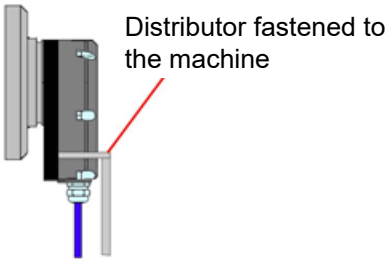
N.B.
When using balancing heads with integrated Gap & Crash AE sensors (FT HG), we recommend applying a layer of silicon grease between the two mounting surfaces in order to improve sound transmission to the acoustic sensor.

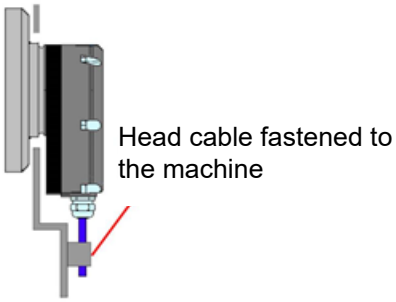


8.1.1 Installing the distributor for FT heads with retraction (FT R)

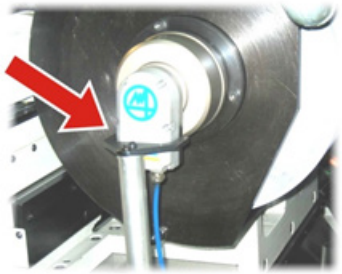
The FT R heads consist of a single unit on which both the rotating part and the fixed part (or distributor) are mounted. In this configuration, the head and associated distributor are both supported by the adaptor described in the previous paragraph. The distributor or its cable must also be secured to the machine in order to prevent it from rotating together with the grinding wheel.

ATTENTION
Secure the distributor or cable to the machine.





Examples:



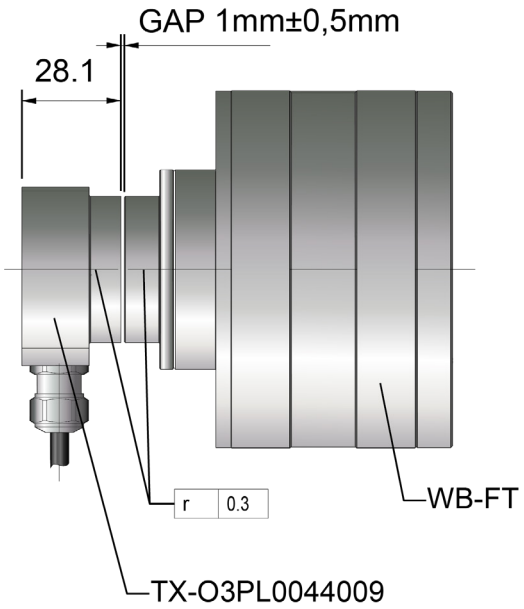
Securing the distributor

Securing the cable

8.1.2 Installing the contactless transmission system for FT (FT H/FT HG) E82 type heads

The contactless transmission system consists of two parts:
- Rotor (rotating part, built into the balancing head)
- Stator (stationary part)

MINI CT TRANSMITTER



Rotor/stator distance	1 ± 0,5 mm
Maximum receiver misalignment (TIR) error	≤ 0,3 mm in all directions
Distance between RPM sensor and receiver	Integrated
Rotor/stator voltage	23 V ÷26 V

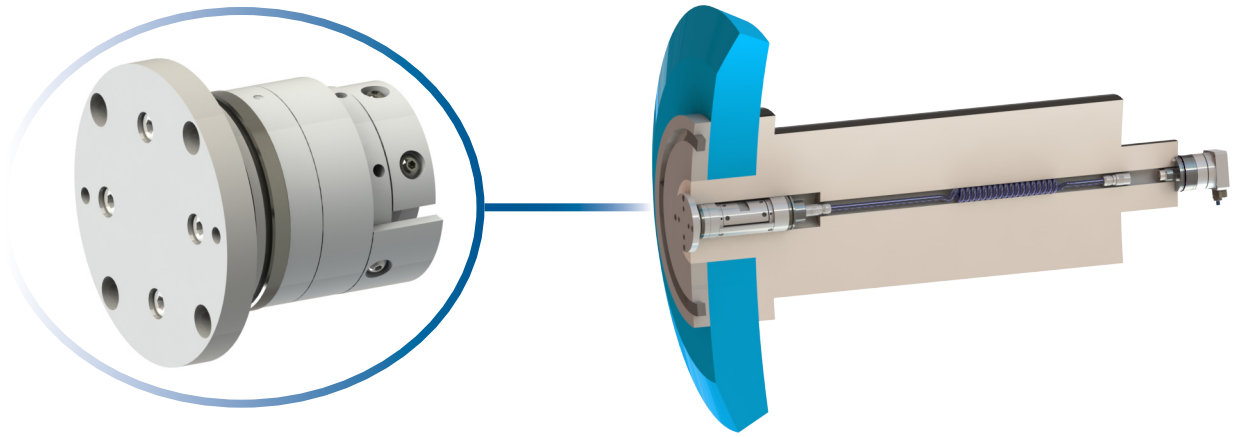
WARNING
In order to guarantee optimum performance of the balancing heads, the temperature in the transmission zone MUST NOT exceed 55 °C (130 °F).

8.2 Installing “ST” balancing heads

There are various different systems for mounting ST type heads. All mounting systems are equipped with O-ring seals.

DIRECT FLANGE MOUNTING

The head is fitted with a mounting flange (see figure).
The mounting holes and centring guides are located on the flange.

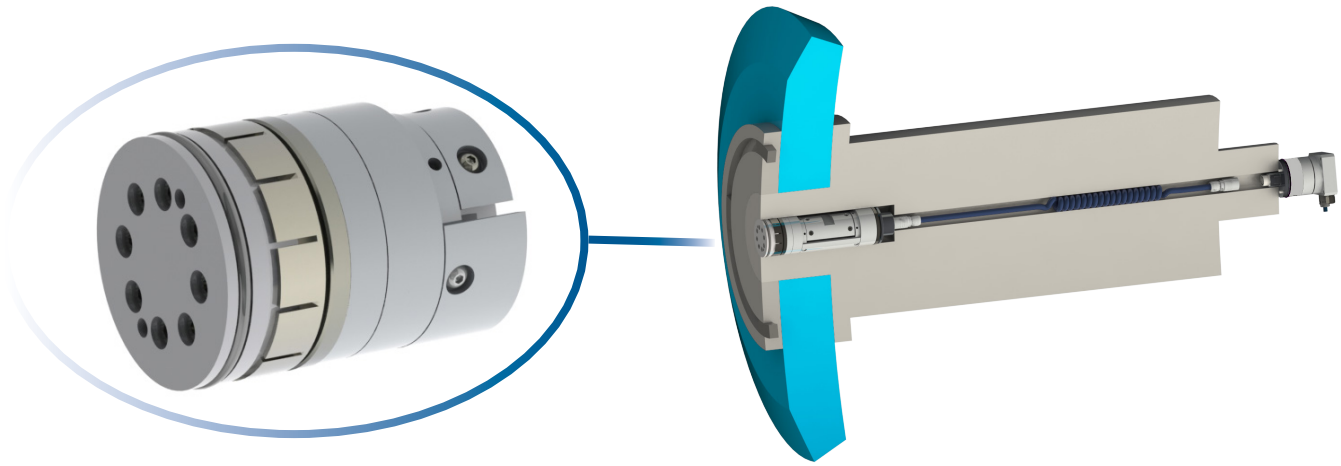


N.B.
When using balancing heads with integrated Gap & Crash AE sensors (ST HG), we recommend applying a layer of silicon grease between the two mounting surfaces in order to improve sound transmission to the acoustic sensor.

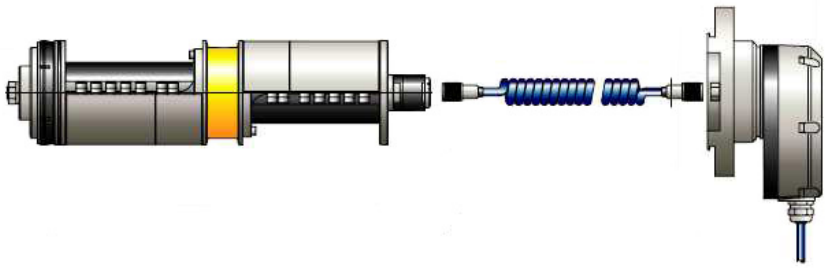
MOUNTING WITH SELF-LOCKING DEVICE.

The head is mounted directly by means of an expansion device.

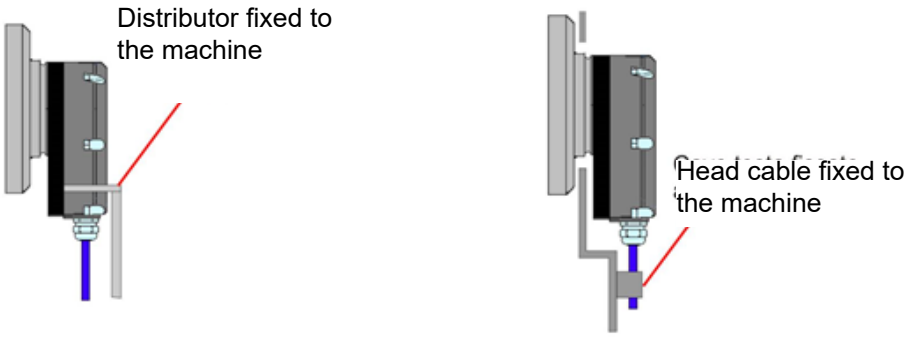
N.B.
Tightening torque: 15-20 Nm



8.2.1 Installing the distributor for ST heads with retraction (ST R)



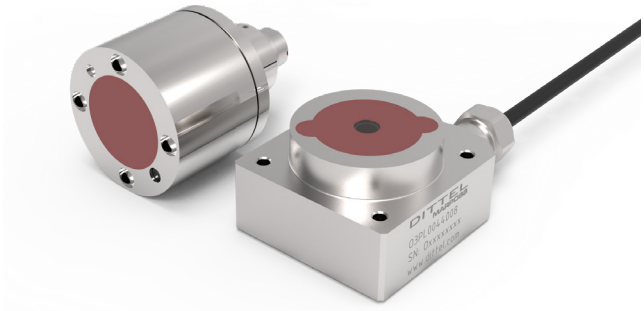
Warning
Secure the distributor or cable to the machine as indicated in the figure.



8.2.2 Installing the contactless transmission system for ST heads

The contactless transmission system consists of two parts:
- Rotor In the case of the receiver it is mounted on the spindle and secured using four screws.
- Stator (stationary part)

In order ensure that the contactless transmission system is installed correctly, the conditions described in the following chapters must be satisfied:



"MINI CT" type contactless transmission system

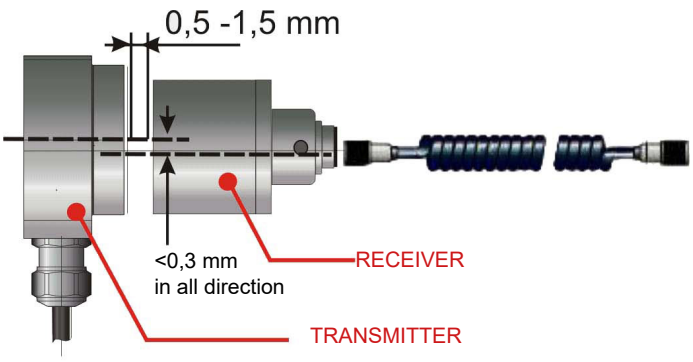
Version with output cable only (WB+AE integrated)

8.2.3 “MINI CT” type contactless transmission system

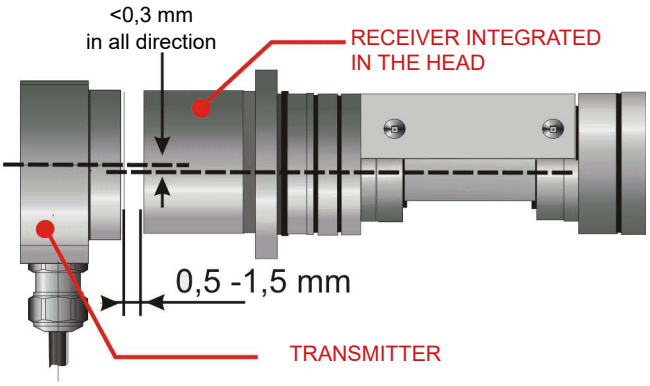
Transmission system for “**ST**” type balancing heads.
In order ensure that the transmission system is installed correctly, the following conditions must be satisfied:

- the distance between the two transmission surfaces must be between 0.5 and 1.5 mm
- maximum receiver misalignment (TIR) error: ≤ 0.3 mm in all directions.

HEAD WITHOUT INTEGRATED RECEIVER



HEAD WITH INTEGRATED RECEIVER



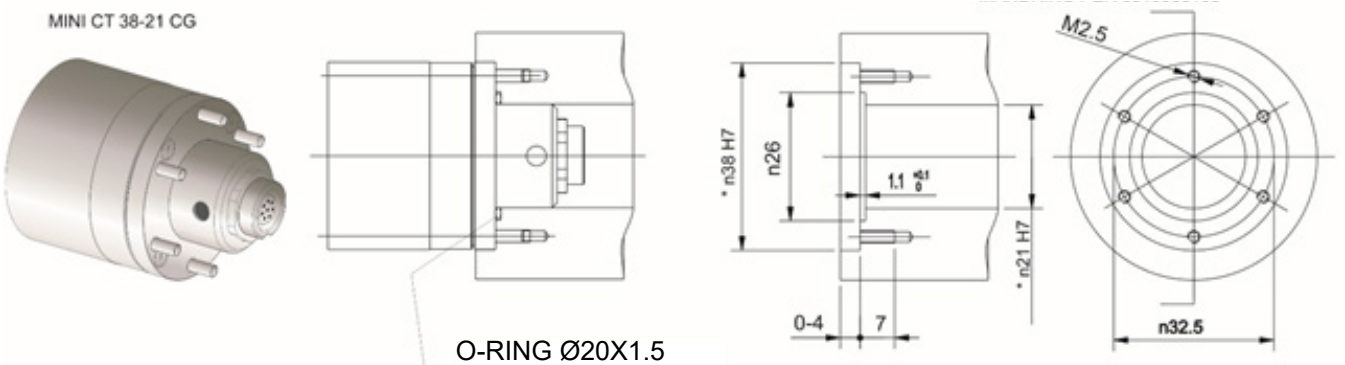
Warning
To ensure optimal operation of the balancing head, the temperature in the transmission zone and on the surface in contact with the MiniCT must NOT exceed 55°C (130°F).
Alarm threshold (maximum permitted value) of the temperature measured inside the rotor (receiver):
- 80°C (176°F) for MiniCT with firmware version up to 3.4
- 76°C (169°F) for MiniCT with firmware version 3.5 and later.
If the alarm threshold is exceed for a period of greater than 6 seconds, the Alarm signal #20 is displayed.
The temperature value may be verified in the Motors Test environment.
The temperature check is not active when executing the acoustic cycle.

N.B.
If the receiver and transmitter are aligned correctly it also implies that the voltage between the transmitter and the receiver is at the optimum value (receiver power supply voltage). The voltage must be greater than 20 V at full load (with both motors running) and less than 27 V when both motors are stationary. The optimal working voltage for MINICT is between 23 V and 26 V, therefore we recommend regulating the distance to obtain an optimal voltage value (where possible).To check this value, access the Wheel Bilancing Test environment.

Warning
When it is necessary to carry out maintenance operations that require the rotor and/or stator to be removed according to procedures that differ from the indicated mounting specifications, the P1DWB electronic unit must be switched off in order to avoid damaging the transmission system.

Receiver installation instructions.

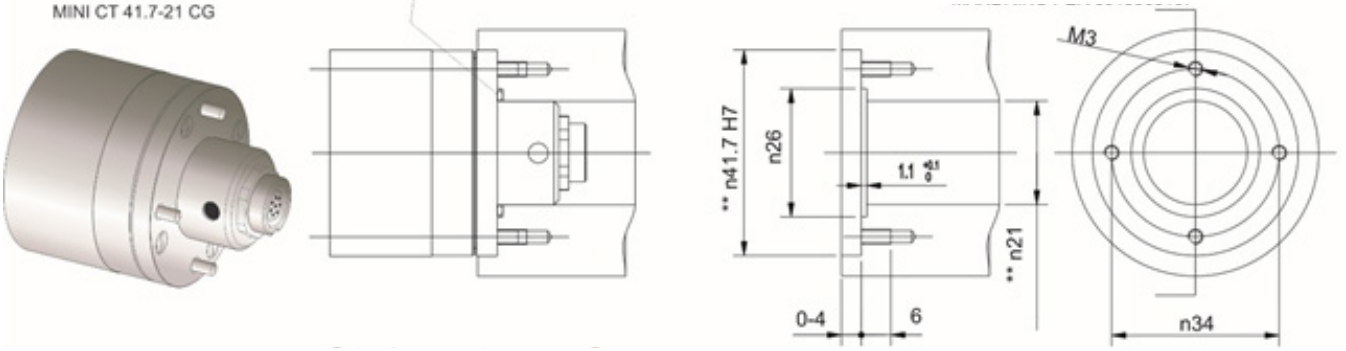
O3PL0044507



O-RING Ø20X1.5
PARKER 6-078
CUSTUMER CARE

(1) ONE OF THE TWO VALUES INDICATED WITH (*) OR (**) MUST BE INCREASED BY 0.1 MM BASED ON THE TYPE OF CENTERING ADOPTED BY THE CUSTOMER.

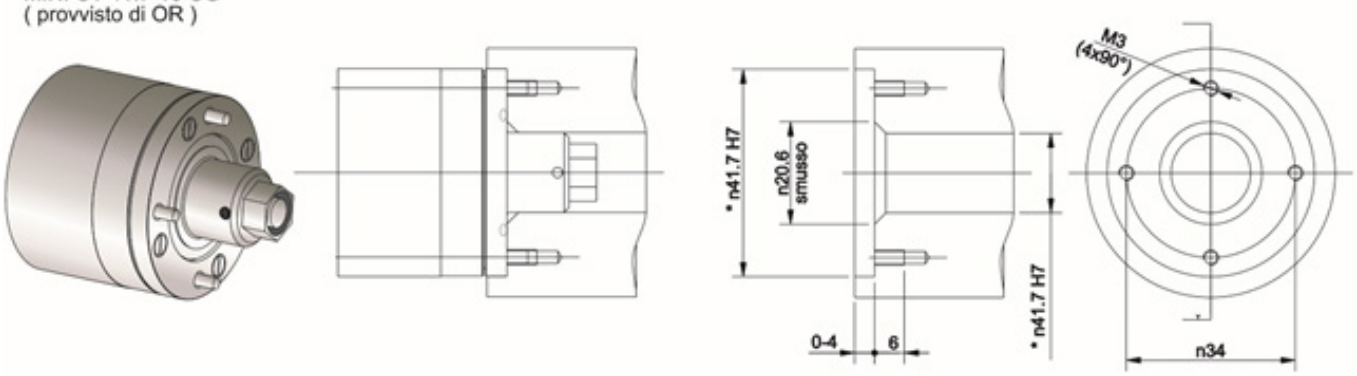
O3PL0044508



N.B.
(For MiniCT p/n O3PL0044507/508)
The sealing gasket and its housing must be provided by the machine manufacturer.

O3PL0044504

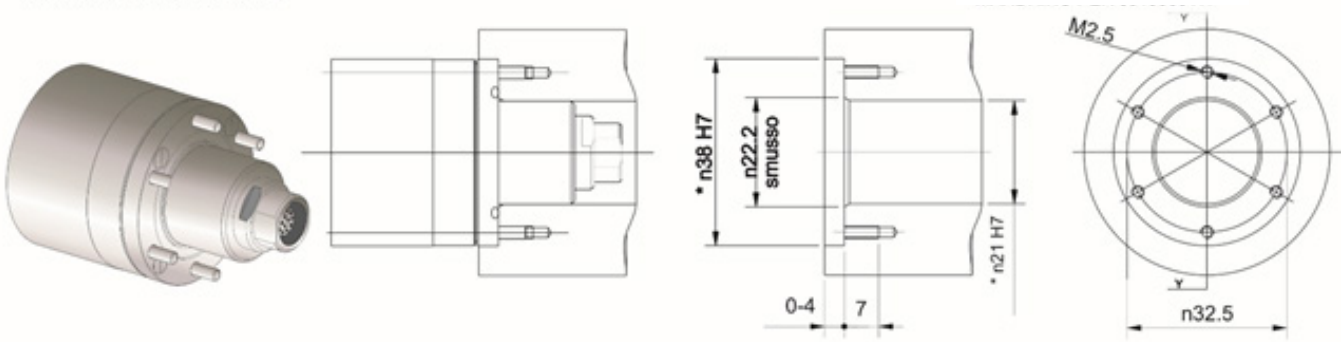
MINI CT 41.7-16 CG
(provvisto di OR)



(1) ONE OF THE TWO VALUES INDICATED WITH (*) OR (**) MUST BE INCREASED BY 0.1 MM BASED ON THE TYPE OF CENTERING ADOPTED BY THE CUSTOMER.

O3PL0044505

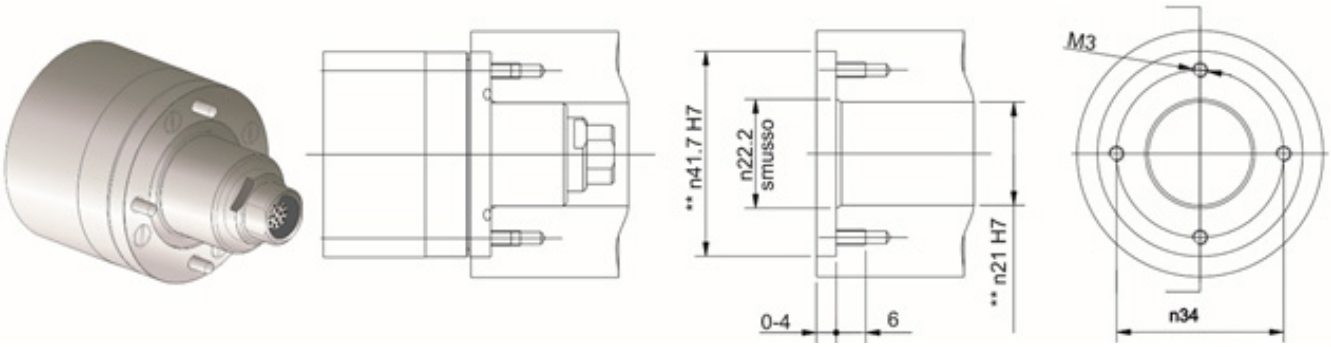
MINI CT 38-21 CHG



(1) ONE OF THE TWO VALUES INDICATED WITH (*) OR (**) MUST BE INCREASED BY 0.1 MM BASED ON THE TYPE OF CENTERING ADOPTED BY THE CUSTOMER

O3PL0044502

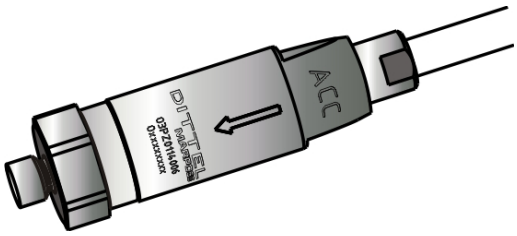
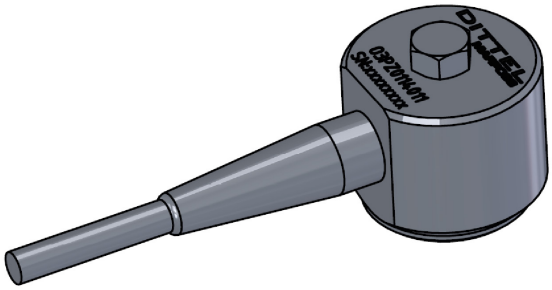
MINI CT 41.7-21 CHG



N.B.
(For MiniCT p/n O3PL0044504/505/502)
The sealing gasket is an integral part of the MiniCT.

