

1080 SPRINT USER MANUAL

Manual version 5.4.0.2

1080motion™

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WELCOME TO 1080 SPRINT (ENGLISH)



Read this User Manual and follow all instructions and warnings to reduce the risk of serious injury or death.

For assistance contact www.1080motion.com

NOTE:

Manual illustrations are for demonstration purposes only.

Illustrations may not reflect exact appearance of product.

Product specifications subject to change without notice.

We reserve the right to introduce product changes to system software and hardware without notice. Such changes may not be covered in this manual.

To obtain the latest version of this manual and the User Manual visit www.1080motion.com

Congratulations on an excellent choice!

1080 Sprint is a powerful training and testing system for horizontal cyclical movements such as running, skating or swimming. 1080 Sprint is the premium choice for any sport specific training and testing.

This Installation and Maintenance Manual explains the installation and maintenance processes of your machine.

Contact 1080Motion

Please refer to our website for contact information

www.1080motion.com

IMPORTANT SAFETY INSTRUCTIONS



Read all instructions and safety information in the Installation and Maintenance Manual and this User Manual before installing and using this product.

Failure to follow all instructions and warnings may cause severe injury or death.

For assistance contact www.1080motion.com

SAVE THESE INSTRUCTIONS

This machine is a powerful training and testing device for musculoskeletal conditioning. Improper use, installation and maintenance of the product can cause severe injury or death.

When using an electrical appliance, basic precautions should always be followed, including the following:

Read all instructions before using this machine.

DANGER - To reduce the risk of electric shock:

- 1) Always power down and unplug this appliance from the electrical outlet immediately after using and before cleaning.
- 2) Risk of Electric Shock. Connect this appliance to a properly grounded outlet only. See Grounding Instructions.

WARNING - To reduce the risk of burns, fire, electric shock, or injury to persons:

- 1) Risk of Electric Shock. Do not expose to rain, store indoors.
- 2) An appliance should never be left unattended when plugged in. Power down and unplug from outlet when not in use, and before putting on or taking off parts.
- 3) Do not cover machine. Excessive heating can occur and cause fire, electric shock, or injury to persons.
- 4) Close supervision is necessary when this appliance is used by, on, or near children, invalids, or disabled persons.
- 5) Use this appliance only for its intended use as described in this manual. Do not use attachments not recommended by the manufacturer.
- 6) Never operate this appliance if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or submerged into water. Return the appliance to a service center for examination and repair.
- 7) Do not lift or carry this appliance by supply cord or use cord as a handle.
- 8) Keep the cord away from heated surfaces.
- 9) Ensure the power cord is placed so that it will not be damaged.
- 10) Never operate the appliance with the air openings blocked. Keep the air openings free of lint, hair, and the like.
- 11) Never drop or insert any object into any opening.
- 12) Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
- 13) To disconnect, power down the machine, then remove plug from outlet.

- 14) The product is heavy. Avoid transporting or relocating the machine standing up. Risk for tipping.
- 15) To avoid overheating, protect the machine from direct sunlight when using outdoors.

Proper installation

GROUNDING INSTRUCTIONS

DANGER - This product is for use on a nominal 120-volt circuit and has a grounding plug that looks like the plug in below image. Make sure that the product is connected to an outlet having the same configuration as the plug. No adapter should be used with this product.



User qualifications

Users of the machine must be physically fit to use the machine. Talk to your physician prior to starting a new exercise program.

This product shall only be used by persons who have undergone the required training, or are under supervision of a trained instructor.

Users should not be under the influence of drugs, alcohol, or be very tired.

This product is not intended for use by those who lack basic knowledge of how the product is used safely.

Keep children away from product. Children must be supervised when present and never be allowed to operate the equipment.

Before use

Do not use machine if service access covers are open or missing.

Do not attempt to fix a broken or jammed machine. Notify facility staff or 1080 Motion.

Inspect machine including power cable, pull cord, swivels and attachments prior to use. DO NOT use if anything appears damaged or inoperable.