N.B.
In order to centre the rotor in the spindle, refer to the value of one of the two diameters identified by * or **.
The value that is not used as the centring reference must be increased by 0.1 mm.

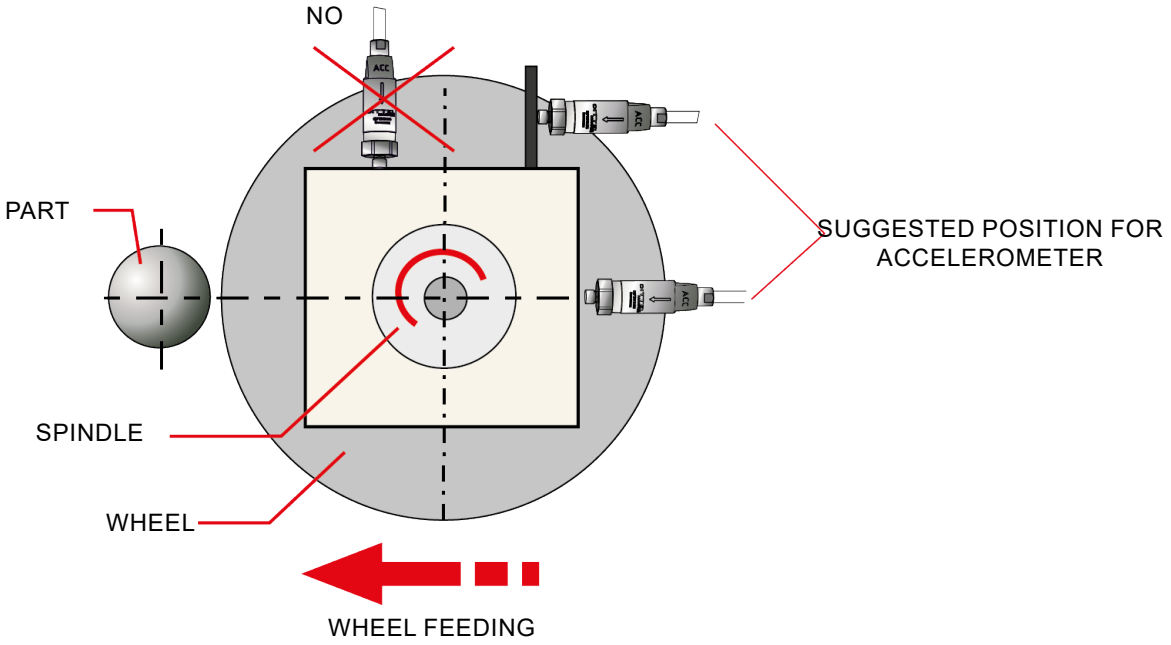
8.3 Installing an Accelerometer (vibration sensor)

ACCELEROMETER WITH AXIAL CABLE (Part N O3PZ0114006 –O3PZ0114009)	ACCELEROMETER WITH RADIAL CABLE (Part N O3PZ0114007 – O3PZ0114010)
	
ACCELEROMETER FOR LOW RPM (Part N O3PZ0114011)	
	

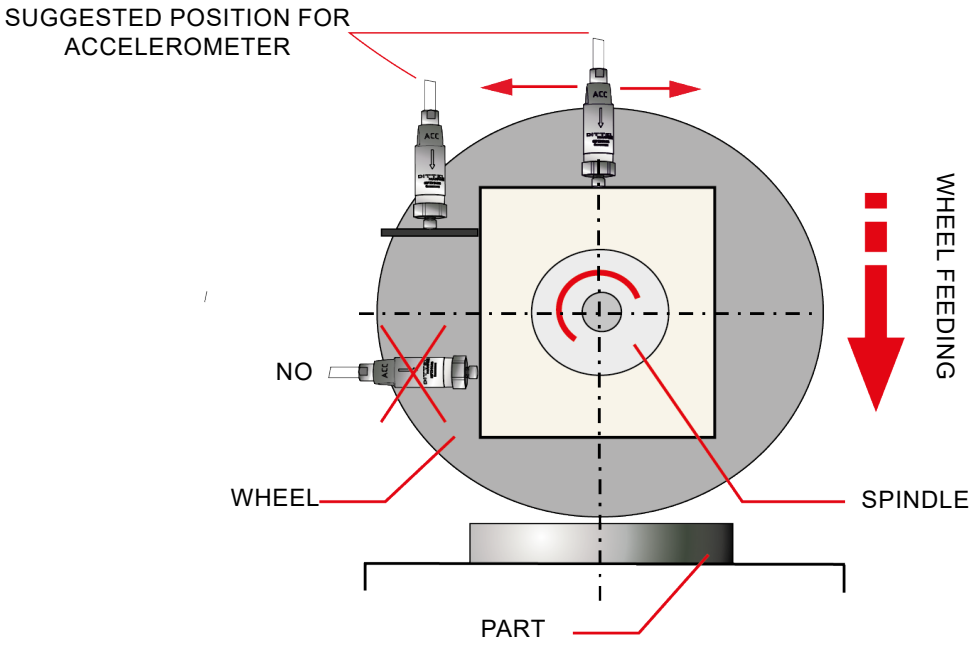
8.3.1 Installing the accelerometer

N.B.
If possible, the accelerometer should be installed close to the bearing nearest the grinding wheel, and parallel to its direction of travel.

EXTERNAL OR CENTRELESS GRINDING MACHINES



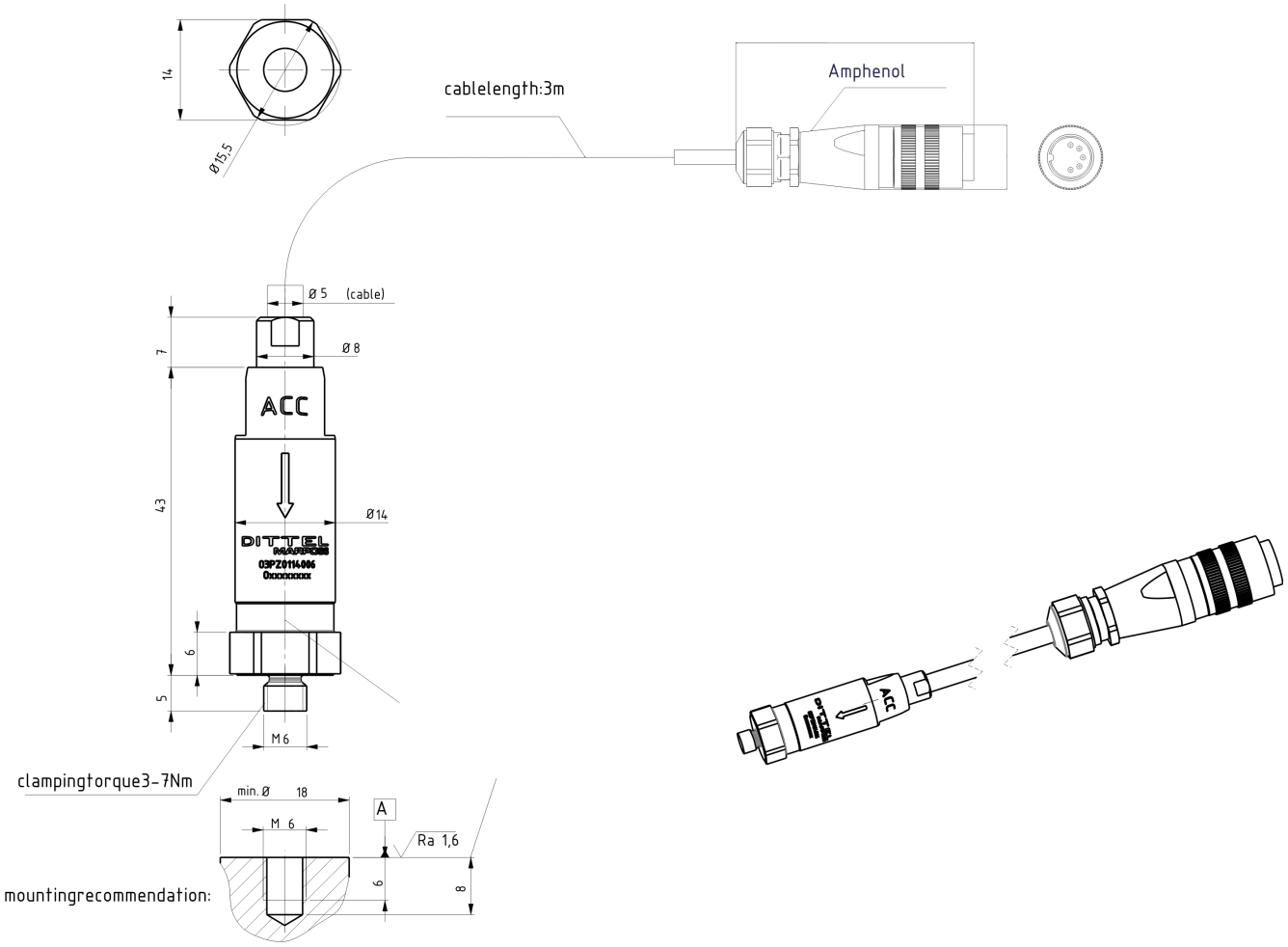
SURFACE GRINDING MACHINES



8.3.2 Mounting the accelerometer directly

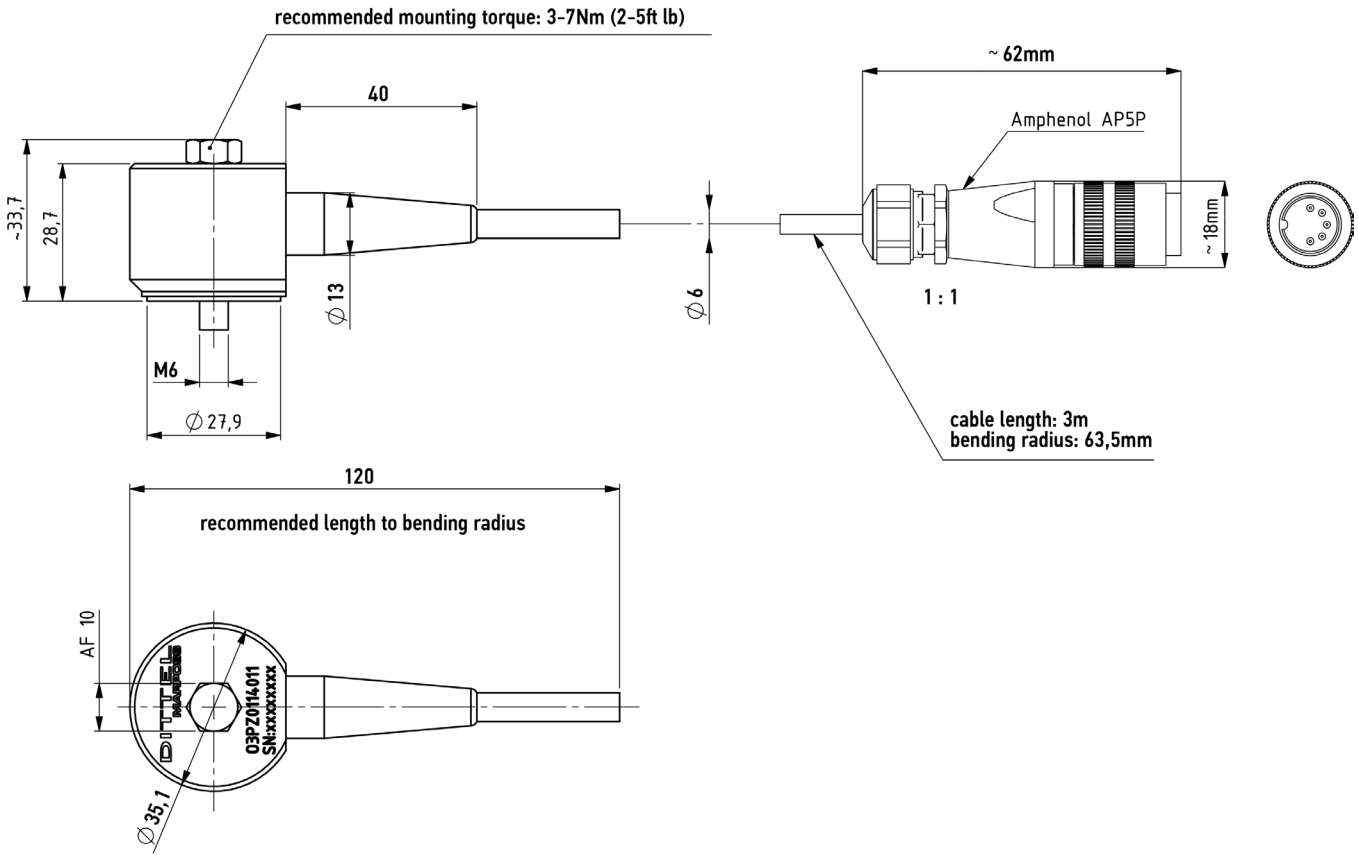
The accelerometer is secured in position by means of the 5 mm long threaded M6 pin that protrudes from its base. Drill a M6 hole, to a sufficient depth in the desired position on the machine.

ACCELEROMETER WITH AXIAL CABLE (Part N. O3PZ0114006)

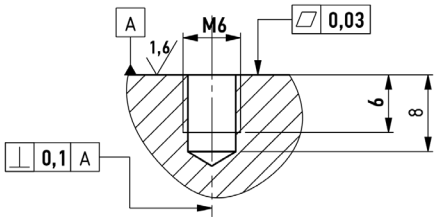


N.B.
The method used to mount the accelerometer part n O3PZ0114009 is identical to the procedure described above, the only difference being that the cable is 6 m in length.

ACCELEROMETER WITH RADIAL CABLE (PART N. O3PZ0114011)



mounting recommendation:



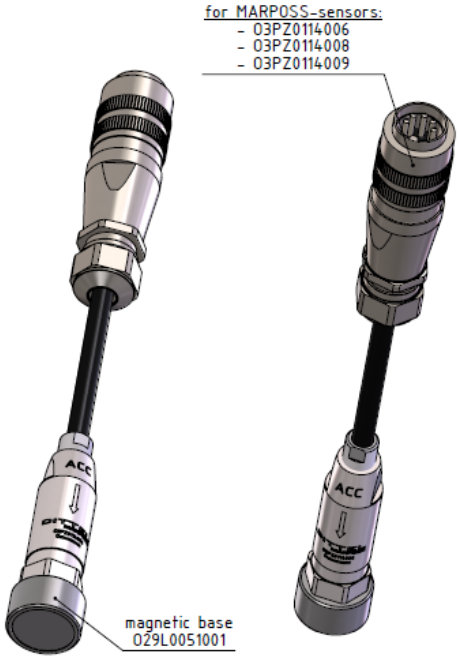
N.B.
The method used to mount the accelerometer part n. O3PZ0114007 and O3PZ0114010 is identical to the procedure described above, the only difference being that the cable is 6 m in length.

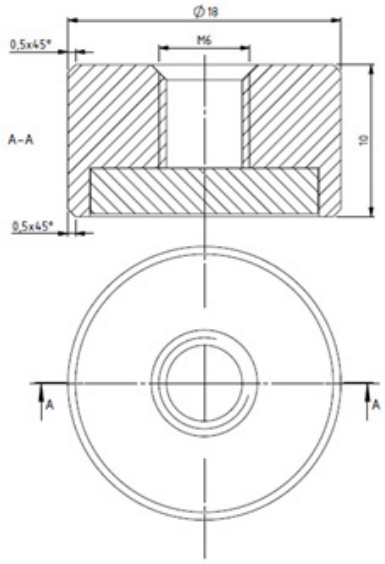
8.3.3 Mounting the accelerometer using the magnetic base

- Clean the machine surface where the magnetic base is to be housed, eliminating any detritus.
- Screw the magnetic base on to the threaded M6 pin (adapter) on the accelerometer.

AXIAL ACCELEROMETER + MAGNETIC BASE

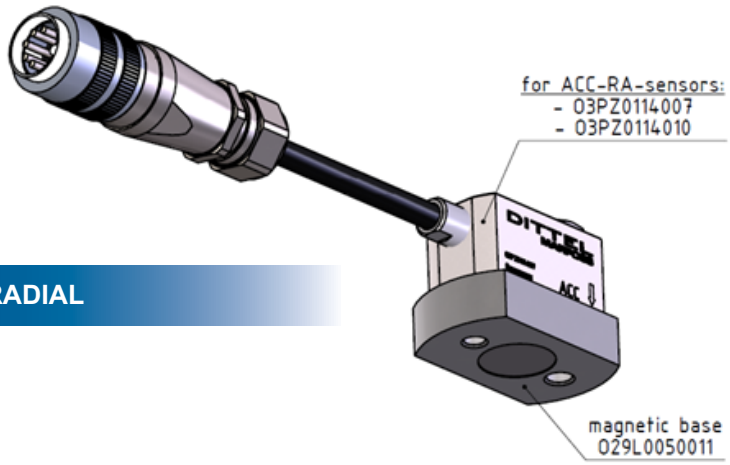
ACCELEROMETER AXIAL



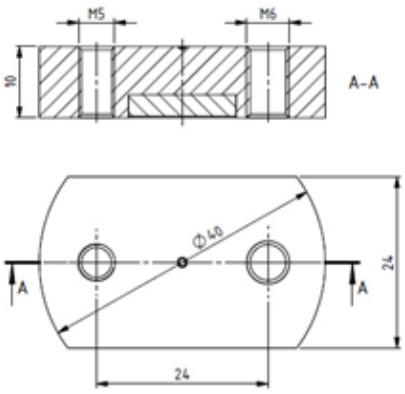


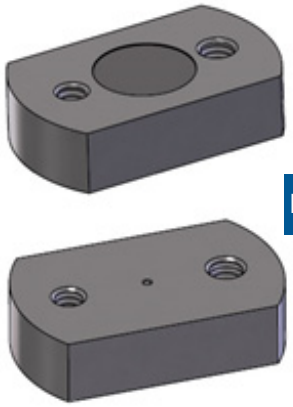
MAGNETIC BASE AXIAL

Radial accelerometer + magnetic base



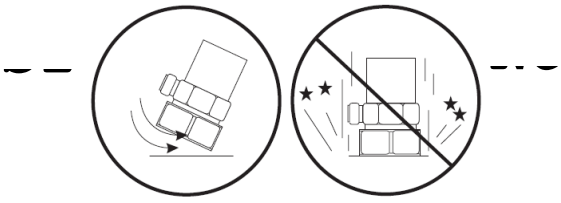
ACCELEROMETER RADIAL





MAGNETIC BASE RADIAL

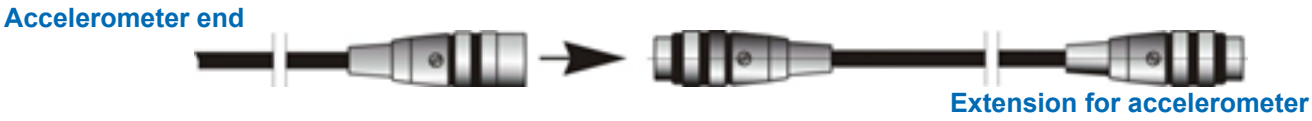
• Position the sub-assembly at the desired point on the machine, allowing it to oscillate/slide along the surface.



WARNING
There is a very strong magnetic force of attraction between the base and the machine surface, therefore it is important to avoid collisions that could damage the accelerometer.

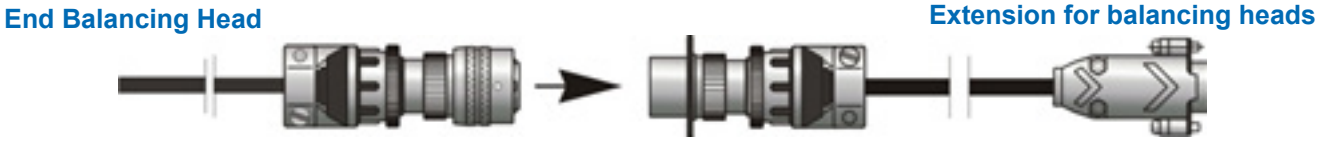
8.4 Extensions

8.4.1 Extensions for accelerometers



Extensions for Accelerometers	
Length (m)	**Extension part n.**
6	6739696233
10	6739696194
15	6739696148
20	6739696222

8.4.2 Extension for Balancing Heads



Extensions for Balancing Heads	
Length (m)	**Heads with retractable contacts Heads with contactless transmission**
6	679060001V
10	679100001V
15	679150001V
20	679200001V

9. P1DWB – R I/O CONNECTIONS

D-SUB male 15 pin connector for I/O connections.

N.B.
The I/O must be powered by a 24VDC +20%-15%, SELV type power supply, in accordance with the specifications set out in the Standard EN60950-1.

9.1 Technical specifications of the I/O circuits (P1DWB-R)

The connection to the machine logic is performed through a male 15-pole connector.
The I/Os are optoisolated compared to the internal P1DWB references. The outputs are protected against short circuits.
The I/O circuits to the machine logic is 24V SINK or SOURCE type : the mode of operation is programmed by the performance of the link.
To program the mode SOURCE connect the signal +SOURCE/-SINK to +24V and the signal -SOURCE/+SINK to ground (GND).
To program m the mode SINK connect the -SOURCE/+SINK to +24V and the signal +SOURCE/-SINK to ground (GND).
In SOURCE mode the outputs operate at current emission while the inputs work at current absorption. So if two devices are connected in SOURCE mode outputs emitting current of a mate with the other inputs that absorb current. The vice versa is true for the SINK mode.
In SOURCE mode, the outputs provide a current output from the terminal while the inputs absorb a incoming current from the clamp. Vice versa for the SINK mode.
In SINK mode inputs provide an outgoing current from the terminal while the outputs absorb a incoming current from the clamp.

DESCRIPTION	VALUE	M.U.
Power Supply voltage Inputs/Outputs (+VCC)	24V (+20% ,-15%)	VDC
Absorption from + VCC (VCC =max without loads at the outputs)	< 10	mA
Max. input ripple on supply	2	Vpp

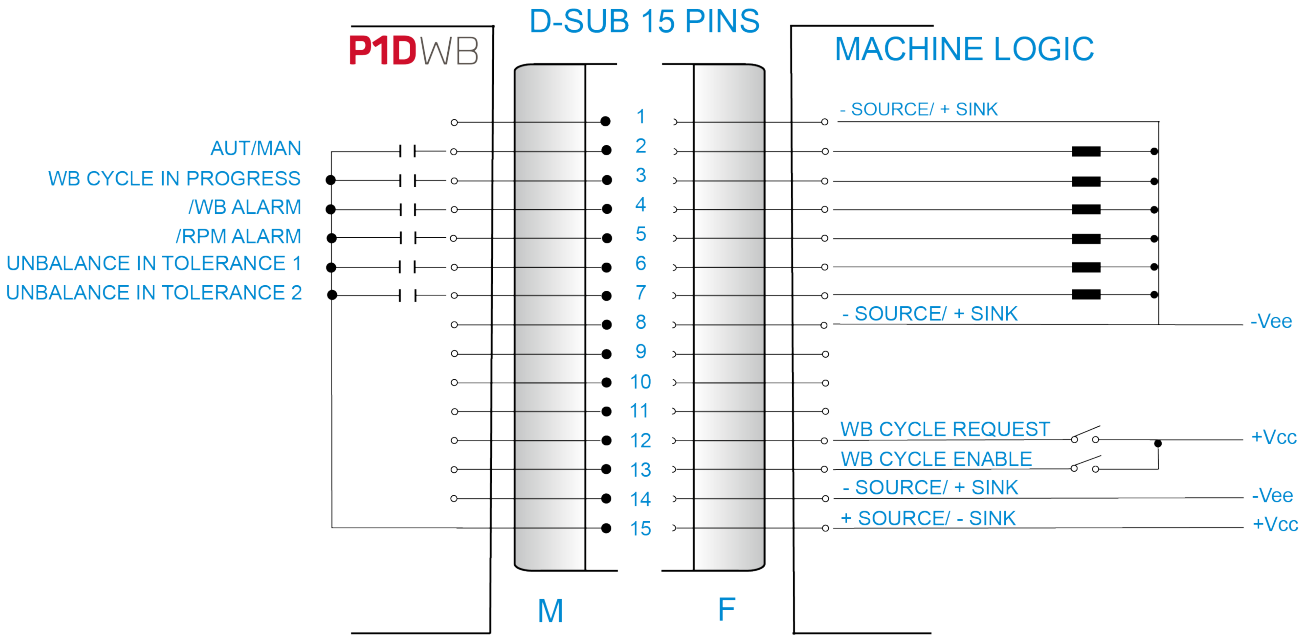
INPUTS		
Description	**Value**	**M.U.**
Input voltage	Minimum 0 Maximum + VCC	VDC
Input Impedance	> 4800	Ohm
Maximum Input Current	9	mA
Maximum voltage at Logic State 1 – SINK	+ VCC – 16	VDC
Minimum voltage at Logic State 0 – SINK	+ VCC – 4	VDC
Minimum voltage at Logic State 1 – SOURCE	16	VDC
Maximum voltage at Logic State 0 – SOURCE	4	VDC

OUTPUT		
Description	**Value**	**M.U.**
Currents for each output	50	mA
Voltage at Logic State 1 @20 mA – SOURCE	> + VCC – 2	VDC
Voltage at Logic State 1 @20 mA – SINK	< 2	VDC

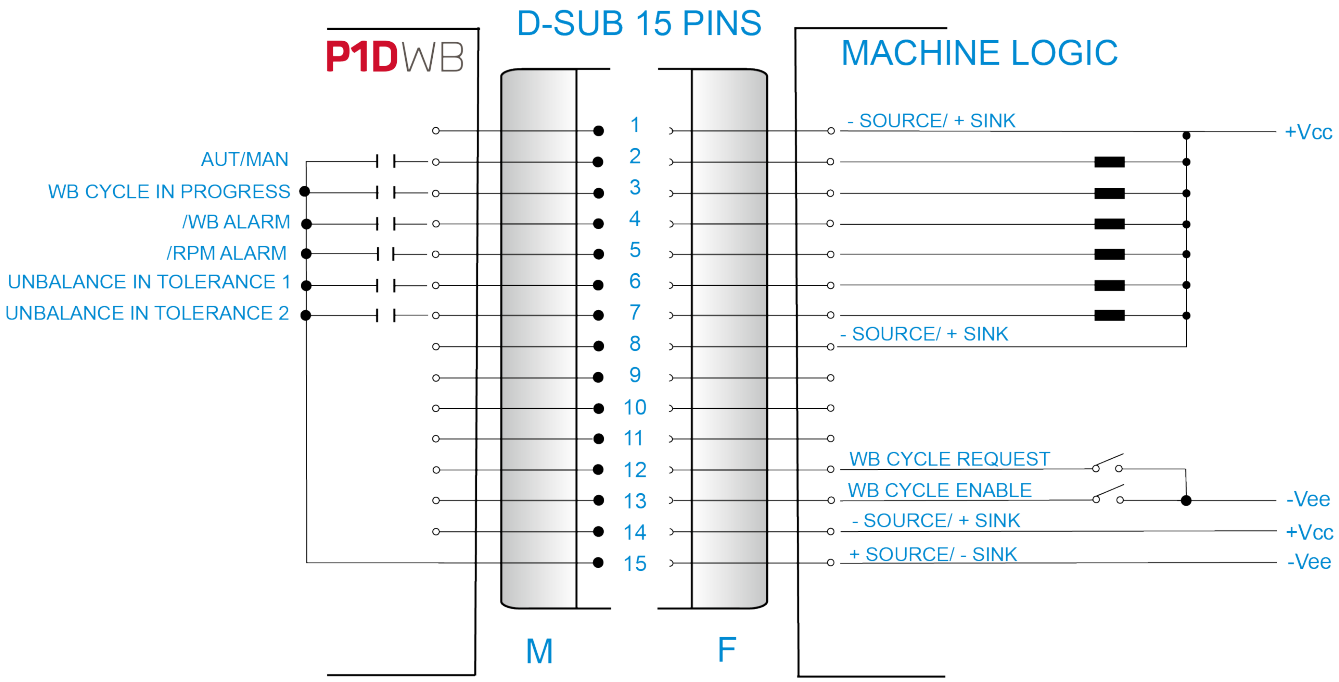
9.2 Connection diagrams (P1DWB-R)

Conventional logic state of the signals :
• logic state 0 → - Vee
• logic state 1 → + Vcc

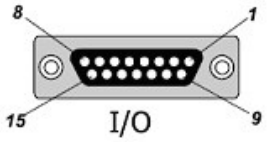
24 V opto-isolated SOURCE TYPE



24 V opto-isolated SINK TYPE



9.3 I/O interface (P1DWB-R)



CONNECTOR D-SUB MALE 15 PIN

PIN Nr.	IN/ OUT	NAME	DESCRIPTION	
			low level	high level
1	IN		-SOURCE/+SINK	
2	OUT	**AUT/MAN**	MANUAL mode	AUTOMATIC mode
3	OUT	**WB CYCLE IN PROGRESS**	No cycle In progress	WB Cycle in progress
4	OUT	**/WB ALARM**	WB alarm pending	no WB alarm pending
5	OUT	**/RPM ALARM**	RPM alarm pending	no RPM alarm pending
6	OUT	**UNBALANCE IN TOLERANCE 1**	Unbalance higher than the programmed “optimal” threshold L1	Unbalance less than or equal to the "optimal" threshold programmed L1
7	OUT	**UNBALANCE IN TOLERANCE 2**	Unbalance higher than the programmed “optimal” threshold L2	Unbalance less than or equal to the "optimal" threshold programmed L2
8	IN		-SOURCE/+SINK	
9	---		N/C	
10	---		N/C	
11	---		N/C	
12	IN	**WB CYCLE REQUEST**	no WB Automatic Balancing cycle request	WB Automatic Balancing cycle request
13	IN	**WB CYCLE ENABLE**	WB Balancing cycle disabled	WB Balancing cycle enabled
14	IN		-SOURCE/+SINK	
15	IN		+SOURCE/-SINK	

9.3.1 Recommended Bit activation level. ENHANCED

For reasons of safety, we strongly recommend setting up a low activation level for the following Bits

/WB ALARM	WB Surveillance and WB Environment Alarm	Output
/RPM ALARM	RPM Threshold and RPM Alarm	Output

9.3.2 WB automatic balancing algorithm (P1DWB-R)

In order to carry out a balancing which takes into account the effective vibration of the wheel and is not influenced by other external agents, the balancing cycle must be necessarily performed in fit machine conditions:

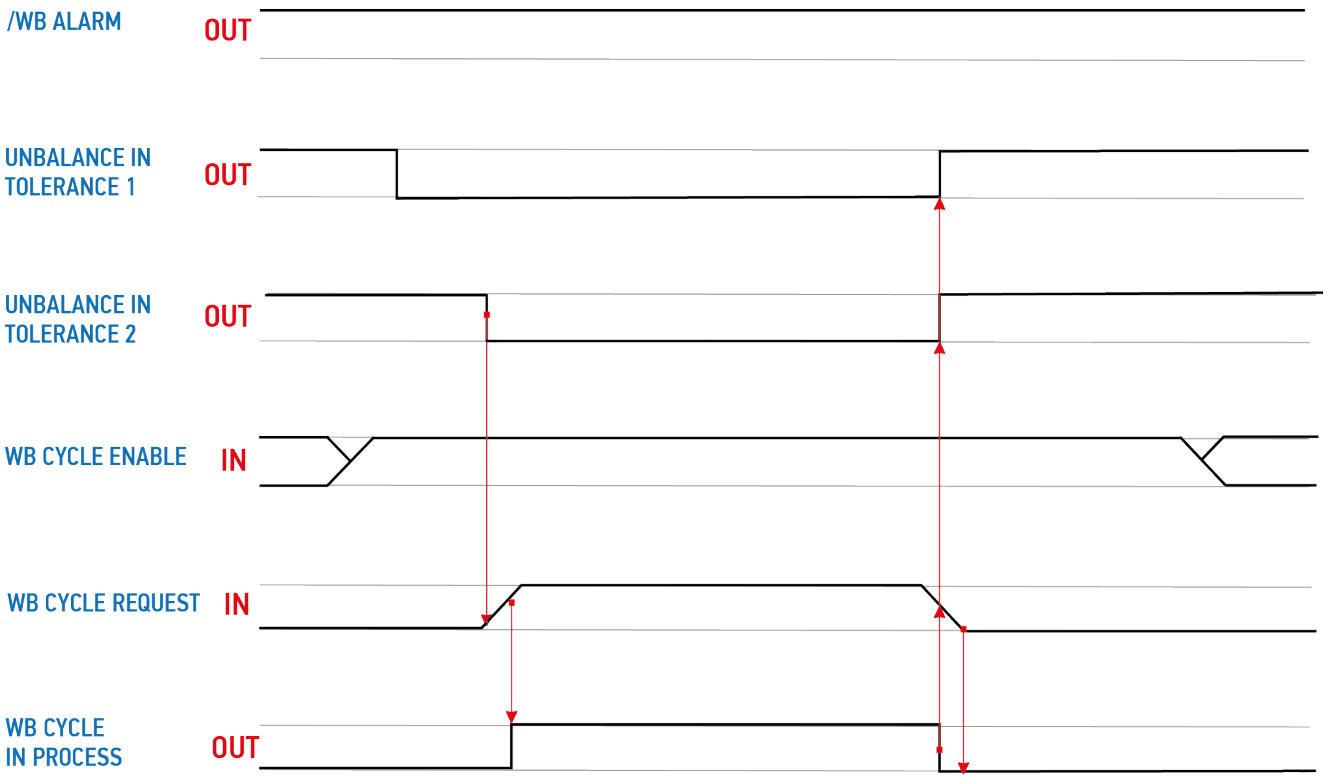
- The wheel must rotate at a speed included between 60 and 30.000 RPM
- The wheel must be retracted from the working position
- Dressing operations of the wheel must not be in progress
- Movements of machine components must not be present
- If possible, the coolant flow should be stopped

To have a good balancing accuracy, it is recommended not to go below 300 RPM.

With the inputs signal **WB CYCLE ENABLE** at Logic State 1 P1DWB balancer is enabled to receive the signal for the beginning of a balancing cycle .

WB Automatic Balancing Algorithm Cycle request is explained as example:

- Cycle is performed without alarms

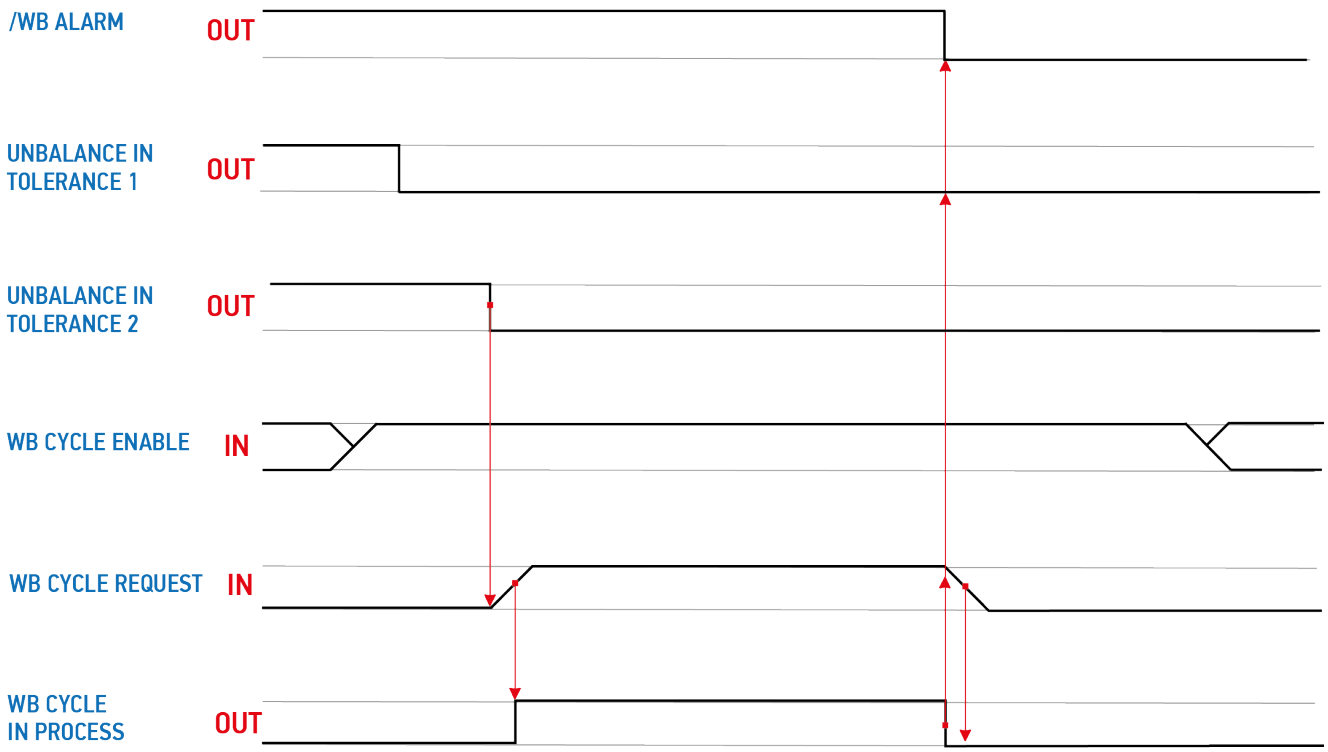


When the signal **WB CYCLE IN PROGRESS** is at Logic State 1 , the output of **UNBALANCE IN TOLERANCE 1** and 2 signals is disabled and the electronic unit controls the movement of the masses of the balancing head until the condition of optimal balancing is reached .
The balancing is considered optimal when the Unbalance of the wheel does not exceed the value which has been set at threshold limit L1.
When this condition is reached , the **WB CYCLE IN PROGRESS** signal switches to Logic State 0 indicating the end of the balancing cycle and consequently the output of the signals **IN TOLERANCE 1** and **IN TOLERANCE 2** is enabled (they will switch to Logic State 1).

If the Unbalance does not go at least below threshold limit L2 within about 210 seconds , the P1DWB balancer interrupts the balancing cycle by moving to zero the logic state of the **WB CYCLE IN PROGRESS** signal and supplies the **/WB ALARM** signal at output.

WB Automatic Balancing Algorithm Cycle request is explained as example :

- Cycle is performed with timeout
- **/WB ALARM** is activated

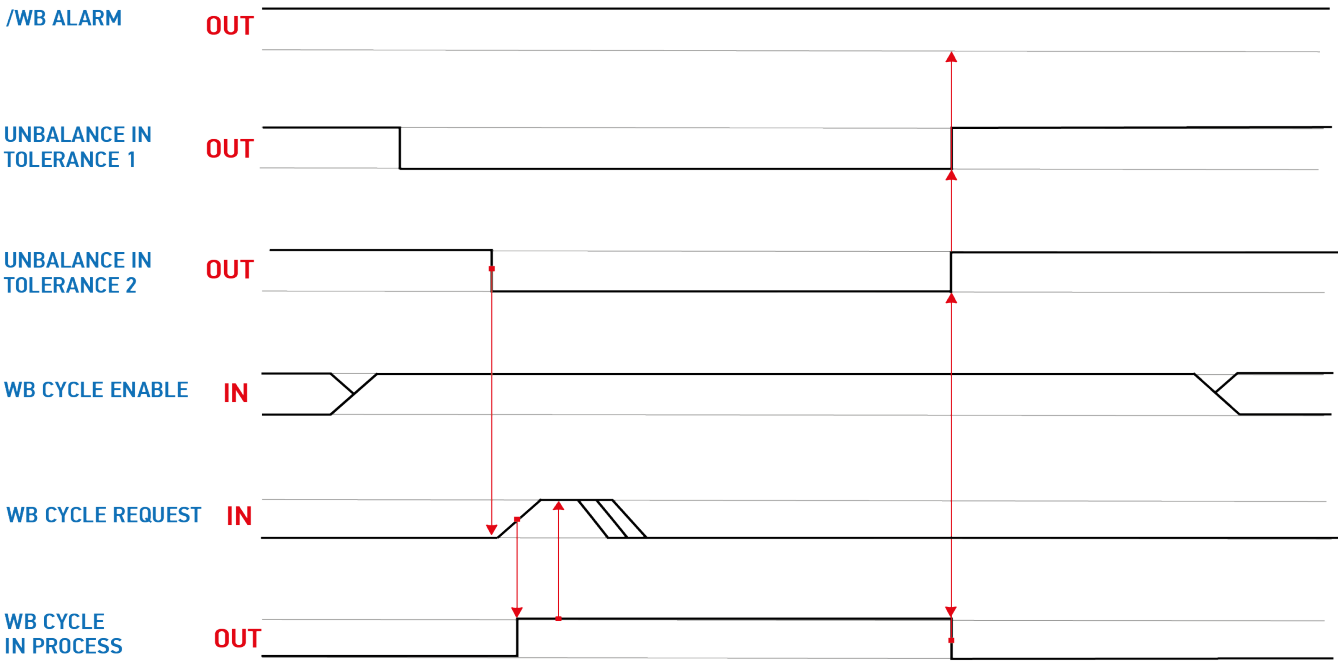


9.4 Cycles in Legacy behaviour. (P1DWB-R)

Elab.Delay = 20ms
ttrg is the minimum time the signal is above threshold causing output bit activation
tPLC is the minimum bit activation time

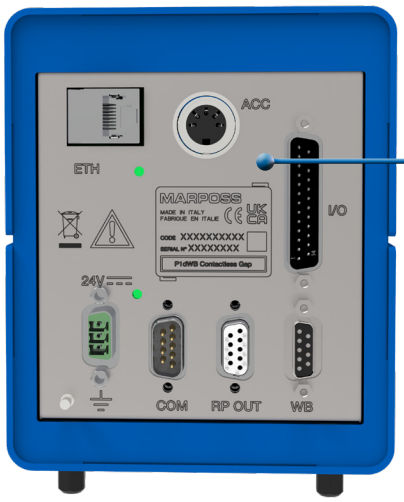
9.4.1 WB Automatic Balancing Algorithm.(P1DWB-R)

WB Automatic Balancing Algorithm Cycle request is explained as example :
• cycle is performed without alarms



10. P1DWB – CG I/O CONNECTIONS

N.B.
The I/O must be powered by a 24VDC +20%-15%, SELV type power supply, in accordance with the specifications set out in the Standard EN60950-1.



Male D-SUB 25 Pin connector for I/O connection.

10.1 Technical specifications of the I/O circuits (P1DWB - CG)

The connection to the machine logic is performed through a D-SUB male 25 pin connector .

The I/Os are optoisolated compared to the internal P1DWB references. The outputs are protected against short circuits.
The I/O circuits to the machine logic is 24V SINK or SOURCE type : the mode of operation is programmed by the performance of the link.

To program the **mode SOURCE**
- Connect the signal +SOURCE/-SINK to +24V and the signal - SOURCE/+SINK to ground (GND).

To program the **mode SINK**
- Connect the -SOURCE/+SINK to +24V and the signal +SOURCE/-SINK to ground (GND).

In SOURCE mode the outputs operate at current emission while the inputs work at current absorption.

In SINK mode inputs provide an outgoing current from the terminal while the outputs absorb a incoming current from the clamp.