A broken fuse may be an indication of a serious malfunction. Do not replace the fuse until machine has been inspected by authorized personnel.

During use

DANGER! Do not operate with the top lid or electrical compartment lid open as this poses an extreme risk for electrical shock, entanglement or mechanical injury to hands and fingers. All maintenance inside the machine must be performed by certified service personnel.

Use a calibrated Velcro safety release between the line and the connection point to the athlete. In the event of a sudden system failure during high speed movements, the safety release will detach the athlete from the line to prevent from an abrupt jolt.

Extreme caution must be used when increasing resistance and speed settings during exercise. Do not use resistance and speed settings beyond the physical capacity of the user.

Use the machine only for the intended use. Do not modify the machine.

Never use machine alone. Ensure Emergency Stop is within reach by user or spotter/assistant.

If user unintentionally gets entangled or otherwise stuck in an unwanted position, press the Emergency Stop to deactivate the machine.

Do not release the handle from a distance when the machine is pulling.

Keep the line away from sharp edges. Do not place any sharp or heavy objects on top of the line.

Do not insert body parts or objects into the machine.

Disconnect power before servicing.

Do not remove warning labels on product. Refrain from using product and contact 1080 Motion to order replacement labels if necessary.

Intended Use

The machine is a powerful training and testing device for musculoskeletal conditioning. Improper use, installation and maintenance of the product can cause severe injury or death.

This product is intended to be used for:

- Performing exercise sessions for horizontal cyclical movements with the purpose of improving muscular strength and speed.
- Evaluating resisted/assisted strength, speed, acceleration and power output during different motions and at various levels of resistance.
- Detecting muscular imbalances when comparing left vs. right side use of the body.
- Monitor progress over time for a user following a training program.
- The product is NOT intended to provide medical diagnoses or therapy.

IMPORTANTES INSTRUCTIONS DE SÉCURITÉ (FRANÇAISE)



Lisez ce manuel d'utilisation et suivez toutes les instructions et avertissements pour réduire le risque de blessures graves ou de mort.

Pour toute assistance, contactez www.1080motion.com

NOTE :

Les illustrations manuelles sont uniquement à des fins de démonstration.

Les illustrations peuvent ne pas refléter l'apparence exacte du produit.

Les spécifications du produit sont sujettes à modification sans préavis.

Nous nous réservons le droit d'effectuer des changements produits sur les logiciels système et matériel sans préavis. Ces changements ne peuvent pas être abordés dans ce manuel.

**Pour obtenir la dernière version de ce manuel et le Manuel utilisateur, visitez
www.1080motion.com**

Félicitations pour votre excellent choix !

1080 Sprint est un système d'entraînement et de test puissant pour les mouvements horizontaux cycliques comme la course, le patinage ou la notation. 1080 Sprint est le premier choix pour un entraînement et un test sportifs.

Ce manuel utilisateur explique l'installation, l'utilisation et l'entretien de votre 1080 Sprint.

Contactez 1080Motion

Consultez notre site Web pour obtenir des coordonnées de contact

www.1080motion.com

CONSIGNES DE SÉCURITÉ IMPORTANTES

	Lisez toutes les instructions et consignes de sécurité de ce manuel de utilisateur avant d'utiliser ce produit.
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	L'incapacité à suivre toutes les instructions et avertissements peut entraîner des blessures graves ou la mort. Pour toute assistance, contactez www.1080motion.com ENREGISTREZ CES INSTRUCTIONS
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Lisez toutes les instructions et consignes de sécurité de ce manuel de utilisateur avant d'utiliser ce produit.

L'incapacité à suivre toutes les instructions et avertissements peut entraîner des blessures graves ou la mort.

Pour toute assistance, contactez www.1080motion.com

ENREGISTREZ CES INSTRUCTIONS

1080 Sprint est un puissant dispositif d'entraînement et de tests pour le conditionnement de l'appareil locomoteur.

Une mauvaise utilisation et un entretien inadéquat peuvent entraîner des blessures graves ou la mort.