DESCRIPTION	VALUE	M.U.
Power supply voltage Inputs/Outputs (+VCC)	24V (+20% ,-15%)	V_{DC}
Consumption at +VCC (VCC = Max without loads on the outputs)	<10	mA
Max. input ripple on supply	2	Vpp

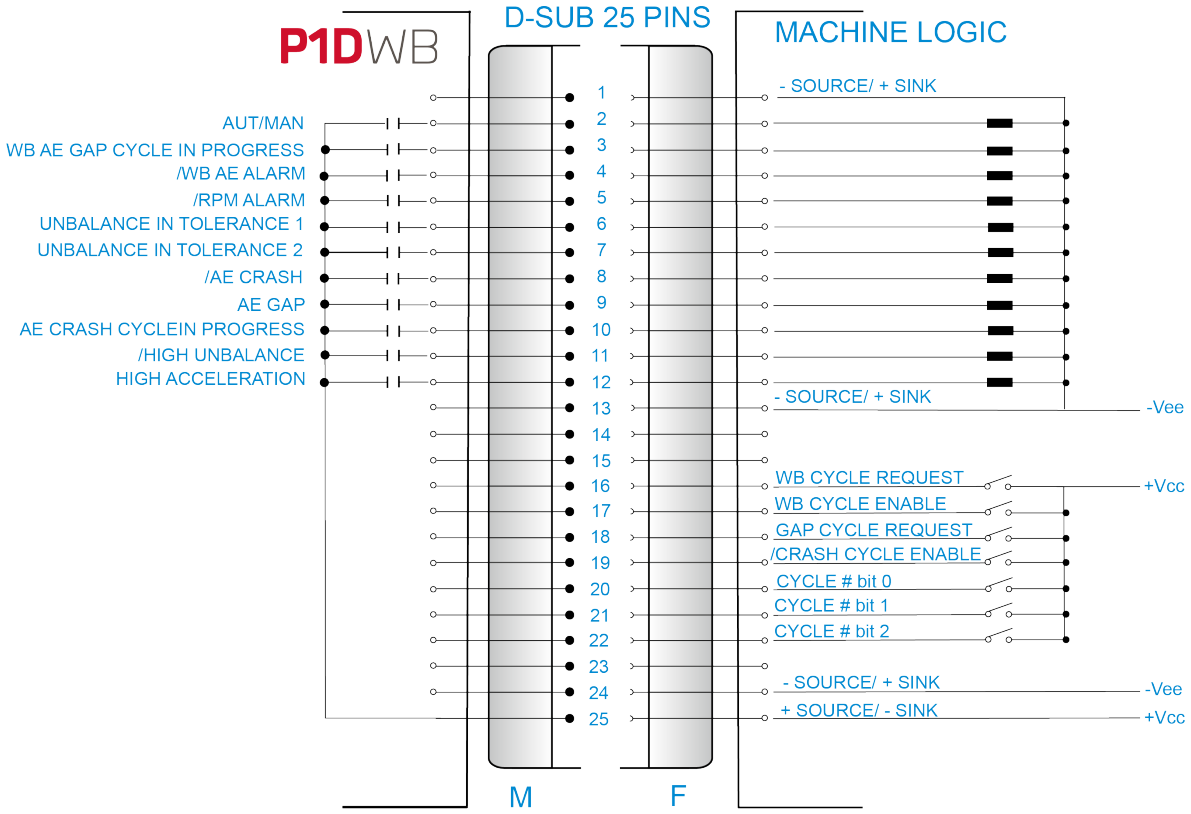
DESCRIPTION	VALUE	M.U.
Input voltage	Minimum 0 Maximum + VCC	V_{DC}
Input Impedance	> 4800	Ohm
Maximum Input Current	9	mA
Maximum voltage at Logic State 1 – SINK	+ VCC – 16	VDC
Minimum voltage at Logic State 0 – SINK	+ VCC – 4	VDC
Minimum voltage at Logic State 1 – SOURCE	16	VDC
Minimum voltage at Logic State 0 – SOURCE	4	VDC

DESCRIPTION	VALUE	M.U.
Currents for each output	50	mA
Voltage at Logic State 1 to 20 mA – SOURCE	> + VCC – 2	V_{DC}
Voltage at Logic State 1 to 20 mA – SINK	< 2	V_{DC}

10.2 Connection diagrams (P1DWB - CG)

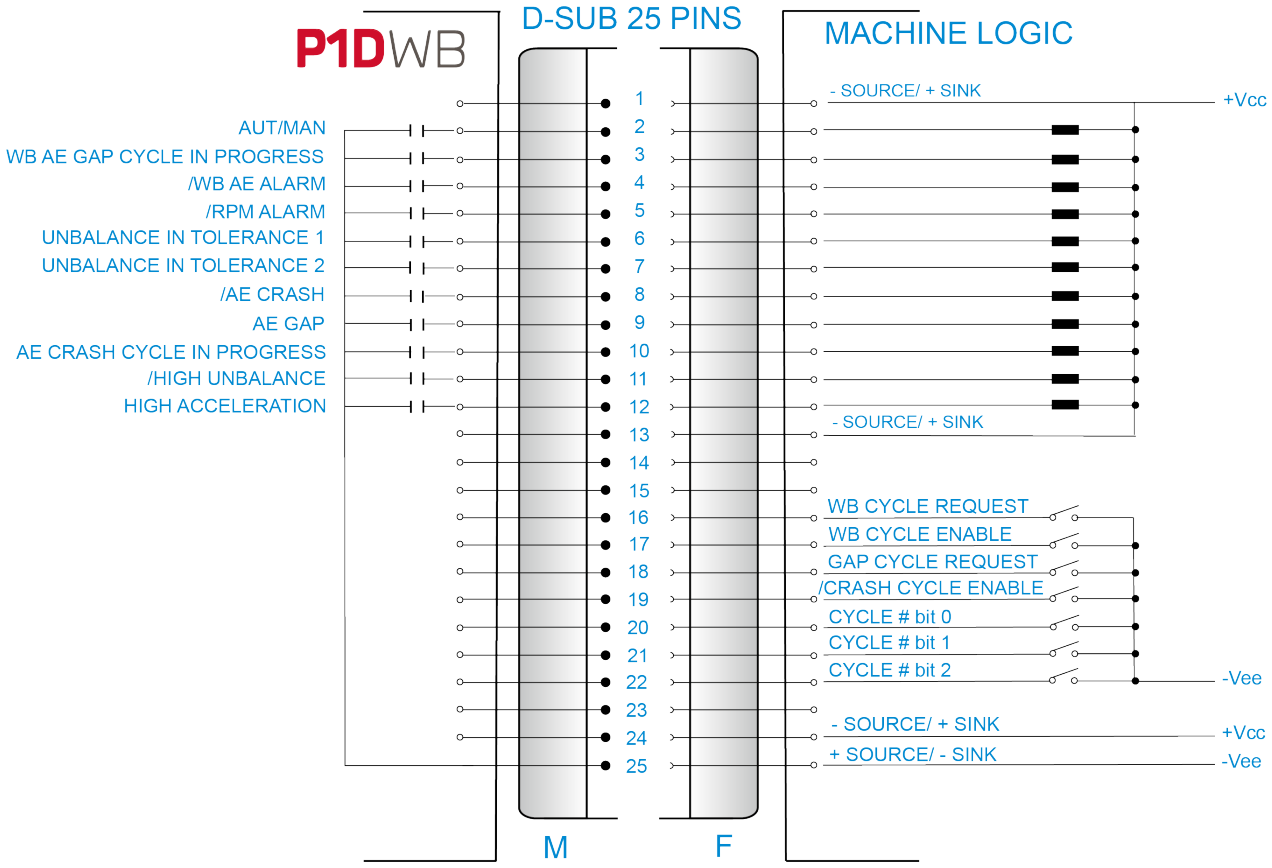
24 V opto-isolated SOURCE TYPE

Conventional logic state of the signals :
• logic state 0 → - Vee
• logic state 1 → + Vcc



24 V opto-isolated SINK TYPE

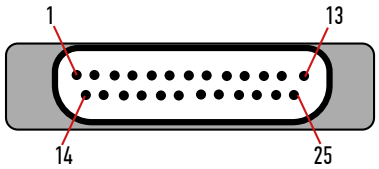
Conventional logic state of the signals :
• logic state 0 → + Vcc
• logic state 1 → - Vee



10.3 I/O interface for P1DWB-CG

The P1DWB I/O programming menu can be used to select either the ENHANCED or LEGACY flow control operating modes. The latter should be used when replacing old E82 electronic units in order to guarantee complete compatibility.

10.3.1 "Enhanced" mode connector (P1DWB - CG)



CONNECTOR D-SUB MALE 25 PIN

PIN n°	IN/OUT	NAME	SIGNAL DESCRIPTION	
			LOW	HIGH
1	IN		-SOURCE / +SINK	
2	OUT	**AUT / MAN**	Manual operation	Automatic operation
3	OUT	**WB / AE GAP CYCLE IN PROGRESS**	No cycle in progress	WB or AE GAP cycle in progress
4	OUT	**WB e/o AE ALARM**	WB and/or AE alarm active	No alarms active
5	OUT	**/RPM ALARM**	RPM alarm active. The detected rpm value is outside the programmed range.	RPM alarm not active
6	OUT	**UNBALANCE IN TOLERANCE 1**	Unbalance value more than the programmed "optimum" threshold value L1	Unbalance value less than or equal to the programmed "optimum" threshold value L1
7	OUT	**UNBALANCE IN TOLERANCE 2**	Unbalance value more than the programmed "acceptable" threshold value L2	Unbalance value less than or equal to the programmed "acceptable" threshold value L2
8(1)	OUT	**/AE CRASH**	The programmed CRASH noise value is more than the programmed threshold value.	The programmed CRASH noise value is less than or equal to the programmed threshold value.
9(1)	OUT	**AE GAP**	The programmed GAP noise value is less than or equal to the programmed threshold value.	The programmed GAP noise value is more than the programmed threshold value.
10	OUT	**AE CRASH CYCLE IN PROGRESS**	No CRASH cycle in progress	CRASH cycle in progress
11	OUT	**/HIGH UNBALANCE**	Unbalance value more than the programmed "excessive" threshold value L3	Unbalance value less than or equal to the programmed "excessive" threshold value L3
12	OUT	**/HIGH ACELERATION**	The acceleration signal value is more than the programmed threshold value.	The acceleration signal value is less than or equal to the programmed threshold value.
13	IN		-SOURCE / +SINK	
14	---		N/C	
15	---		N/C	

16	IN	**WB CYCLE REQUEST**	No Automatic Balancing cycle request in progress.	Automatic Balancing cycle request in progress.
17	IN	**WB CYCLE ENABLE**	WB balancing cycle disabled	WB balancing cycle enabled
18	IN	**AE GAP CYCLE REQUEST**	No GAP cycle request	A GAP cycle has been requested
19	IN	**/AE CRASH CYCLE REQUEST**	A CRASH cycle has been requested	No CRASH cycle request
20	IN	**CYCLE # - 1st bit**	First set selection bit (cycle and piece)	
21	IN	**CYCLE # - 2nd bit**	Second set selection bit (cycle and piece)	
22	IN	**CYCLE # - 3rd bit**	Third set selection bit (cycle and piece)	
23	---		N/C	
24	IN		-SOURCE/+SINK	
25	IN		+SOURCE/-SINK	

(1) PINs 8 and 9 can be set up for high or low level activation via the MMI panel

In the “Enhanced” function:

- WB alarm – AE alarm: share the same output bit
- WB cycle request input bit high level stops AE processing and starts balancing algorithm
- AE GAP cycle request: when the input bit goes high the GAP cycle starts
- AE CRASH cycle request: when the input bit goes low the CRASH cycle starts

10.3.2 Recommended Bit activation level. ENHANCED (P1DWB - CG)

For reasons of safety, we strongly recommend setting up a low activation level for the following Bits

ENHANCED

/AE CRASH CYCLE REQ	AE crash cycle request	Input
/WB and/or AE ALARM	WB Surveillance, WB Environment	Output
	AE environment alarm	Output
/RPM ALARM	RPM threshold and RPM alarm	Output
HIGH UNBALANCE	Narrow band unbalance L3 threshold	Output
/HIGH ACCELERATION	Wide band acceleration threshold	Output

It is possible to set-up the activation level for the following bits:

/AE CRASH	AE Crash Threshold	[default low]	Output
AE GAP	AE Gap Threshold	[default high]	Output

10.4 Programmable Flow Control Parameters. (P1DWB - CG)

DESCRIPTION	TYPE	Mnemonic	PIN
Automatic / Manual mode			
Automatic / Manual Connection pin relevant to current Work mode . This output is activated (Logic State 1) if the system is in Automatic mode [default] . Manual mode can be required by Operator Panel if no Cycle is pending , and forces bit deactivation (Logic State 0): in this mode all input/output bits are not managed with the optional exception of input bit of WB Cycle Enable -and L1 and L2 signal in case of pre-balancing.	OUTPUT BIT	AUT/MAN	2
WB , RPM , Acceleration , Unbalance Alarms			
WB and/or AE Alarm Connection pin relevant to **WB Alarm** signal. This output is activated (Logic State 0) if a fatal alarm is pending in WB Surveillance and/or in WB Environment : • Retentive data not valid • Circuitry failure • Accelerometer sensor disconnected or in failure state • Rpm sensor in failure state • Remote actuator communication link failure • Remote actuator temperature threshold exceeded • Balancing head motors not linked or absorbing too power • Automatic balancing algorithm error because wrong rpm , not steady rpm , high unbalance , timeout... Automatic Balancing Cycle cannot be carried out if **WB Alarm** is pending. Connection pin relevant to AE Alarm signalling. This output is activated if a fatal alarm is pending in AE Environment : • Retentive data not valid • Circuitry failure • Remote actuator communication link failure • Acoustic emission sensor in failure state Gap and Crash Cycles cannot be carried out if AE Alarm is pending WB and/or AE Alarm output bit management : • bit is latched and held till an explicit clear request is issued	OUTPUT BIT	/WB AE ALARM	4
RPM Alarm Connection pin relevant to RPM Alarm signal or RPM thresholds exceeded, in monitoring of wheel rotating speed. This output is activated if a fatal alarm is pending in RPM monitoring: • Retentive data not valid • Circuitry failure • Rpm sensor in failure state This output is also activated (Logic State 0) if RPM value is below RPM MIN or above RPM MAX thresholds . Automatic Balancing Cycle cannot be carried out if RPM Alarm is pending. RPM Alarm output bit management : • Status is automatically recovered if a proper RPM is detected	OUTPUT BIT	/RPM ALARM	5

High Unbalance Connection pin relevant to High Unbalance signal . This output is activated (Logic State 0) if the value of wheel unbalance exceeds the value programmed at limit L3 . Automatic Balancing Cycle cannot be carried out or is terminated if High Unbalance is pending . High Unbalance output bit management : • status is automatically recovered if a Low Unbalance is detected	OUTPUT BIT	/HIGH UNBALANCE	11
High Acceleration Connection pin relevant to High Acceleration signal. This output is activated (Logic State 0) if the value of wide band acceleration exceeds the value programmed into acceleration threshold limit. High Acceleration output bit management: • Status is automatically recovered if a low acceleration compared to the programmed acceleration threshold is detected.	OUTPUT BIT	/HIGH ACCELERATION	12
Cycle in Progress			
WB Cycle or AE GAP Cycle in Progress Connection pin relevant to WB Automatic Balancing Algorithm Cycle or AE Gap Cycle in Progress signal . To be used as acknowledgement of **WB Cycle Request** : the bit is activated at cycle start , and deactivated on cycle abort or stop, on cycle done with success , on cycle timeout and on alarm condition . To be used as acknowledgement of AE Gap Cycle Request : the bit is activated at cycle start , and deactivated on cycle stop and on fatal alarm condition .	OUTPUT BIT	WB or AE GAP CYCLE IN PROGRESS	3
AE CRASH Cycle in Progress Connection pin relevant **AE Crash Cycle in Progress** signal. To be used as acknowledgment of **AE Crash Cycle Request**: the bit is activated at cycle start , and deactivated on cycle stop and on fatal alarm condition .	OUTPUT BIT	AE CRASH CYCLE IN PROGRESS	10
Data Sets			
Data Set Selection Connection pins relevant to Data Set Selection between available. Set #0 ÷ #7. Selection of a not existing Data Set is discarded , and a warning is raised: 1st available one or last available selected one is assumed. Data Set Selection is not processed till almost a cycle request is pending.	INPUT BIT	CYCLE # bit 0 CYCLE # bit 1 CYCLE # bit 2	20 21 22
WB Cycle			
WB Cycle Enable Connection pin relevant to Balancing Algorithm and other balancing masses movement enable signal. The signal must be supplied to enable the balancing operations : • In Manual Mode , execution of automatic balancing cycle , home cycle, manual displacement of balancing masses • In Automatic mode , execution of automatic balancing cycle, WB Cycle Enable bit can be programmed to be unused in Manual mode, Enhanced behaviour: Settings → Options → I/O Prog → IGNORE IN MANUAL . **WB Cycle Enable** deactivation stops balancing algorithm .	INPUT BIT	WB CYCLE ENABLE	17

WB Cycle Request Connection pin relevant to Automatic Balancing Algorithm Cycle start signal. • WB Cycle Request requires also WB Cycle Enable to be active , otherwise an alarm is raised . • WB Cycle Request must not be required if an AE cycle is pending. • WB Cycle Request input bit is acknowledged by Cycle in Progress output bit WB Cycle Request input bit management: • Bit activation starts algorithm if also WB Cycle Enable is active • Bit deactivation stops algorithm	INPUT BIT	**WB CYCLE REQUEST**	16
WB Unbalance in Tolerance 1 Connection pin relevant to Unbalance within Tolerance . The signal at Logic State 1 indicates that the unbalance does not exceed the value programmed at limit L1 . WB Unbalance in Tolerance 1 is forced at Logic State 0 when a **Balancing Cycle** is pending.	OUTPUT BIT	UNBALANCE IN TOLERANCE 1	6
WB Unbalance in Tolerance 2 Connection pin relevant to Unbalance approaching Out of Tolerance. The signal at Logic State 1 indicates that the unbalance does not exceed the value programmed at limit L2 . The signal at Logic State 0 indicates that limit L2 was exceeded and an Automatic Balancing Cycle is necessary . **WB Unbalance in Tolerance 2** is forced at Logic State 0 when a Balancing Cycle is pending.	OUTPUT BIT	UNBALANCE IN TOLERANCE 2	7
AE Cycles			
AE Crash Cycle Request Connection pin relevant to AE Crash Cycle start signal. The signal at Logic State 0 enables Crash survey . **AE Crash Request** must not be required if a WB cycle is pending.	INPUT BIT	/AE CRASH CYCLE REQUEST	19
AE Gap Cycle Request Connection pin relevant to AE Gap Cycle start signal. The signal at Logic State 1 starts Gap survey . **AE Gap Request** must not be required if a WB cycle is pending. **AE Gap Cycle Request** input bit is acknowledged by **Cycle in Progress** output bit. If **AE Gap measure Zeroing** is programmed as enabled , the signal from Logic State 0 to Logic State 1 determines the acquisition of the incremental noise value to which the Gap Threshold will refer. If **AE Gap measure Zeroing** is programmed as disabled , the signal from Logic State 0 to Logic State 1 determines the acquisition of the absolute noise value to which the Gap Threshold will refer.	INPUT BIT	AE GAP CYCLE REQUEST	18

AE Crash Connection pin relevant to AE Crash output control signal When the acoustic emission measure exceeds the limit programmed as **Crash Threshold** , signal is activated . **AE Crash** output bit management with MODE parameter : • Activation level can be programmed , and it is defaulted to Logic State 0 • Activation can be programmed to occur each time threshold is exceeded [default] , or only 1st time with level latched • Measure crossing direction can be programmed to be increasing [default] or decreasing	OUTPUT BIT	/AE CRASH	8
AE Gap Connection pin relevant to AE Gap output control signal. When the acoustic emission measure exceeds the limit programmed as **Gap Threshold** , signal is activated. AE Gap output bit management with MODE parameter: • Activation level can be programmed , and it is defaulted to Logic State 1 • Activation can be programmed to occur each time threshold is exceeded [default] , or only 1st time with level latched • Measure crossing direction can be programmed to be increasing [default] or decreasing	OUTPUT BIT	AE GAP	9

10.4.1 Cyclograms in ENHANCED mode (P1DWB - CG)

Elaboration delay =20ms

T_{trg} is the minimum length of time the signal must remain above the threshold level in order to trigger the output signal.
T_{PLC} is the minimum time necessary to activate the relative Bit.

WB AUTOMATIC BALANCING ALGORITHM

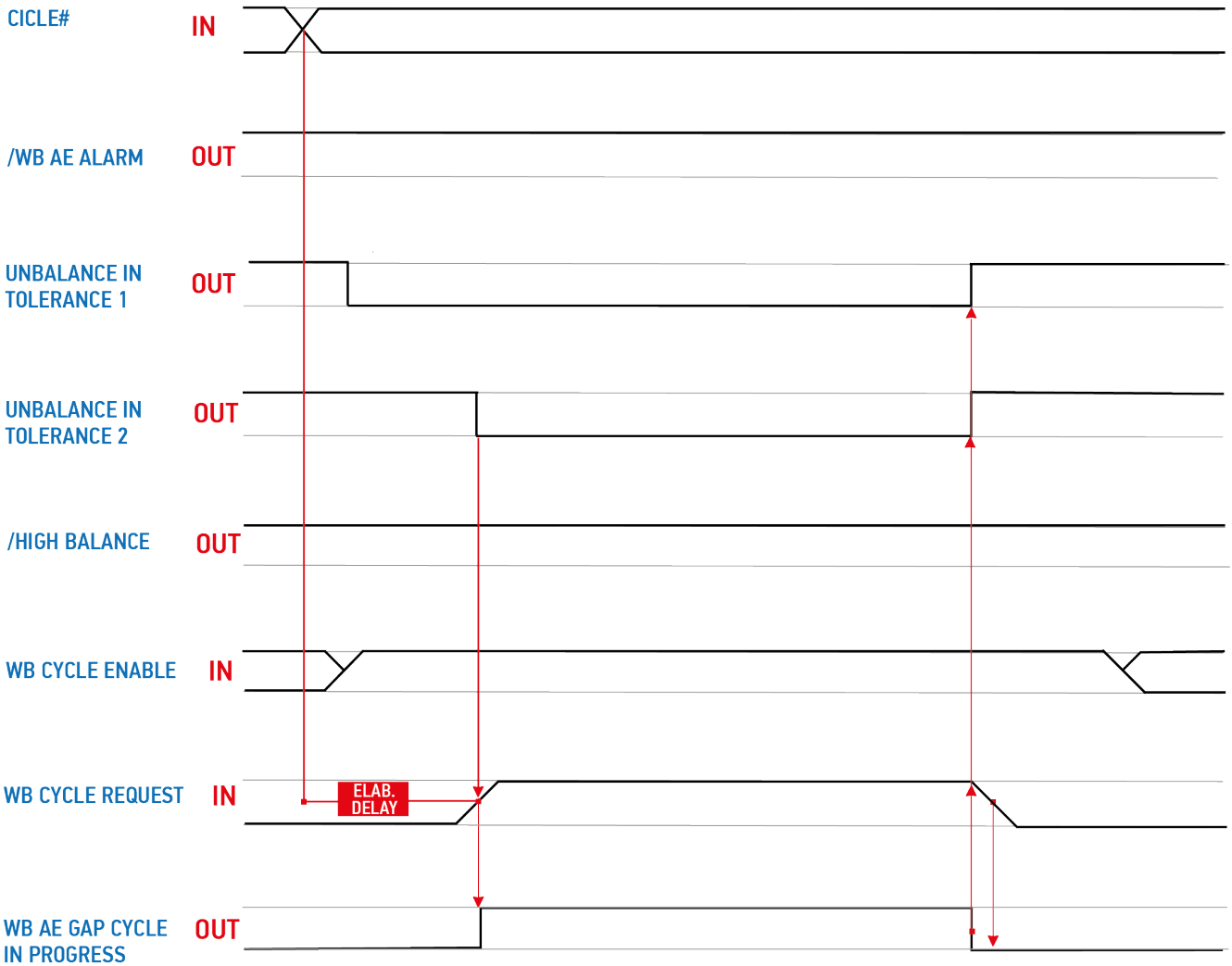
In order to ensure the balancing process takes into account the effective grinding wheel vibration, while eliminating the influence of external elements, it is essential to ensure the following conditions are satisfied when carrying out the balancing cycle:

- The grinding wheel must be rotating at between 60 and 30000 RPM
- The grinding wheel must be retracted with respect to the working position
- No grinding wheel dressing cycles must be in progress
- None of the machine components must be in motion
- If possible, the coolant flow should be interrupted

In order to ensure good balancing accuracy, it is advisable to maintain a rotation speed of at least 300 rpm.

When the **WB CYCLE ENABLE** and /**AE CRASH** signal inputs are in logic state 1, and the **AE GAP CYCLE REQUEST** signal input is in logic state 0, the P1DWB is enabled to receive the balancing cycle start signal.
See the example below for an explanation of the Automatic balancing cycle Request:

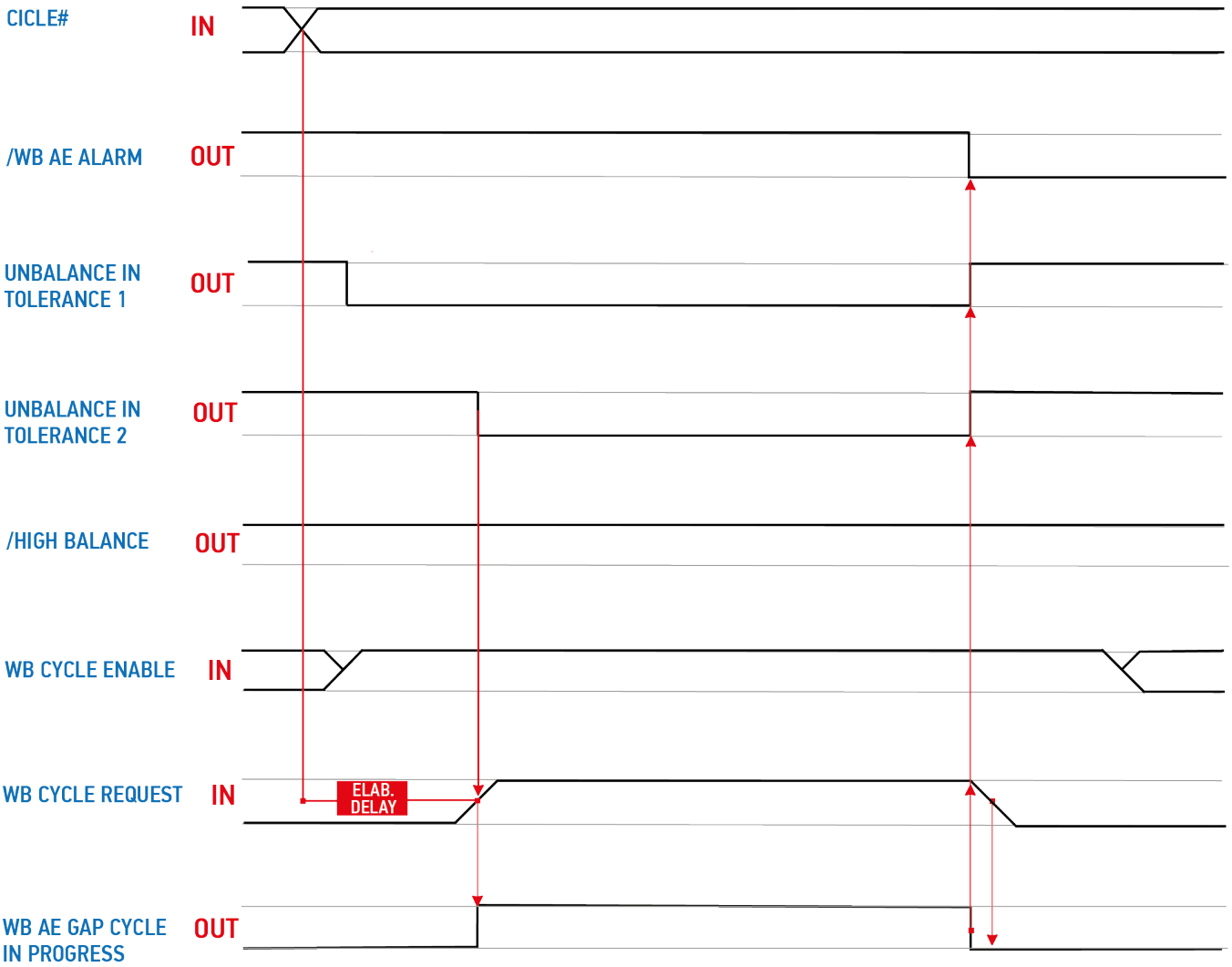
- Cycle performed without alarms:



When the **CYCLE IN PROGRESS** signal is in logic state 1, the **UNBALANCE IN TOLERANCE** 1 and 2 output is disabled and the electronic unit monitors the movement of the head balancing weights until the optimum balancing condition is achieved.
Balancing is considered to be optimum when the grinding wheel unbalance does not exceed the value set-up for the threshold L1.(PROG/ SET/WHEEL BALANCING)
Once this condition has been reached, the **CYCLE IN PROGRESS** signal assumes the logic 0 state, which indicates that the balancing cycle is complete, and that the **IN TOLERANCE 1** and **IN TOLERANCE 2** signals output is enabled (these two signals assume the logic 1 state).

If the unbalance remains below the L2 threshold limit for approximately 210 seconds, the P1DWB interrupts the balancing cycle, setting the **CYCLE IN PROGRESS** signal to the logic 0 state, and activates the **/WB ALARM** output signal.

See the example below for an explanation of the Automatic balancing cycle Request:
• Cycle performed with time-out
• /WB and/or AE alarm high

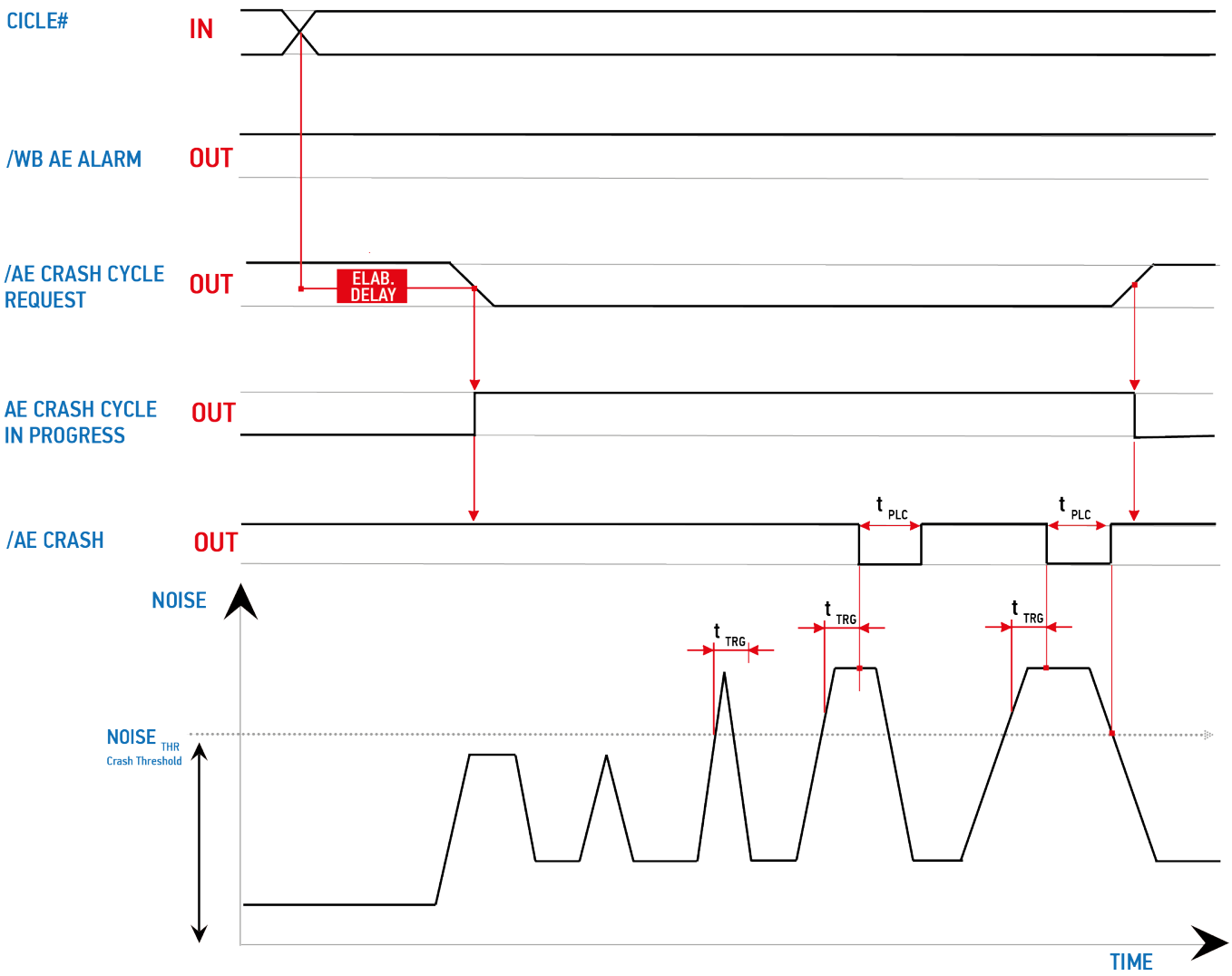


AE ALARMS
Whatever AE CRASH CYCLE REQUEST and AE GAP CYCLE REQUEST levels are:

• The AE CRASH output is activated (forced to low or high level, depending on the configuration)
• The AE GAP output is activated (forced to low or high level, depending on the configuration)

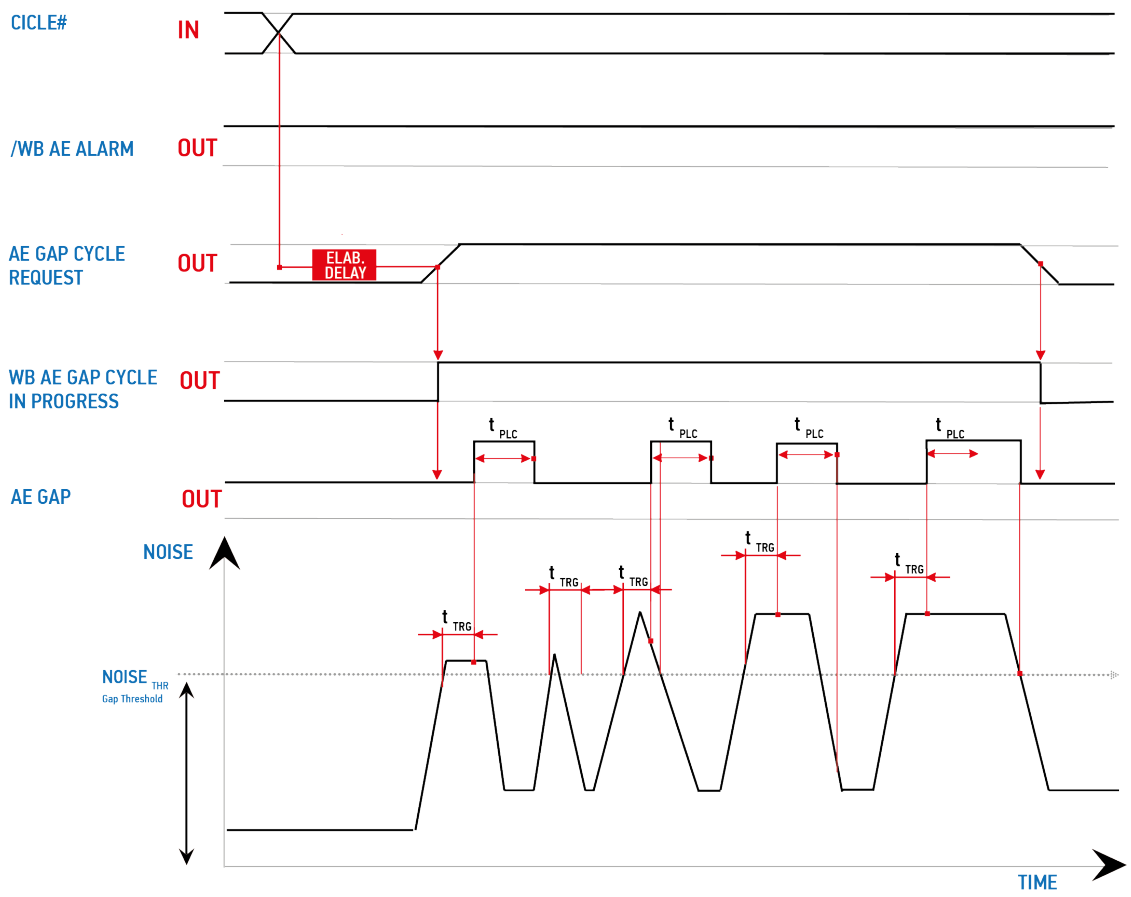
AE CRASH CHECK, with non self-retaining command, not zeroed.

- Crash output bit programmed for low level activation (default) and high direction (default)
- Cycle performed without alarms:

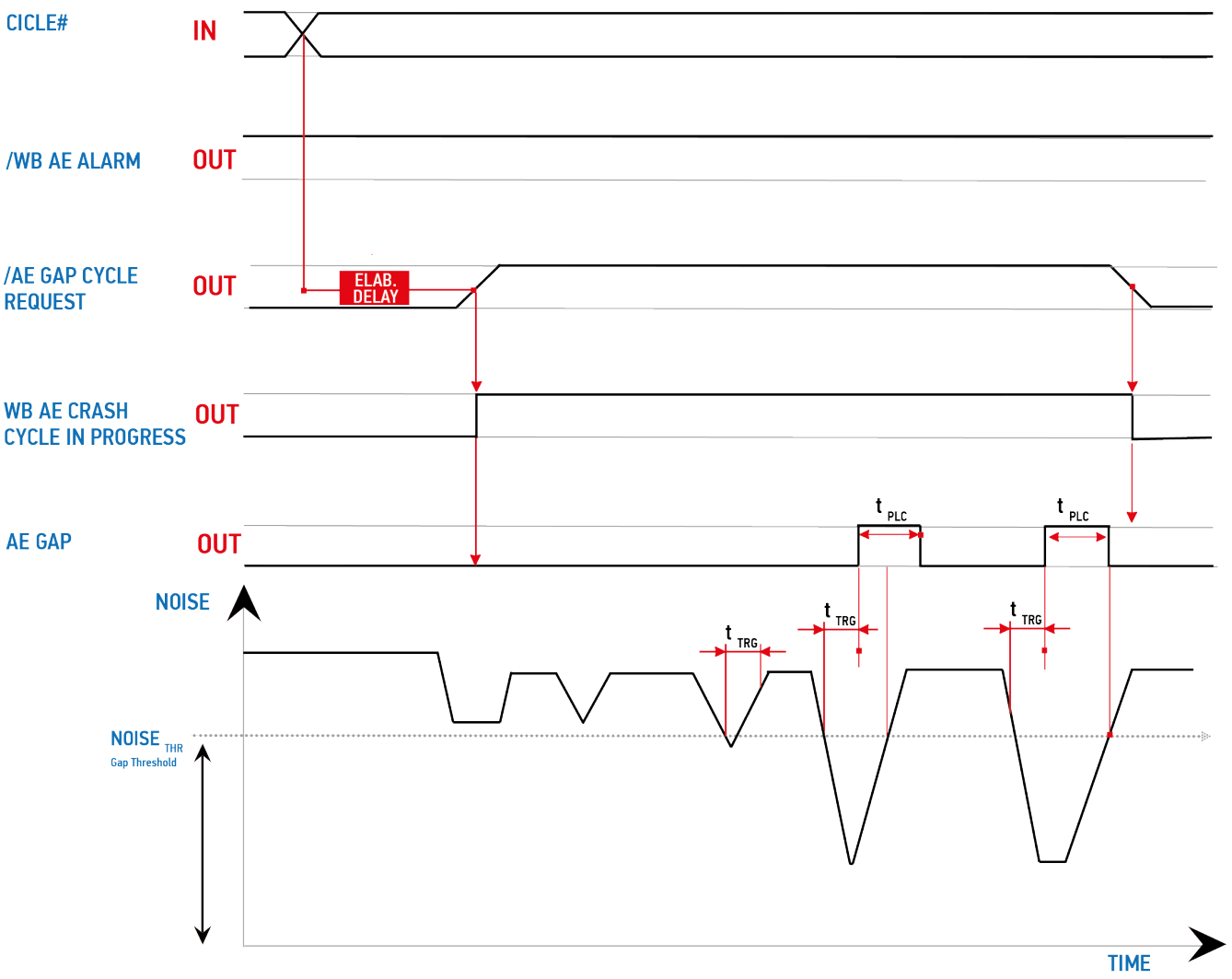


AE GAP CHECK, with non self-retaining command, not zeroed

- Gap output bit programmed for high level activation (default) and high direction (default)
- Cycle performed without alarms

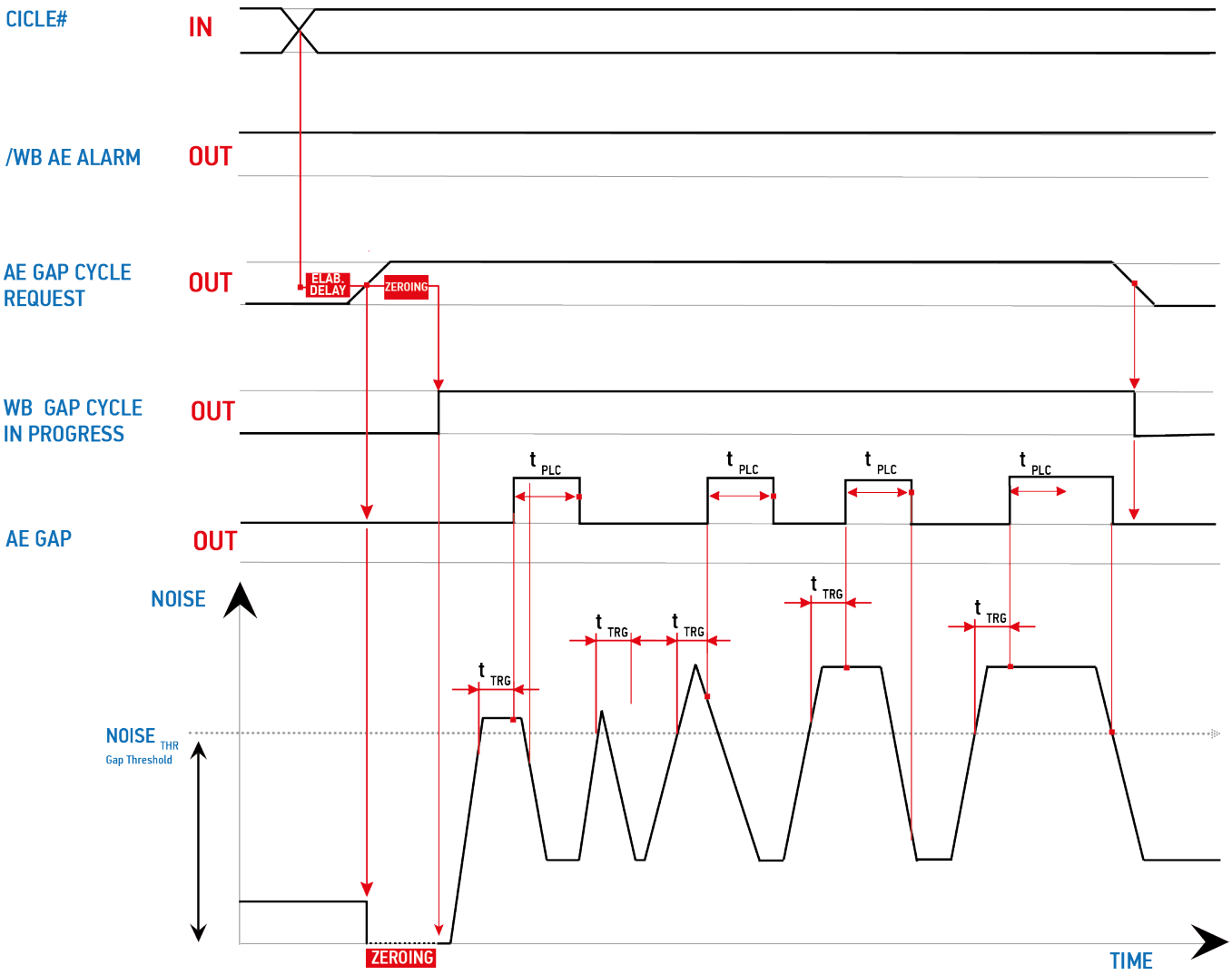


- Gap output bit programmed for high level activation (default) and low direction
- Cycle performed without alarms:

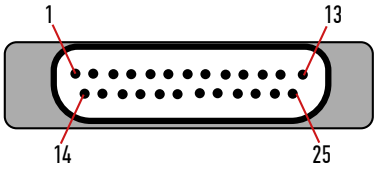


AE GAP CHECK, with non self-retaining command, zeroing at cycle start

- Gap output bit programmed for high level activation (default) and high direction (default)
- Cycle performed without alarms:



10.5 “Legacy” mode connector(P1DWB - CG)



D-SUB FEMALE 25 PIN CONNECTOR.

PIN n°	IN/OUT	NAME	SIGNAL DESCRIPTION	
			LOW	HIGH
1	IN		-SOURCE / +SINK	
2	OUT	**AUT / MAN**	Manual operation	Automatic operation
3	OUT	**WB or AE GAPCYCLE IN PROGRESS**	No cycle in progress	WB or AE GAP cycle in progress
4	OUT	**/WB ALARM**	WB alarm active	No WB alarm
5	OUT	**/RPM ALARM**	RPM alarm active. The detected rpm value is outside the programmed range.	No RPM alarm
6	OUT	**UNBALANCE IN TOLERANCE 1**	Unbalance value more than the programmed “optimum” threshold value L1	Unbalance value less than or equal to the programmed “optimum” threshold value L1
7	OUT	**UNBALANCE IN TOLERANCE 2**	Unbalance value more than the programmed “acceptable” threshold value L2	Unbalance value less than or equal to the programmed “acceptable” threshold value L2
8(1)	OUT	**/AE CRASH**	The programmed CRASH noise value is more than the programmed threshold value.	The programmed CRASH noise value is less than or equal to the programmed threshold value.
9(1)	OUT	**/AE GAP**	The programmed GAP noise value is less or equal to the programmed threshold value.	The programmed GAP noise value is more than the programmed threshold value.
10	OUT	**/AE ALARM**	AE alarm active	No AE alarm
11	OUT	**/HIGH UNBALANCE**	Unbalance value more than the programmed “excessive” threshold value L3	Unbalance value less than or equal to the programmed “excessive” threshold value L3
12	OUT	**/LOW COMM. LEVEL**	Communication with Remote Actuator Warning	Communication with Remote Actuator Ok
13	IN		-SOURCE / +SINK	
14	---		N/C	
15	---		N/C	
16	IN	**WB CYCLE REQUEST**	No cycle request	Automatic balancing cycle request in progress.