Lorsque vous utilisez un appareil électrique, des précautions de base doivent toujours être respectées, y compris les suivantes :

Lisez toutes les instructions avant d'utiliser 1080 Sprint.

DANGER – Pour réduire le risque d'électrocution :

- 1) Eteignez et débranchez toujours cet appareil de la prise électrique immédiatement après usage et avant nettoyage.
- 2) Connectez cet appareil à une prise correctement mise à la terre. Voir Mise à la terre.

AVERTISSEMENT – Pour réduire le risque de brûlure, d'incendie, d'électrocution ou de blessure :

- 1) Ne pas exposer à la pluie. Stocker à l'intérieur seulement.

- 2) Un appareil ne doit jamais être laissé sans surveillance lorsqu'il est branché. Éteignez et débranchez l'appareil lorsqu'il n'est pas utilisé, et avant d'assembler ou d'enlever des pièces.
- 3) Ne couvrez pas la machine. Une chaleur excessive peut se produire et provoquer un incendie, une électrocution ou des blessures.
- 4) Une surveillance étroite est nécessaire lorsque cet appareil est utilisé par, sur ou près des enfants, des invalides ou des handicapés.
- 5) Utilisez cet appareil uniquement pour l'usage prévu, comme décrit dans ce manuel. N'utilisez pas d'accessoires non recommandés par le fabricant.
- 6) N'utilisez jamais cet appareil si le cordon ou la fiche est endommagé, s'il ne fonctionne pas correctement, s'il est tombé ou a été endommagé, ou immergé dans l'eau. Retournez l'appareil à un centre de service pour examen et réparation.
- 7) Ne soulevez ou ne portez pas cet appareil par le cordon d'alimentation ou en utilisant le cordon comme une poignée.
- 8) Assurez-vous que le cordon d'alimentation est placé afin de ne pas être endommagé. Gardez le cordon loin des surfaces chauffées.
- 9) N'utilisez jamais l'appareil avec les ouvertures d'aération bloquées. Nettoyez les ouvertures d'aération de toute peluche, cheveux, etc.
- 10) Ne laissez jamais tomber ou n'insérez jamais un objet dans les ouvertures.
- 11) Lors de l'utilisation à l'extérieur, protégez le produit de la lumière solaire directe. Protégez la machine des rayons solaires directs pour empêcher une surchauffe.
- 12) N'utilisez pas le produit dans des lieux où des aérosols (pulvérisateurs) sont utilisés ou de l'oxygène administrée.
- 13) Pour déconnecter la machine, éteignez-la, puis retirez la fiche de la prise.
- 14) La machine est lourde. Évitez de la transporter ou de la déplacer en un bloc. Risque de basculement.

Installation correcte

CONSIGNES DE MISE A LA TERRE

DANGER - Ce produit est destiné à être utilisé sur un circuit nominal de 120 volts et a une fiche de mise à la terre qui ressemble à la fiche illustrée. Assurez-vous que le produit est branché à une prise ayant la même configuration que la fiche. Aucun adaptateur ne doit être utilisé avec ce produit.



Compétences de l'utilisateur

Les utilisateurs du 1080 Sprint doivent être physiquement aptes à utiliser la machine. Demandez conseil à votre médecin avant de commencer un nouveau programme d'exercice.

Ce produit ne doit être utilisé que par des personnes ayant suivi la formation requise, ou qui sont sous la supervision d'un instructeur qualifié.

Les utilisateurs ne devraient pas être sous l'influence de drogues, d'alcool, ou très fatigués.

Ce produit n'est pas destiné à être utilisé par ceux qui n'ont aucune connaissance de base de la façon dont le produit est utilisé en toute sécurité.

Gardez le produit hors de portée des enfants. Les enfants doivent être surveillés lorsqu'ils sont présents et ne jamais être autorisés à utiliser l'équipement.

Avant utilisation

N'utilisez pas la machine si le couvercle du compartiment électrique est ouvert ou manquant.