17	IN	**WB CYCLE ENABLE**	WB balancing cycle disabled	WB balancing cycle enabled
18	IN	**AE GAP CYCLE REQUEST**	No GAP cycle request	A GAP cycle has been requested
19	IN	**/AE CRASH CYCLE REQUEST**	A CRASH cycle has been requested	No CRASH cycle request
20	IN	**CYCLE # - 1st bit**	Set cycle and piece selection, 1st bit	
21	IN	**CYCLE # - 2nd bit**	Set cycle and piece selection, 2nd bit	
22	IN	**CYCLE # - 3rd bit**	Set cycle and piece selection, 3rd bit	
23	---		N/C	
24	IN		-SOURCE/+SINK	
25	IN		+SOURCE/-SINK	

(1) PINs 8 and 9 can be set up for high or low level activation via the MMI panel

In “Legacy” operating mode:
- The /HIGH ACCELERATION output bit is not available, and is replaced by /LOW COMM. LEVEL
- The /AE CRASH CYCLE IN PROGRESS output bit is not available, and is replaced by /AE ALARM
- WB ALARM and AE ALARM STATUS are divided between two different output signals
- WB CYCLE ENABLE input bit acts also as alarms clear request
- Wb cycle request: when the input bit goes high, the AE process is interrupted and the balancing algorithm starts.
- AE GAP cycle request: when the input bit goes high the GAP cycle starts
- AE CRASH cycle request: when the input bit goes low the CRASH cycle starts

10.5.1 Recommended Bit activation level. LEGACY (P1DWB - CG)

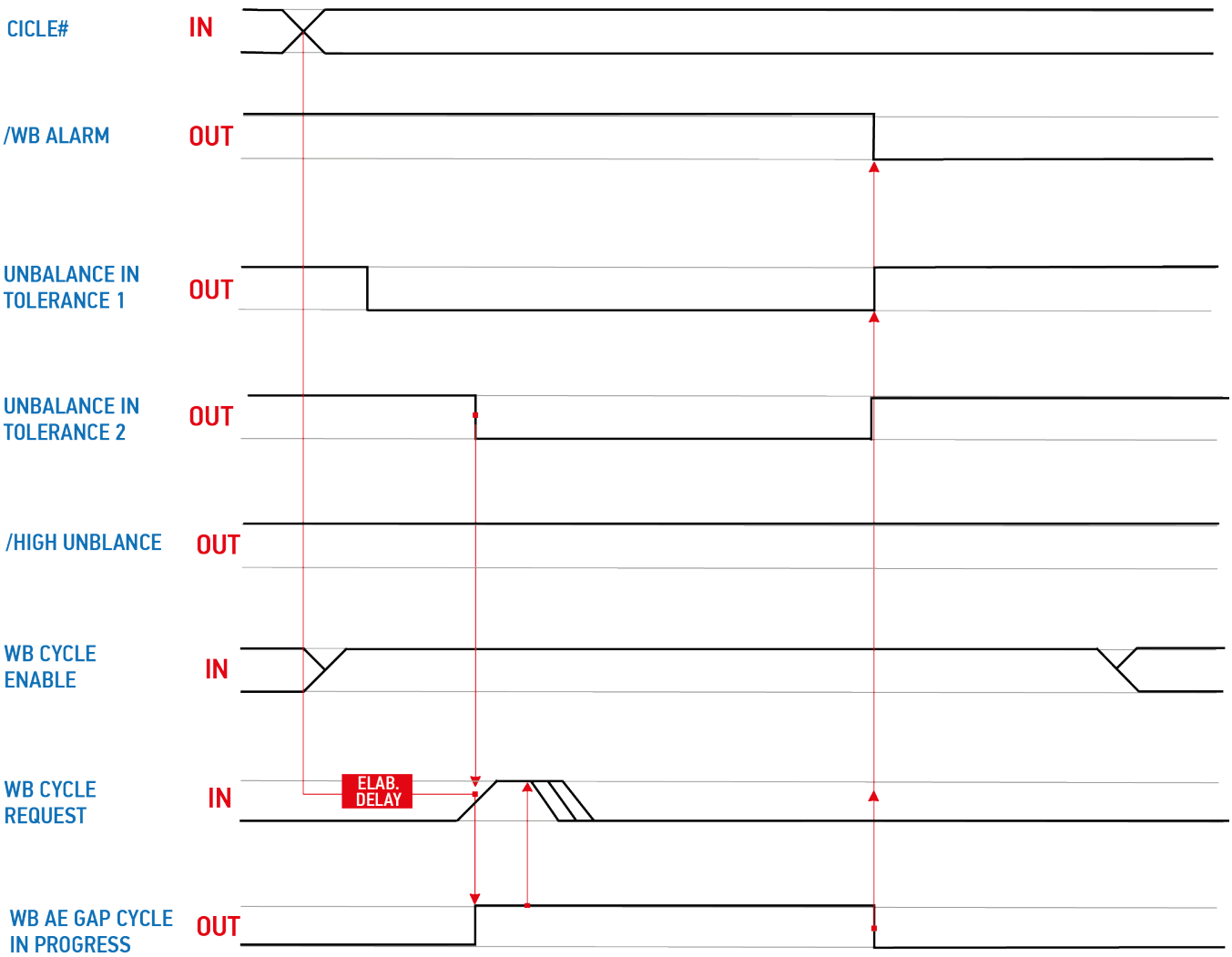
SIGNAL		I/O	RECOMMENDED LEVEL
/AE CRASH CYCLE REQ	AE crash cycle request	Input	Low
/WB and/or AE ALARM	WB Surveillance, WB Environment	Output	Low
	AE environment alarm	Output	Low
/RPM ALARM	RPM threshold and RPM alarm	Output	Low
HIGH UNBALANCE	Narrow band unbalance L3 threshold	Output	High
/HIGH ACCELERATION	Wide band acceleration threshold	Output	Low

10.5.2 Cyclograms in LEGACY mode(P1DWB - CG)

Elaboration delay (ELAB. DELAY) = 20ms
ttrg is the minimum length of time the signal must remain above the threshold level in order to trigger the output signal
tPLC is the minimum time necessary to activate the Bit

WB Automatic balancing algorithm

- **Cycle performed without alarms**

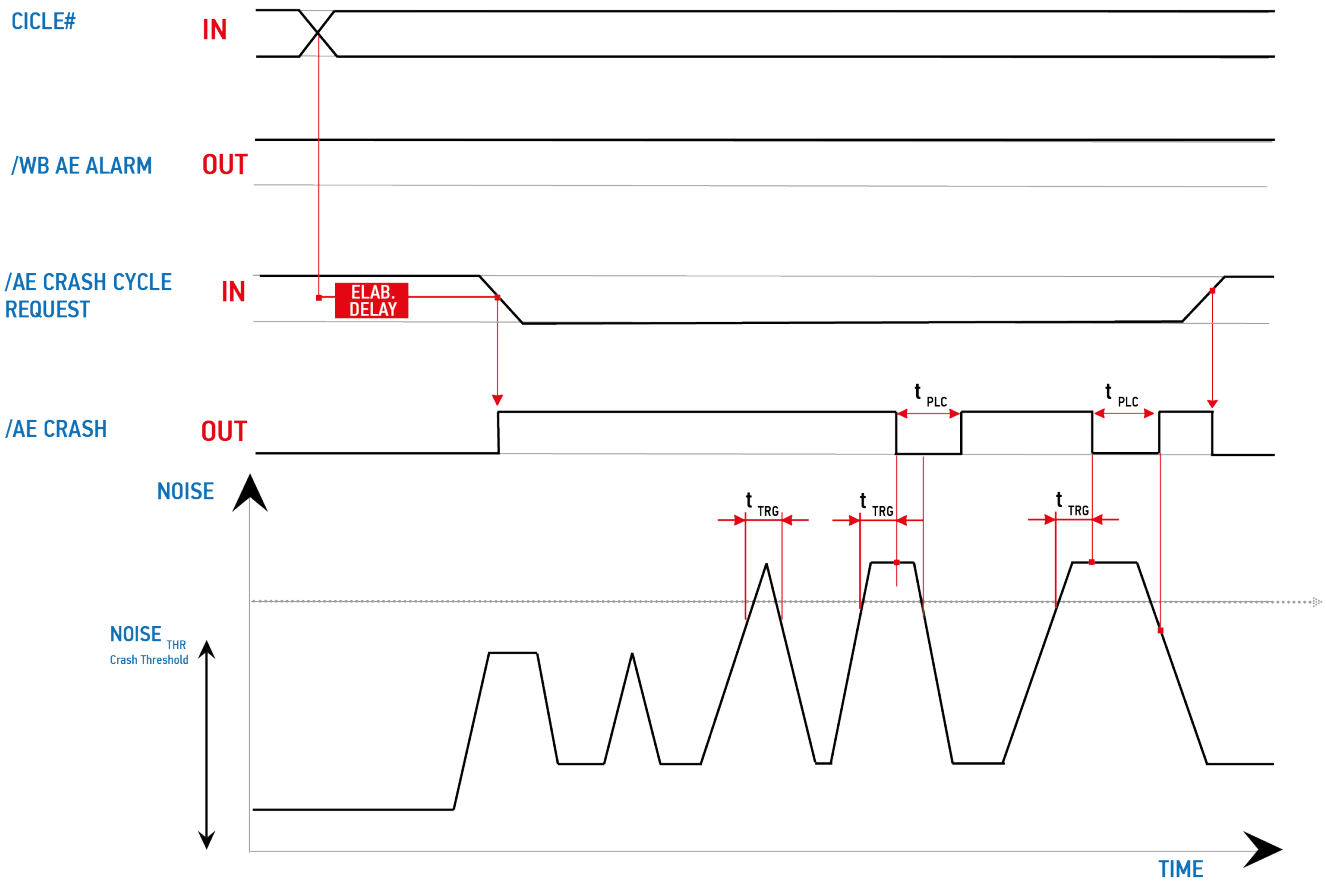


If AE CRASH CYCLE REQUEST is at high level (active , request pending) :
• /AE CRASH output is forced at low level (active) .

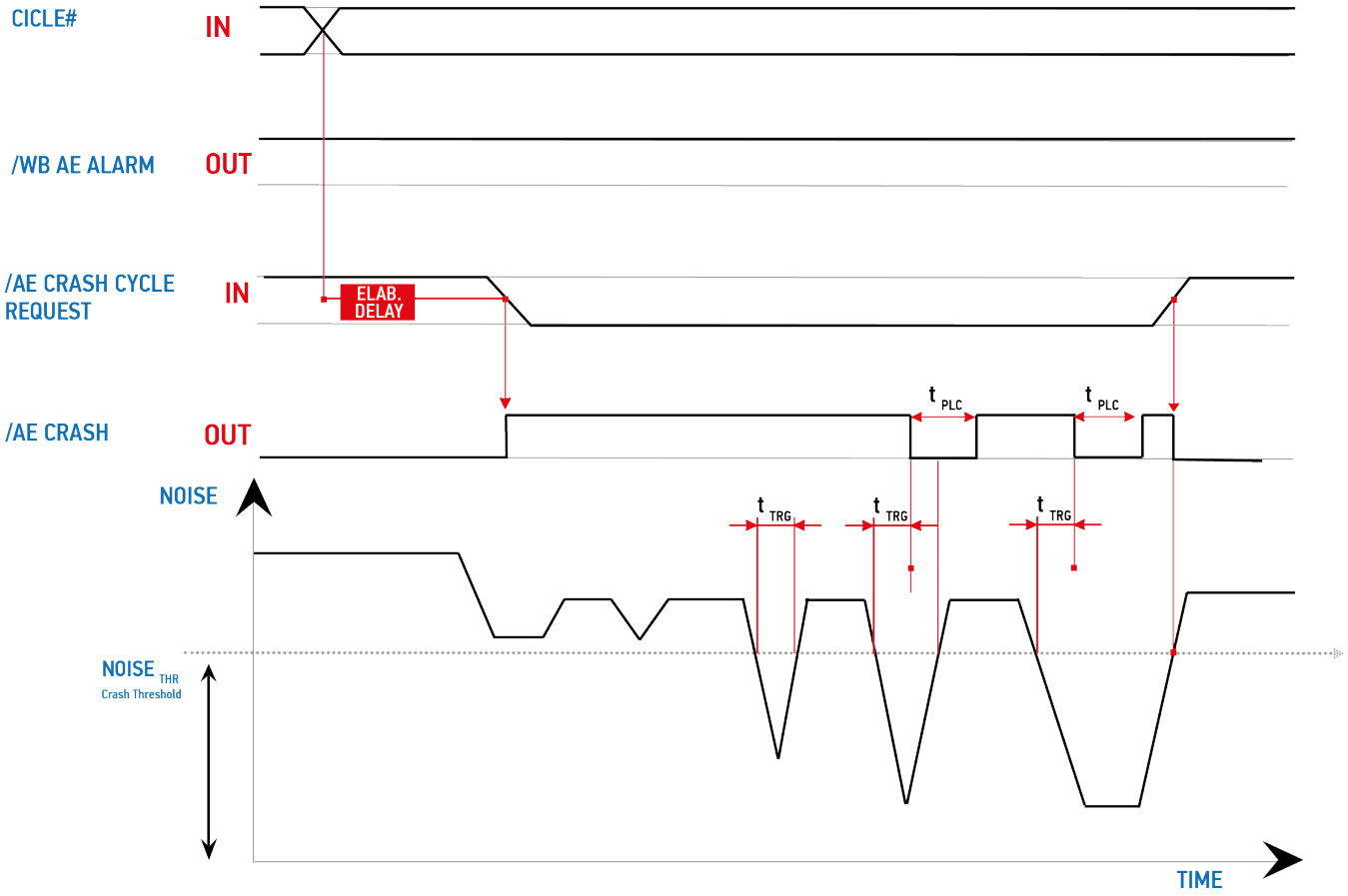
If AE GAP CYCLE REQUEST is at high level (active , request pending)
• /AE GAP output is forced at low level (active) .

AE CRASH CHECK, with non self-retaining command

• The crash output bit is set to high direction [default]
• Cycle performed without alarms

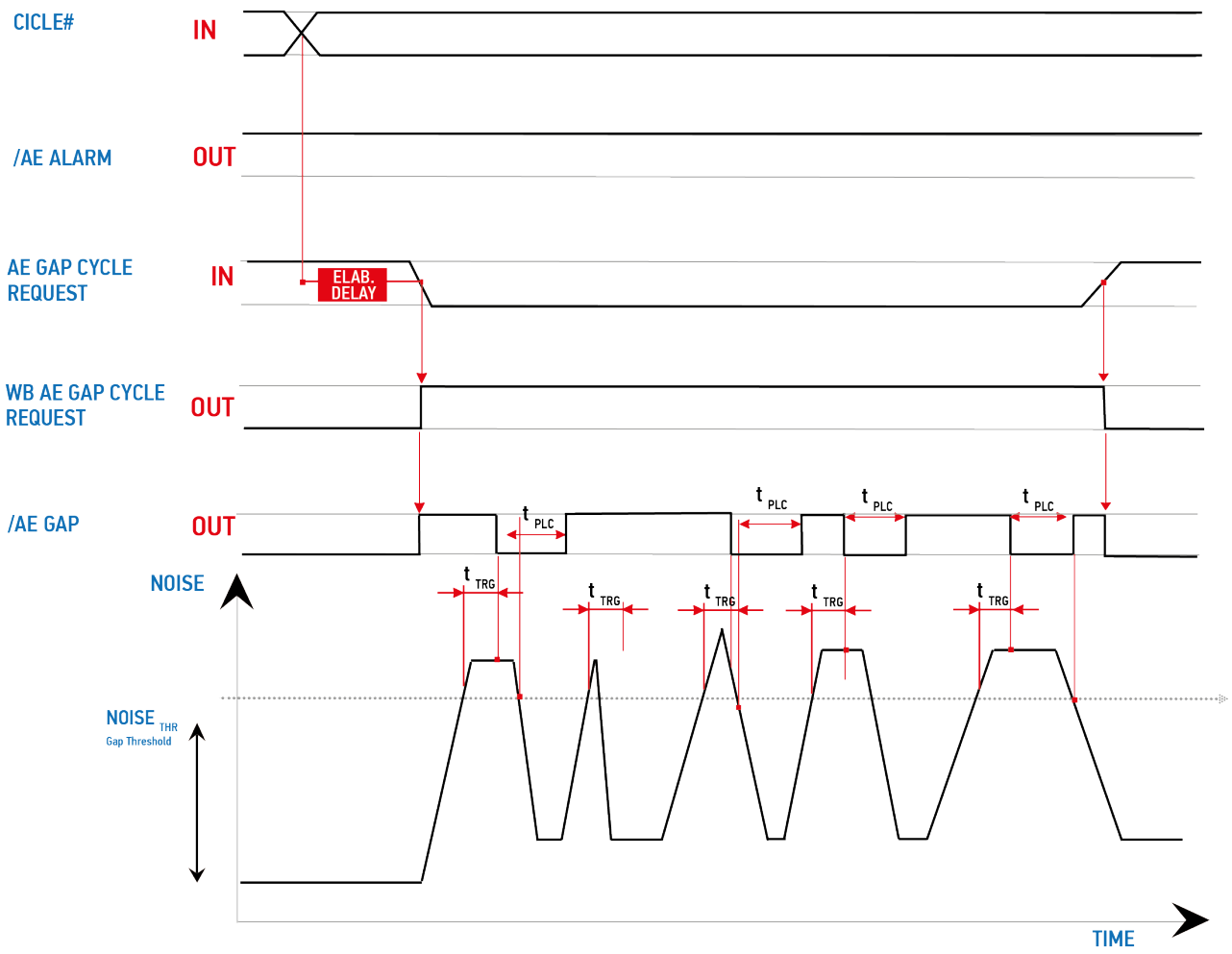


- The crash output bit is set to low direction
- Cycle performed without alarms



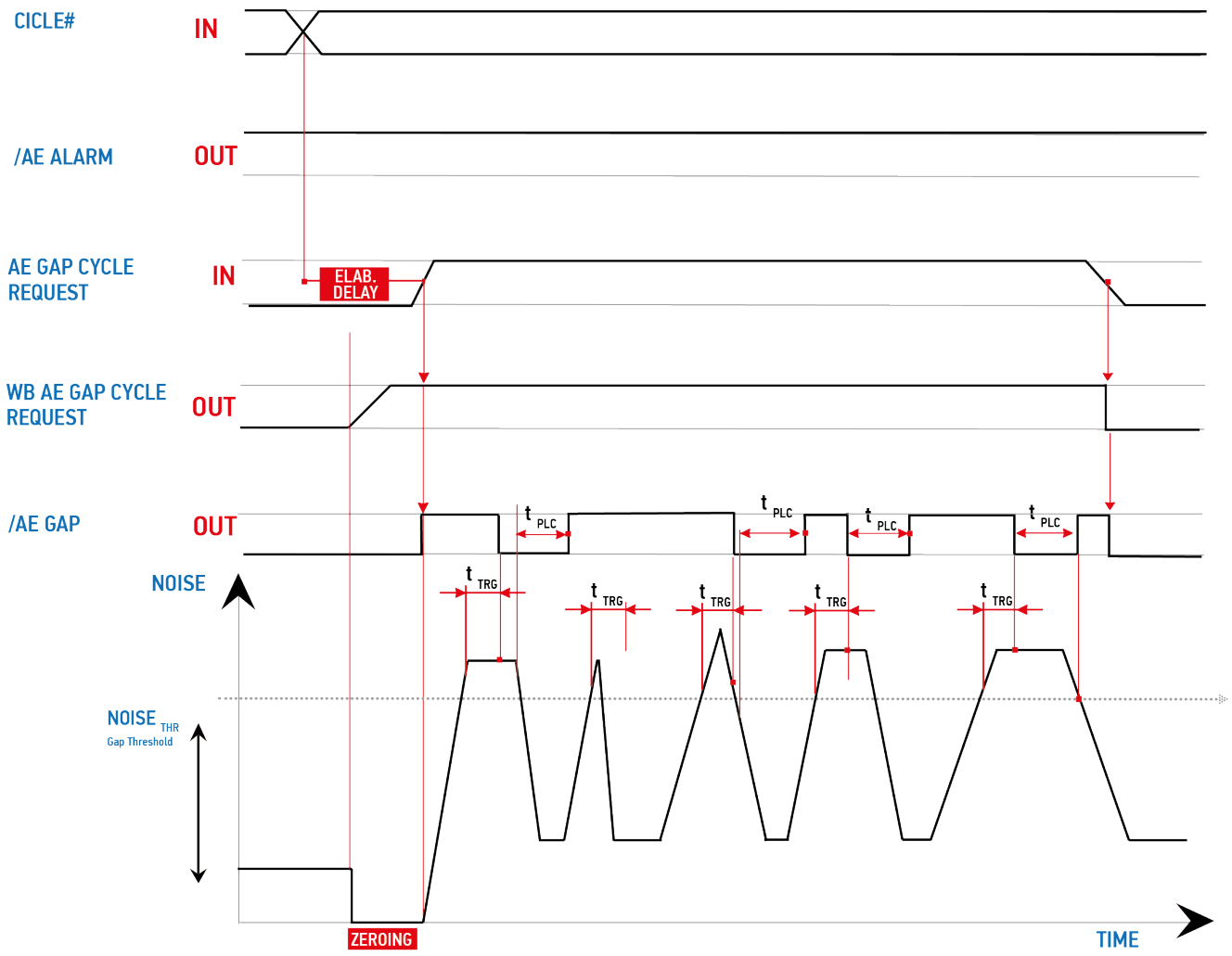
AE GAP CHECK, with non self-retaining command, not zeroed

- The gap output bit is set to high direction [default]
- Cycle performed without alarms



AE GAP CHECK, with non self-retaining command, Zeroing at cycle start

- The gap output bit is set to high direction [default]
- Cycle performed without alarms

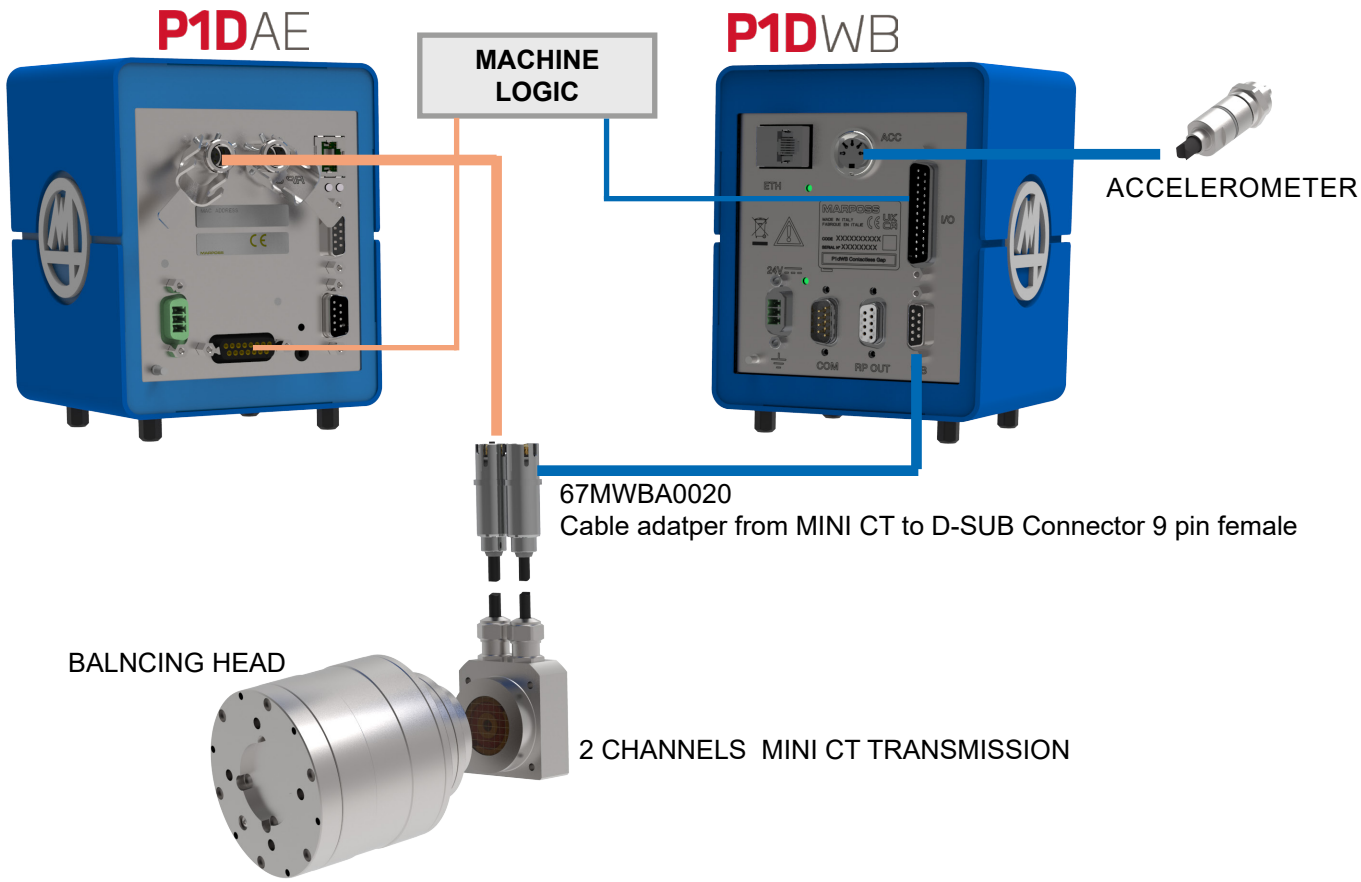


Description	Descrip-tion	Mnemonico	PIN
Automatic/Manual Mode			
Automatic / Manual Connection pin relevant to current Work mode . This output is activated (Logic State 1) if the system is in Automatic mode [default] . Automatic/Manual management in ENANCHED behaviour: • Manual mode can be required by Operator Panel if no Cycle is pending , and forces bit deactivation (Logic State 0) : in this mode all input/output bits are not managed with the optional exception of WB Cycle Enable input bit Automatic/Manual management in LEGACY behaviour: • Manual mode can be required by Operator Panel also if a Cycle is pending , and forces bit deactivation (Logic State 0) : in this mode all input/output bits are not managed with the optional exception of WB Cycle Enable input bit and the exception of all Unbalance related output bit	OUTPUT BIT	AUT/MAN	2
WB , RPM , Acceleration , Unbalance Alarms			
WB Alarm Connection pin relevant to WB Alarm signal. This output is activated (Logic State 0) if a fatal alarm is pending in WB Surveillance and/or in WB Environment : • Retentive data not valid • Circuitry failure • Accelerometer sensor disconnected or in failure state • Rpm sensor in failure state • Remote actuator communication link failure • Remote actuator temperature threshold exceeded • Balancing head motors not linked or absorbing too power Automatic balancing algorithm error because wrong rpm, not steady rpm, high unbalance, timeout , ... Automatic Balancing Cycle cannot be carried out if WB Alarm is pending. WB Alarm output bit management: • Bit is latched and held till an explicit clear request is issued in case of fatal alarm • Bit is also activated in case of High Unbalance and automatically recovered if a Low Unbalance is detected	OUTPUT BIT	/WB AE ALARM	4
Low Communication Level Warning			
Low Communication Level Warning for E82 rx/tx groups Connection pin relevant to signal indicating that the communication level between the transmitter (fixed part) and the receiver (rotating part) is low. This output is activated (Logic State 0) if communication level is detected low. This is a pre-alarm condition, available only with E82 like rx/tx groups.	OUTPUT BIT	LOW COMM. LEVEL	12

Cycle in Progress			
WB Cycle or AE Gap Cycle in Progress Connection pin relevant to WB Automatic Balancing Algorithm Cycle or AE Gap Cycle in Progress signal . To be used as acknowledgement of WB Cycle Request : • The bit is activated at cycle start , and deactivated on cycle abort or stop, on cycle done with success, on cycle timeout and on alarm condition. To be used as acknowledgement of AE Gap Cycle Request: • The bit is activated at cycle start, and deactivated on cycle stop and on fatal alarm condition .	OUTPUT BIT	WB or AE GAP CYCLE IN PRO-GRESS	3
Data Sets			
Data Set Selection Connection pins relevant to Data Set Selection between available Set #0 ÷ #7 . Selection of a not existing Data Set is discarded , and a warning is raised : 1st available one or last available selected one is assumed. Data Set Selection is not processed till almost a cycle request is pending.	INPUT BITS	CYCLE # bit 0 CYCLE # bit 1 CYCLE # bit 2	20 21 22
WB Cycle (Wheel Balancing)			
WB Cycle Enable Connection pin relevant to Balancing Algorithm and other balancing masses movement enable signal. The signal must be supplied to enable the balancing operations : • In Manual Mode , execution of automatic balancing cycle , home cycle , manual displacement of balancing masses • In Automatic mode , execution of automatic balancing cycle WB Cycle Enable bit can be programmed to be unused in Manual mode, Enhanced behaviour : Settings → Options → I/O Prog → IGNORE IN MANUAL . WB Cycle Enable deactivation stops balancing algorithm . Connection pin relevant to Alarms Clear. WB Cycle Enable transition from Logic State 0 to Logic State 1 generates the reset of alarms occurred .	INPUT BIT	WB CYCLE ENABLE	17
WB Cycle Request Connection pin relevant to Automatic Balancing Algorithm Cycle start signal. WB Cycle Request requires also WB Cycle Enable to be active, otherwise an alarm is raised. WB Cycle Request must not be required if an AE cycle is pending WB Cycle Request input bit is acknowledged by Cycle in Progress output bit . WB Cycle Request input bit management : • Bit activation starts algorithm if also WB Cycle Enable is active • Bit deactivation does not stop algorithm , and is required after Cycle In Progress is activated	INPUT BIT	WB CYCLE REQUEST	16
WB Unbalance in Tolerance 1 Connection pin relevant to Unbalance within Tolerance . The signal at Logic State 1 indicates that the unbalance does not exceed the value programmed at limit L1 . WB Unbalance in Tolerance 1 is forced at Logic State 0 when a Balancing Cycle is pending .	OUTPUT BIT	UNBA-LANCE IN TOLERAN-CE 1	6

WB Unbalance in Tolerance 2 Connection pin relevant to Unbalance approaching Out of Tolerance. The signal at Logic State 1 indicates that the unbalance does not exceed the value programmed at limit L2 . The signal at Logic State 0 indicates that limit L2 was exceeded and an Automatic Balancing Cycle is necessary . WB Unbalance in Tolerance 2 is forced at Logic State 0 when a Balancing Cycle is pending .	OUTPUT BIT	UNBALANCE IN TOLERANCE 2	7
AE Cycles (Acoustic Emission)			
AE Crash Cycle Request Connection pin relevant to AE Crash Cycle start signal The signal at Logic State 0 enables Crash survey . AE Crash Request must not be required if a WB cycle is pending.	INPUT BIT	/AE CRASH CYCLE REQUEST	19
AE Gap Cycle Request Connection pin relevant to AE Gap Cycle start signal. The signal at Logic State 1 starts Gap survey . AE Gap Request must not be required if a WB cycle is pending. AE Gap Cycle Request input bit is acknowledged by Cycle in Progress output bit . If AE Gap measure Zeroing is programmed as enabled , the signal from Logic State 0 to Logic State 1 determines the acquisition of the incremental noise value to which the Gap Threshold will refer. If AE Gap measure Zeroing is programmed as disabled , the signal from Logic State 0 to Logic State 1 determines the acquisition of the absolute noise value to which the Gap Threshold will refer.	INPUT BIT	AE GAP CYCLE REQUEST	18
AE Crash Connection pin relevant to AE Crash output control signal . When the acoustic emission measure exceeds the limit programmed as Crash Threshold , signal is activated . AE Crash output bit management with MODE parameter: • Activation level is Logic State 0 • Activation can be programmed to occur each time threshold is exceeded [default] , or only 1st time with level latched • Measure crossing direction can be programmed to be increasing [default] or decreasing	OUTPUT BIT	/AE CRASH	8
AE Gap Connection pin relevant to AE Gap output control signal When the acoustic emission measure exceeds the limit programmed as Gap Threshold , signal is activated . AE Gap output bit management with MODE parameter: • Activation level is Logic State 0 • Activation can be programmed to occur each time threshold is exceeded [default] , or only 1st time with level latched • Measure crossing direction can be programmed to be increasing [default] or decreasing	OUTPUT BIT	/AE GAP	9

11. SPECIAL APPLICATION P1DWB WITH DOUBLE CHANNEL MINI CT AND P1DAE



11.1 Application Setup

Execute the setup as follows:

[P1dAE] Enter as OEM User in manual mode

[P1dAE] Settings > Hardware Programming > AE1 > Enabled + Remote must be SELECTED

[P1DWB] Enter as OEM User in manual mode

[P1DWB] Prog > SET > Acoustic Emission > AE GAIN > Set the value as LOW

[P1DWB] Settings > Hardware Programming > WB Head Setup > RX/TX GROUP > MiniCT + AE OUT > Sensor Type > AE Sensor must be DESELECTED

[P1DWB] Activate CRASH CYCLE REQUEST by PLC (machine logic)

[P1DWB]] Automatic mode

[P1DWB] Views > Acceleration

[P 1dAE]Automatic mode (both GAP and CRASH go to +OVR on Acoustic Emission page, but this does not create issues because we are out of GAP and CRASH cycles).

[P1dAE] Views > Acoustic Emission Graph (both GAP and CRASH signals are equal to ZERO until GAP and/or CRASH signals are activated)

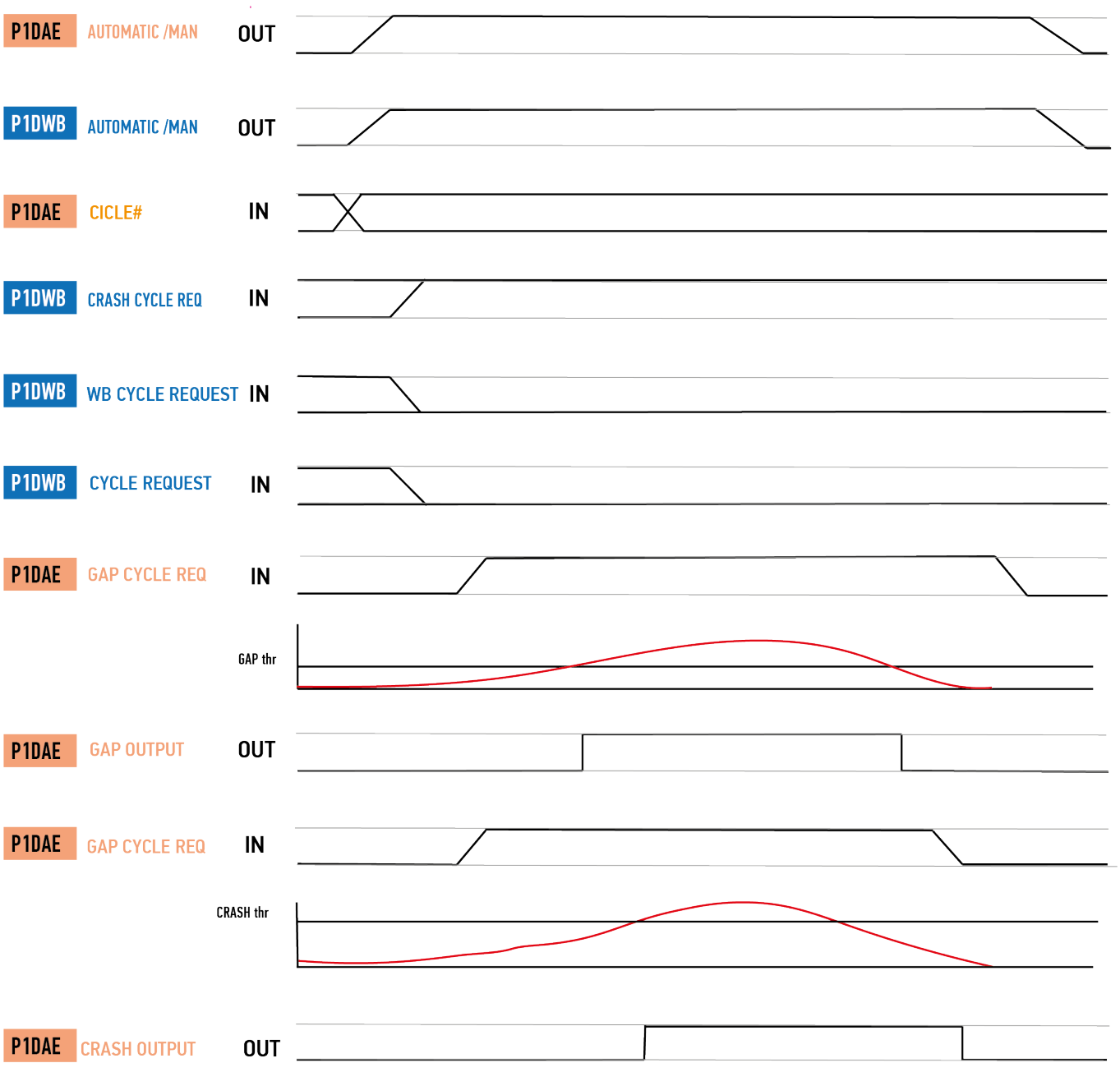
11.2 GAP and or CRASH Cycle (both P1dWB and P1dAE must be in AUTOMATIC mode)

[P1DWB] DEACTIVATE Enable Balancing and WB Cycle Request

[P1dAE] Start the GAP and or CRASH Cycle by PLC (machine logic)

[P1dAE] At the end of the cycle, DEACTIVATE GAP and or CRASH cycle requests

11.2.1 Cyclogram GAP - CRASH Cycle (non self-retaining GAP output, self-retaining Outuput CRASH)



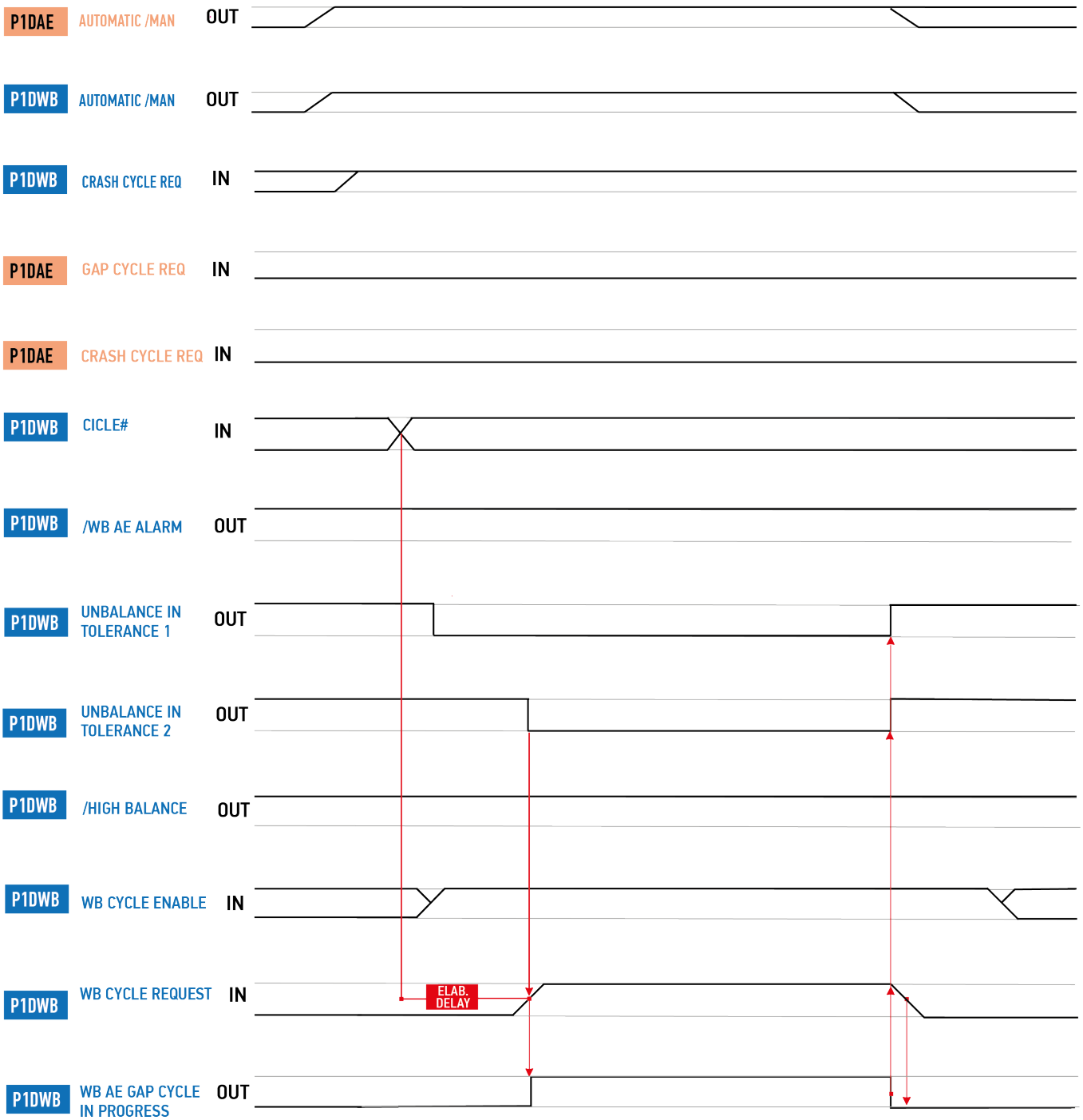
11.3 WB Cycle (both P1dWB and P1dAE must be in AUTOMATIC mode

[P1dAE] Deactivate GAP and CRASH cycle requests

[P1DWB] ACTIVATE Enable Balancing and WB Cycle Requests

[P1DWB]] At the end of the balancing cycle, DEACTIVATE Enable Balancing and WB Cycle Request.

11.2.2 WB Cycle Cyclogram

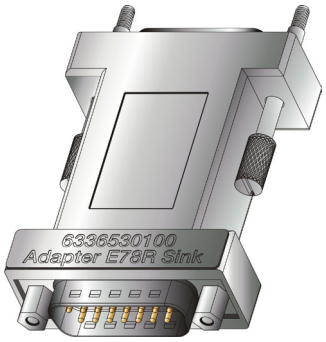
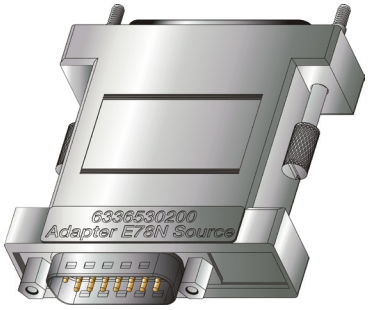
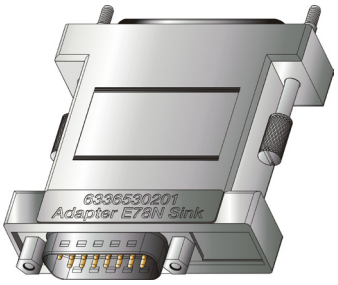
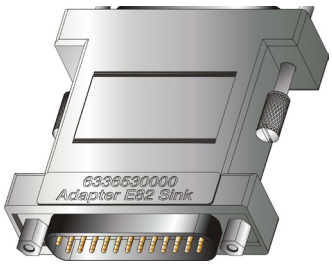


12. ACCESSORIES FOR UPGRADING E78 AND E82

As described earlier in this manual, it is possible to upgrade E78/E82 units to P1DWB. In order to upgrade these devices various accessories may be necessary

12.1 ELECTRICAL ACCESSORIES

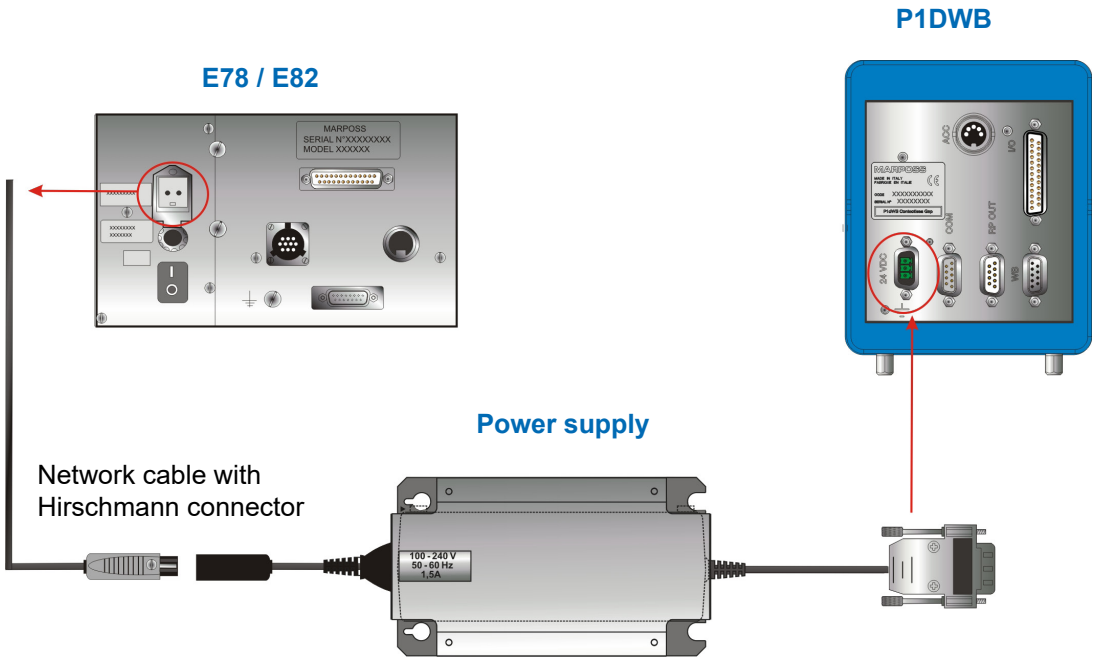
1) I/O adapters. An adapter may be necessary when upgrading an old electronic unit. (See table below)