N'essayez pas de réparer une machine cassée ou coincée. Avisez le personnel de l'établissement ou 1080 Motion.

Inspectez la machine, y compris le câble d'alimentation, le cordon de traction et les accessoires avant de les utiliser. N'UTILISEZ PAS la machine si l'un des éléments vous semble endommagé ou inutilisable.

Un fusible cassé peut indiquer un dysfonctionnement grave. Ne remplacez pas le fusible avant inspection de la machine par le personnel autorisé.

Pendant l'utilisation

DANGER! N'utilisez pas l'appareil avec le couvercle supérieur ou le couvercle du compartiment électrique ouvert car cela expose à un risque extrême d'électrocution, d'enchevêtrement ou de blessure mécanique aux mains et aux doigts. Tout l'entretien intérieur de la machine doit être effectué par un personnel d'entretien certifié.

Une extrême prudence doit être exercée lors de l'augmentation des paramètres de résistance et de vitesse pendant l'exercice. N'utilisez pas les paramètres de résistance et de vitesse au-delà de la capacité physique de l'utilisateur.

Utilisez la machine uniquement pour l'usage prévu. Ne modifiez pas la machine.

N'utilisez jamais la machine seule. Assurez-vous que le bouton d'arrêt d'urgence est à portée de main de l'utilisateur ou de l'accompagnant / assistant.

Utilisez un bouchon calibrée de sécurité Velcro entre la ligne et le point de connexion à l'athlète. Dans le cas d'une défaillance soudaine du système lors des mouvements à grande vitesse, le bouchon de sécurité détachera l'athlète de la ligne afin d'éviter une brusque secousse.

Si l'utilisateur s'empêtre involontairement ou est autrement coincé dans une position non désirée, appuyez sur le bouton d'arrêt d'urgence pour désactiver la machine.

Ne relâchez pas la poignée à distance lorsque la machine tire.

Eloignez la ligne loin de bords tranchants. Ne placez pas d'objets tranchants ou lourds sur la ligne.

N'insérez pas des parties du corps ou des objets dans la machine.

Coupez l'alimentation avant l'entretien.

Ne retirez pas les étiquettes d'avertissement du produit. Abstenez-vous d'utiliser le produit et contactez 1080 Motion pour commander des étiquettes de remplacement si nécessaire.

Marques et symboles sur le produit

Étiquette d'avertissement général sur le devant de la machine:

SAUVEGARDEZ CES CONSIGNES

Usage prévu

1080 Sprint est un appareil d'entraînement et de tests pour le conditionnement de l'appareil locomoteur. Une mauvaise utilisation et entretien du produit peut causer des blessures graves ou la mort.

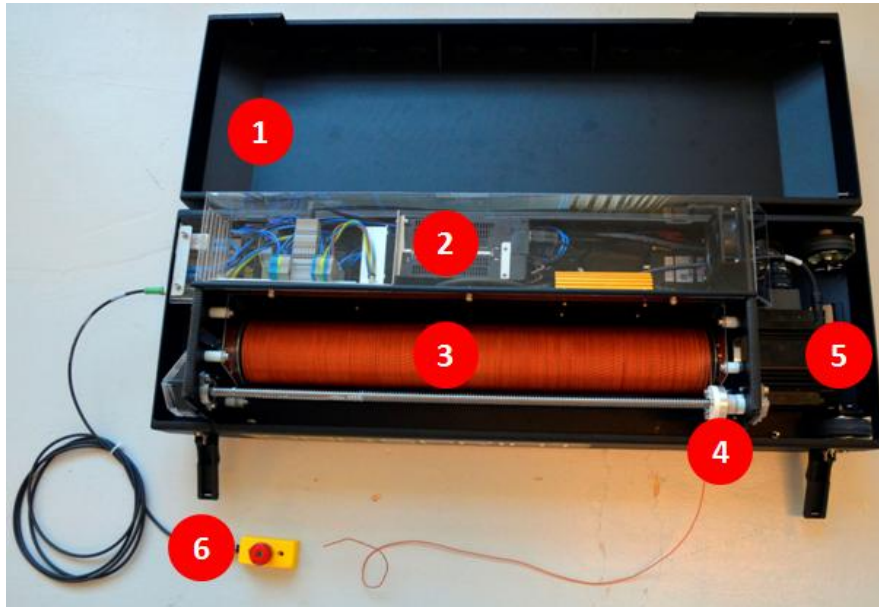
- Ce produit est destiné à être utilisé pour :
- Effectuer des séances d'exercice pour les mouvements horizontaux cycliques comme la course, le patinage et la natation avec le but d'améliorer la force musculaire et la vitesse.
- Évaluer la force concentrique / excentrique, la vitesse et la puissance pendant la course, le patinage et la natation à différents niveaux de résistance.
- Détecter les déséquilibres musculaires lorsque l'on compare les mouvements des côtés gauche et droit du corps.
- Surveiller les progrès au fil du temps pour un utilisateur suivant un programme d'entraînement.
- Le produit est conçu pour une utilisation intérieure et extérieure dans les gymnases et les centres de formation.
- Le produit N'est pas destiné à fournir un diagnostic ou un traitement médical.

1080 SPRINT

1080 Sprint is a versatile system for functional training and testing of horizontal movements, e.g. running, skating and swimming. It is ideal for sports conditioning or sports rehabilitation offering easy and accurate evaluation of the muscular function.



PARTS AND THEIR FUNCTION



1) Enclosure

The system is housed in a solid aluminum chassis housing the electrical and control components, motor, drum and line. The unit has suitcase type wheels and handle for transporting it short distances.

2) Electric Compartment

This compartment contains both high and low voltage components that control the motor and interfaces towards the PC or tablet used to operate the system. The compartment is sealed off for safety. Cover is only to be removed by authorized service personnel when system power cord is unplugged from outlet.

3) Drum and line

The Sprint has a 90 meter line which is the maximum distance for any exercise. The line is made of high strength 1.7 mm Dynema .

4) Line guide mechanism

The line guide mechanism ensures that the line rolls off and on to the drum evenly.

5) Motor

The motor is attached directly to the drum.

6) Emergency stop

The emergency stop is a safety feature to shut off the resistance in case of danger. Do not use the emergency stop as an on- and off-switch. The emergency stop is engaged by firmly pressing in the knob until it locks in the depressed position. The emergency stop is deactivated by pulling the knob to its outward position. Periodically check the emergency stop for any sign of damage or malfunction and replace if necessary.

DANGER: Do not open the electric compartment containing high voltage circuits.

CONNECTIONS



- 1) **Main power fuse.** 8A glass tube fuse. See replacing the fuses.
- 2) **Main power connector.**
The power cord provided with the product is inserted into the female connector on the power supply unit. The power supply unit has a switch for turning the machine on and off.
- 3) **On/Off switch**
- 4) **Emergency Stop connector**

Maintenance and inspections

Inspection and maintenance should be performed on a regular basis to ensure safe and trouble free operation of the machine.

REGULAR INSPECTION

- **Look for malfunctions of any kind**
The inspection must be made when the machine is being used. Signs of a malfunction could be a strange noise or a jerky feeling when using the machine. See Troubleshooting section if unsure of what the problem is.
- **Inspect the line**
The line is inspected by visually checking for excessive wear and tear along its full length. Also verify that the line is evenly spooled onto the drum with no overlaps.
- **Inspect power cord**
The power cord must not have any visible damages to prevent electric shock.
- **Ensure nuts and bolts are tight and no mechanical parts appear loose or out of position.**

WARNING! Risk for electric shock. Disconnect machine from power source and contact authorized service personnel if the power cord shows any sign of damage.

- **Inspect the emergency stop**
Check the Emergency Stop function. When the button is pressed, the resistance should be turned off immediately and an error message will occur on the screen. Deactivate the Emergency Stop by lightly twisting the knob so it pops out into the outward position. If the Emergency stop has been activated, the machine must be restarted to enable continued use.