ELECTRONIC UNITS	SOURCE	SINK
E78R	P1DWB-R Standard Connector	P1DWB-R + Adapter part n. 6336530100 
E78N	P1DWB-CG + Adapter part n. 6336530200 	P1DWB-CG + Adapter part n. 6336530201 
E82	P1DWB-CG Standard Connector	P1DWB-CG + Adapter part n. 6336530000 

2) 24 V power supply

Power supply kit (part n. 6871140203) for converting 110/220 VAC to 24 VDC so that the E78/E82 unit can be connected directly to the P1DWB.
The kit consists of:

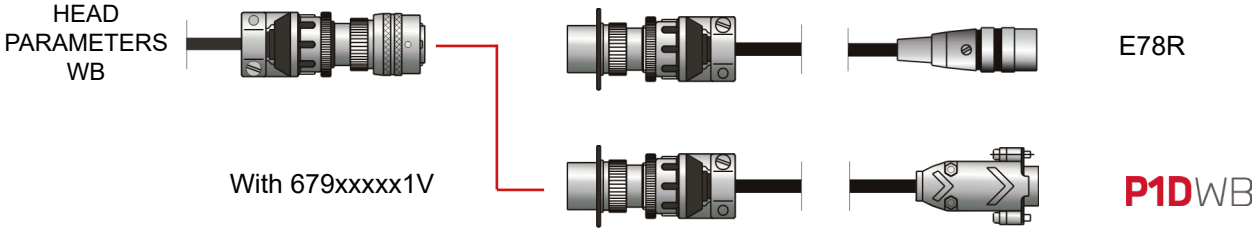
- Power supply
- 24 VDC cable and connector for P1DWB
- Network extension with HIRSCHMANN connector for connection to E78/E82



3) Extension cable for Balancing Heads

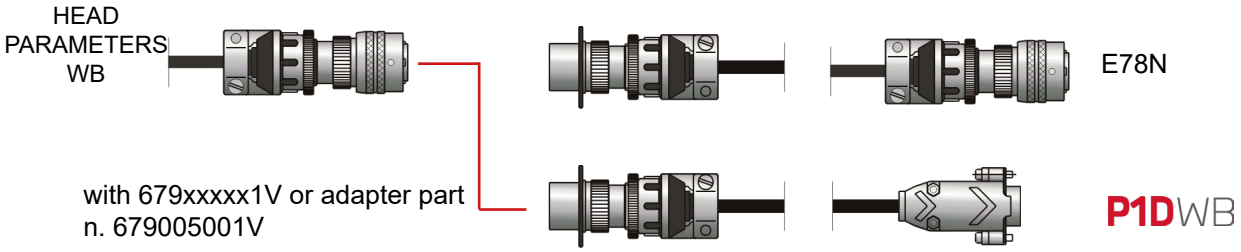
E78R

Replace cable 679xxxxx97



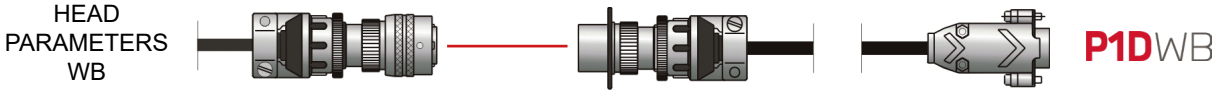
E78N

Replace cable 679xxxxx1C



E82

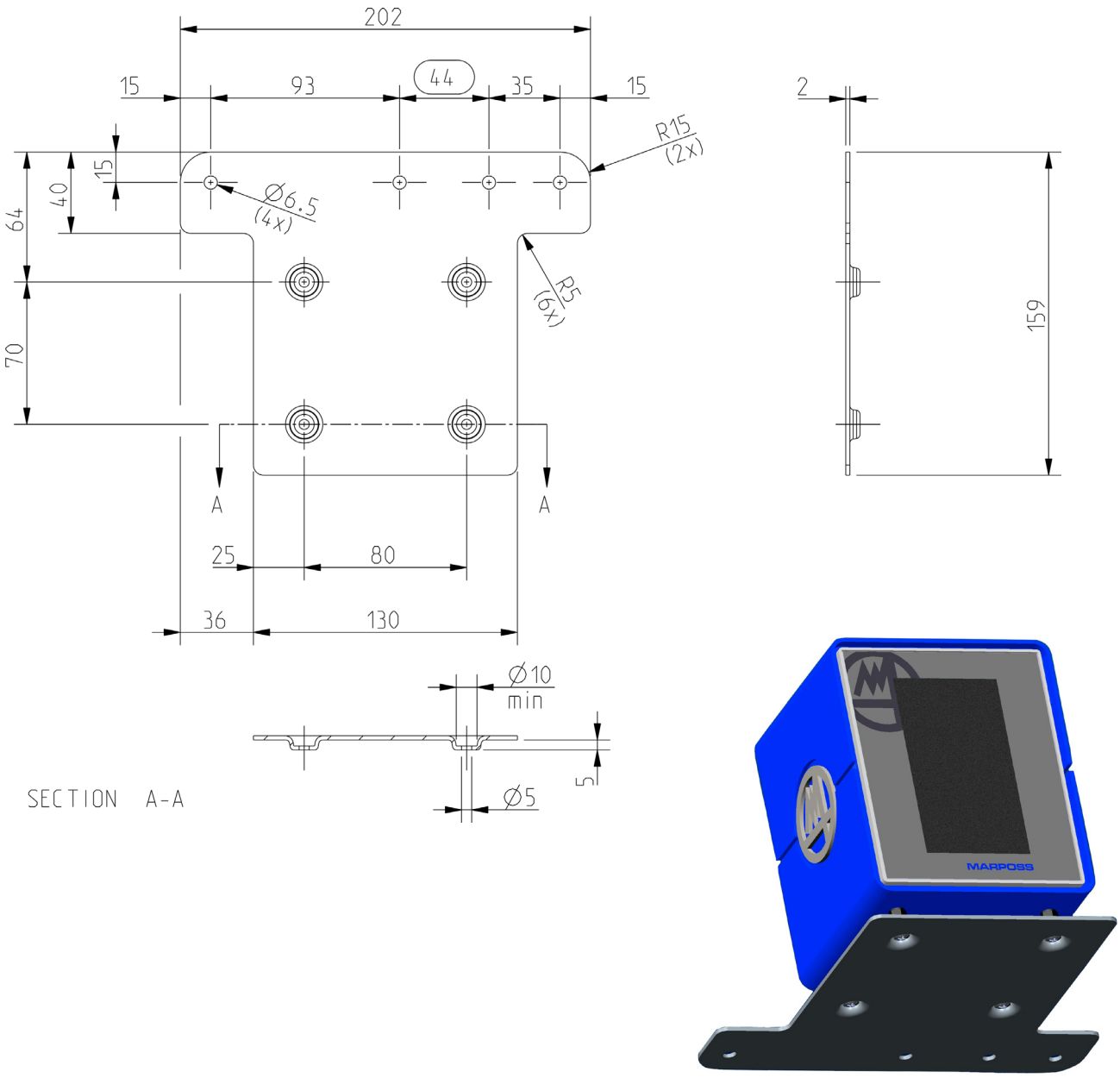
Cables 679xxxxx1D or 67xxxxx1V may be used



12.2 MECHANICAL ACCESSORIES

1)Support bracket
Mechanical P1DWB supporting interface that replaces the “T” bracket for E78/E82.

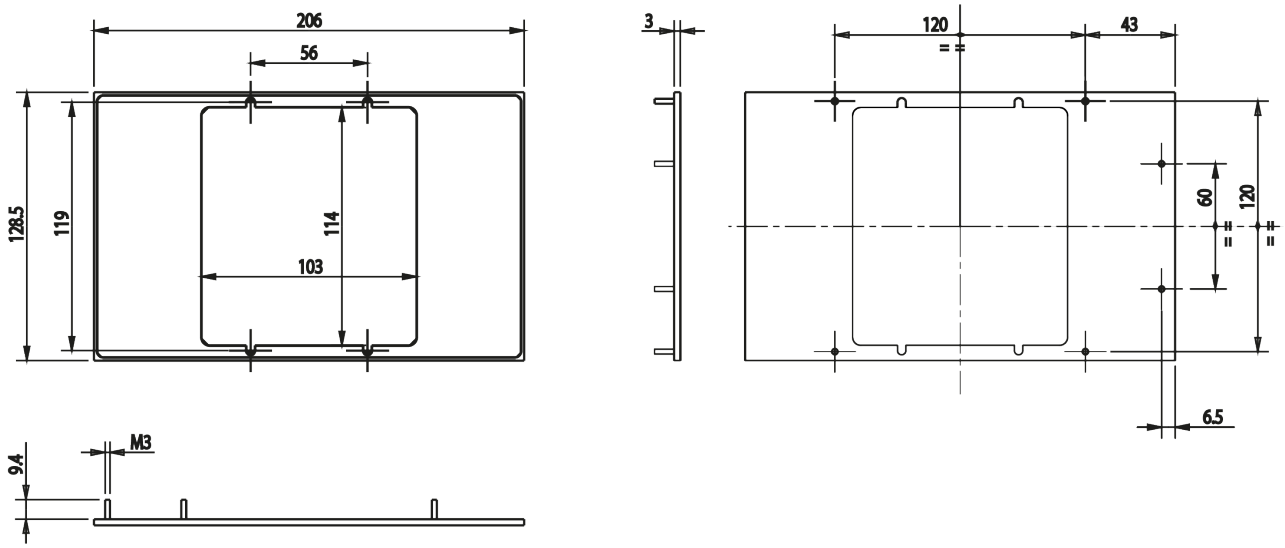
Kit containing bracket + screws part n. 6134730800



2) Backing panel for remote or rack panels, use when mounting P1DWB in place of E78/E82

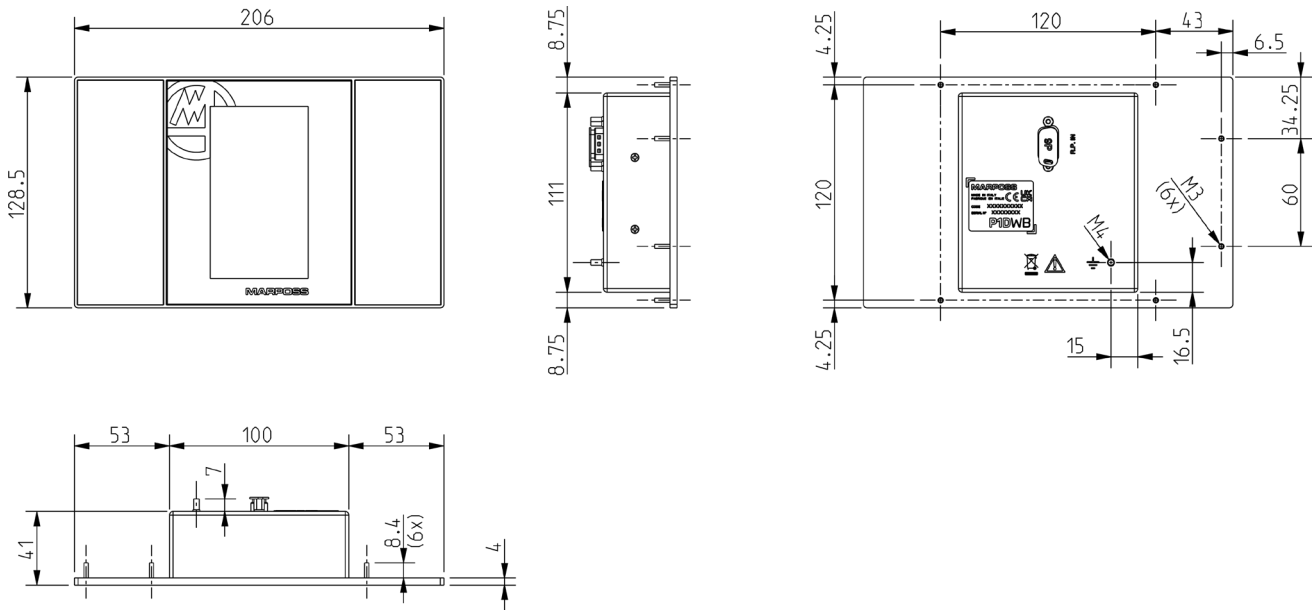
BACKING PANEL Part n. 6134737600

BACKING PANEL DIMENSION

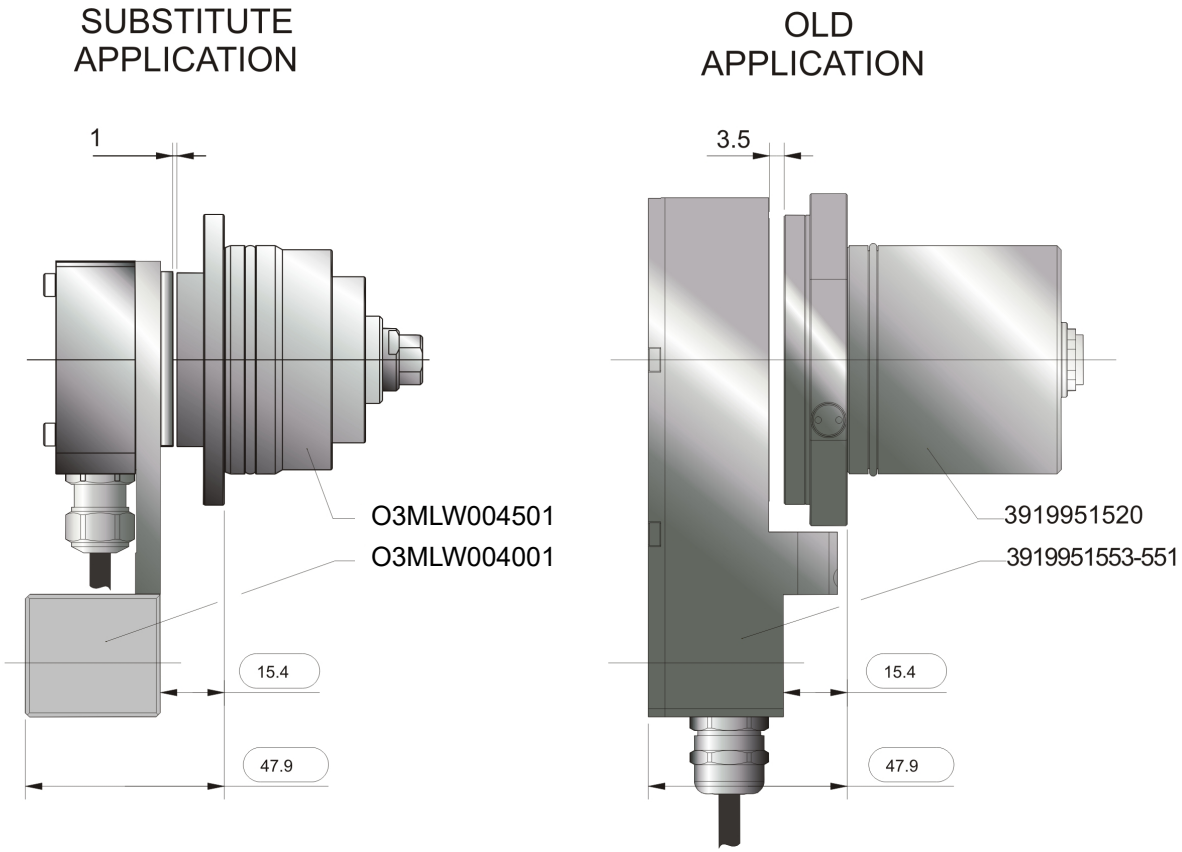


3)Panel code 7708010006 for upgrade of P1DWB in Mainfame version with Remote Panel.

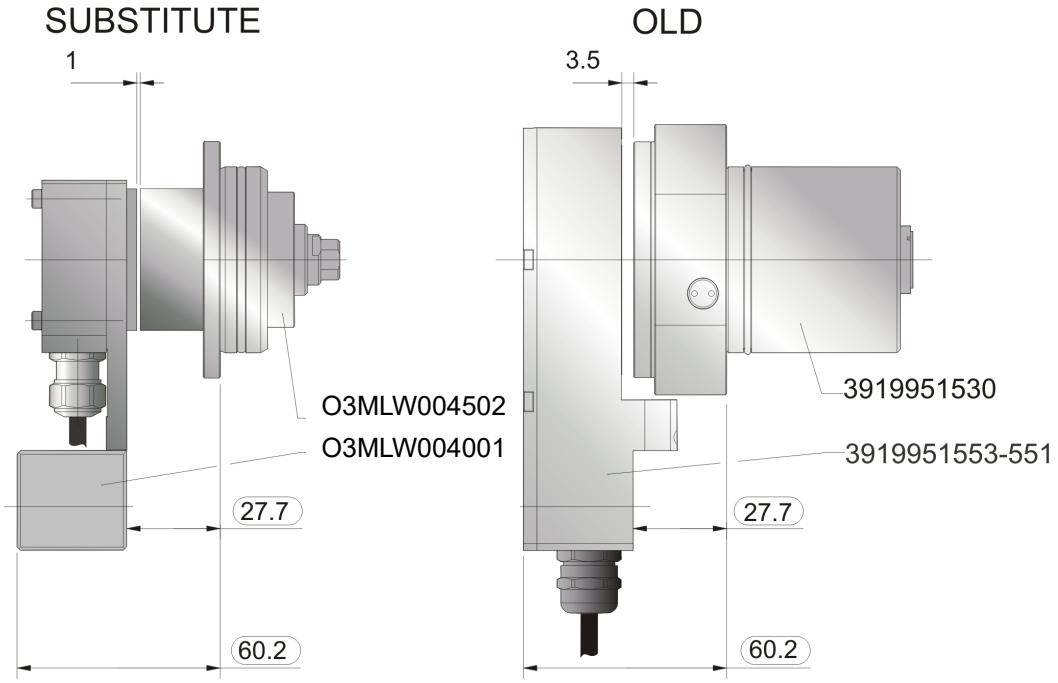
PANEL DIMENSION



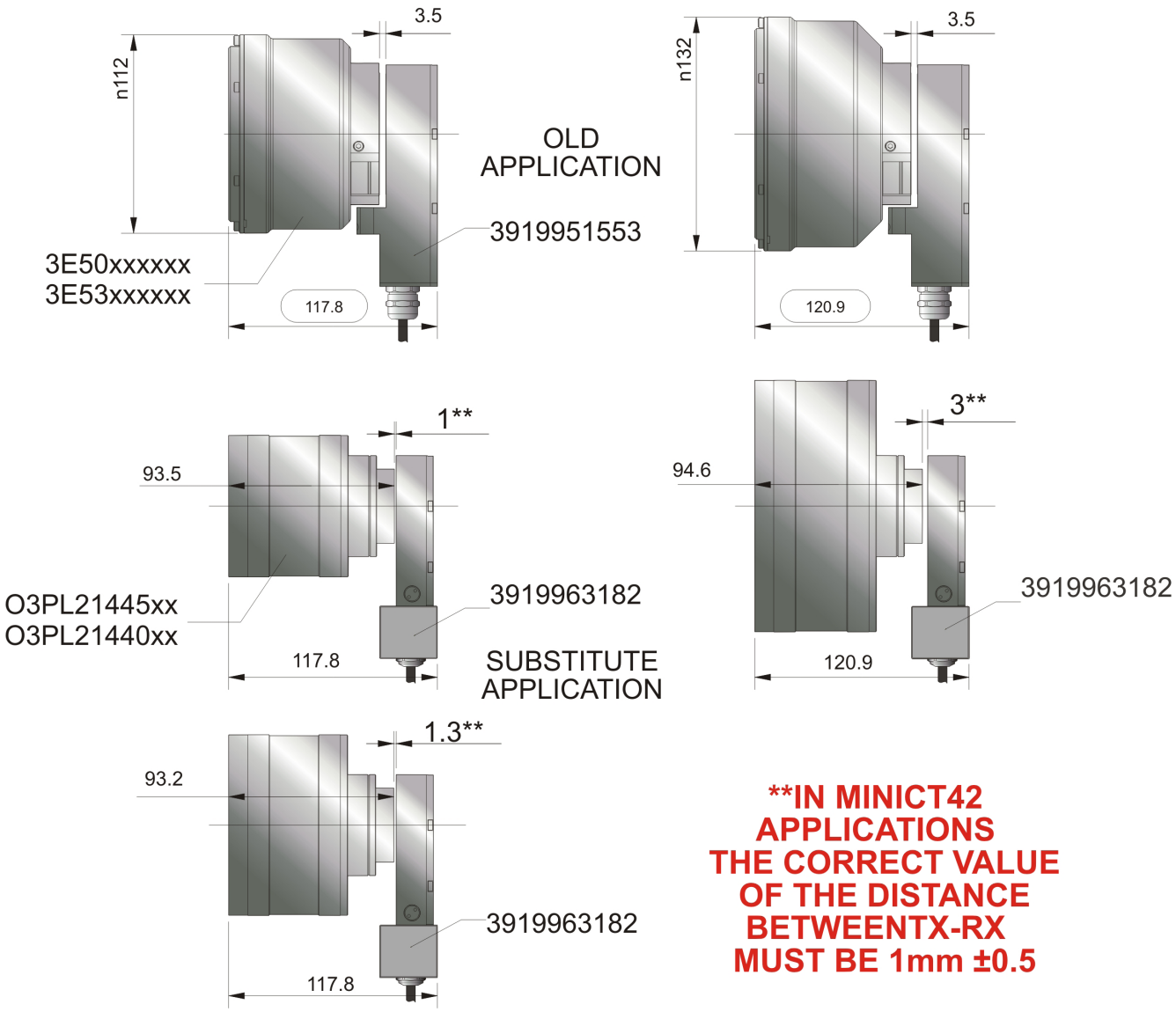
4) WBTX adapters for replacing the old MiniCT transmission systems.
Replace the “old” rotor/stator” pair with the new MiniCT version.



E78N/ST	New application	“Old” application
ROTOR	O3MLW004501	3919951520
STATOR	O3MLW004001	3919951553 / 551



E82/ST	New application	"Old" application
ROTOR	O3MLW004502	3919951530
STATOR	O3MLW004001	3919951553 / 551



E78N/E82/FT	New application	"Old" application
ROTOR	O3PL21445xx O3PL21440xx	3E50xxxxxx 3E53xxxxxx
STATOR	O3PL0044004	3919951553
	3919963182	3919951553

13. MAINTENANCE

Apart from cleaning the glass panel, the P1DWB does not require any special maintenance.

Use water and alcohol only when cleaning the glass panel, avoid acids and aggressive liquids.

End of Document