REGULAR MAINTENANCE

The following maintenance must be performed on a regular basis:

- **Cleaning**
Clean the touch screen only using a soft cloth and cleaning agent designed for PC touch screens. Use of any other cleaning material may cause permanent damage to the screen. Suitable cleaning cloths and liquids are available in stores selling computers and office supplies. Clean all other surfaces with a soft cloth and detergents suitable for painted surfaces. Do not use any strong chemical detergents that may damage the paint or plastic components. Disinfectants must be suitable for cleaning gym equipment.
- **Lubrication**
Lubricate the line guide mechanism approximately once per month. Recommended lubricating agent: DuPont Krytox GPL 206

Start and stop

This chapter describes how to start the machine and how to turn it off.

BEFORE STARTING UP THE MACHINE

1) Placement

Place 1080 Sprint on a firm surface. If outdoors, ensure that the system will not be subjected to standing water in the case of sudden rain. In sunny and hot locations ensure the system is shaded from direct sunlight to prevent from overheating and automatic shutdown.

For some exercises such as sprint starts, it may be feasible to place the system on an elevated surface to reduce the line angle towards the attachment point on the user's waist.

2) Anchoring

If the system is placed on a high friction surface it may not need anchoring to prevent from slipping. If the machine can slide, use straps or ropes to anchor the system to a fixed object or weights placed behind the machine. A weighted piece of wood or similar can also be placed in front of the machine. Use the most convenient method of anchoring depending on what's available at the facility.

3) Line check

Before the power source is connected, open the lid and ensure the line is evenly distributed on the drum.

4) Connections

Plug in the emergency stop unit to the connector on the Sprint. Place the button within reach if for the trainer/instructor in charge. Ensure the emergency stop button is in the outward position and not pressed in.

Check that the power switch is in off position. Connect the power cord to the outlet.

WARNING! The power source must be a grounded connection. Refer to IMPORTANT SAFETY INSTRUCTIONS chapter for more information.

STARTING THE MACHINE

The below sequence must always be followed when starting the machine:

1. Check the emergency stop

The emergency stop should be in the disengaged position (outward position).

2. Turn on the main power supply switch on the machine

3. Log in on the tablet

Touch the windows logo on the tablet to wake it up, or the power button located on one of the sides if the tablet is turned off. Log in to the user account "1080 Motion".

4) Open the 1080 Motion App to start the software

1. Connect to the Bluetooth device by selecting the CONNECT TO MACHINE button. Select your machine and click **Connect**. After a few seconds you should be connected.

If the connection attempt fails, just try again. In most cases, the second attempt will succeed.



NOTE:

1080 Quantum Sprint 1 connect over bluetooth while second generation machines Sprint2 and Cable connect over Wi-Fi or USB-C cable.

A bluetooth machine needs to be paired with the tablet/PC first. See [Pairing](#) for details.

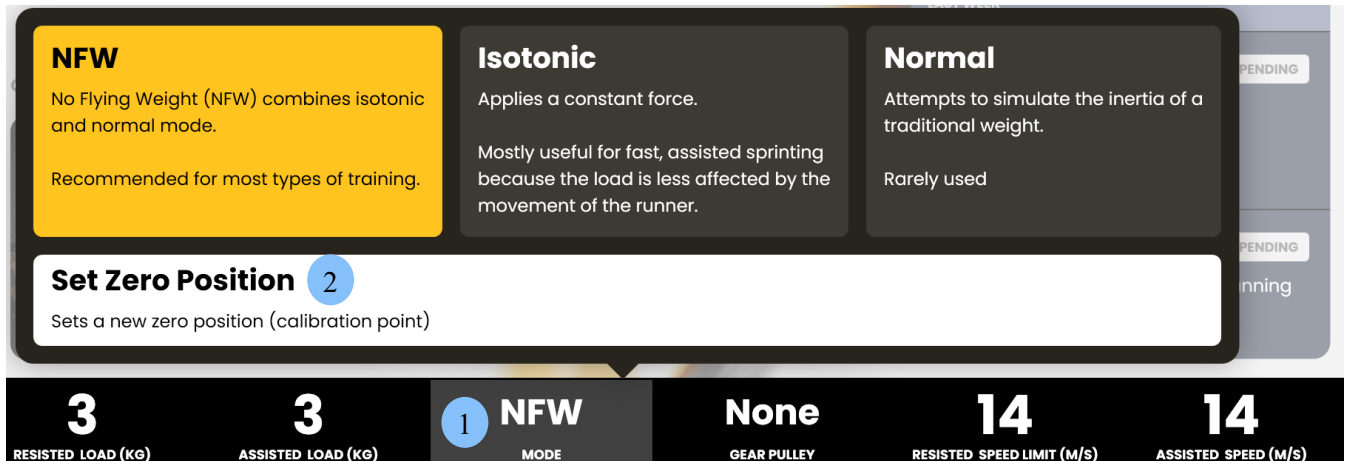
Both types of machines are connected in a similar way, by using the "Connect to machine" dialog accessible from the title bar of the application

5) Log into the user account assigned by 1080 Motion or use Quick Start Options

SET ZERO POSITION

Set zero position is also known as the (Calibration point)

When you are connected to the machine via Bluetooth and you start the 1080 Software, the machine automatically set the 0-point (zero-point or calibration-point) where your handle is when you start the software. If you wish to reset the zero position follow these steps.



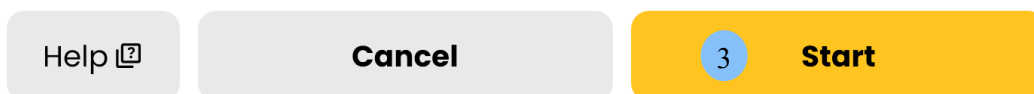
1) Press mode **(1)** – NFW, in the above picture

2) After pressing the **SET ZERO POSITION (2)** button

3) PRESS START (3) BUTTON The machine will slowly start to retract the line or allow the line to be repositioned by the user moving away from the machine. The default retract-setting is 3kg load at a speed of 0,3m/s. When you have found your desired zero position press the **CONFIRM ZERO POSITION (4) BUTTON**



Hold the line still. Starting will change your resistances. Press start when you are ready.



Set New Zero Position



Move to the desired position and press 'Confirm Zero Position' to set the new zero position.

CURRENT POSITION

0.00

Help 

Cancel

Confirm Zero Position

You can recalibrate the starting position anytime you like, by completing the above steps.

Database and sync function

Database

All user profiles and their personal data, tests and training sessions are stored in a secure cloud database. A local database on your device makes it possible to work without Internet connection and eliminates the need for using a wireless hotspot etc. when you are using the system at a running track or other location with no internet connectivity. Once the device is connected to the Internet, all new local test data will be synchronized with the global database on the Azure server. This synchronization makes it possible to use multiple devices with the same profile. The global database and its data is maintained and protected by 1080Motion AB.

We recommend that you turn off Wi-Fi completely if you have a slow internet connection. A slow internet connection might slow down the system when the 1080 Software tries to synchronize collected data. Once you are done with your training session and have access to internet - turn on the Wi-Fi and log in to your account and the synchronization process will start automatically.

The data on your local device (windows PC/tablet) includes:

1. your clients
2. exercise library
3. historic session overview
4. pre-planned sessions

When you view the detailed info about an exercise/set only the detailed data that you have viewed in detail will be downloaded to your local database and remain there. This is to lower the amount of data that is stored on your local database. It also means that you will not be able to view detailed data of an exercise/set if you are off-line unless you have viewed it before.

The sync indicator at the top of the screen shows the status of the device. A checkmark means the local data base is synced with the global. Two round arrows means the sync is in process.



INSTRUCTORS, CLIENTS AND GROUPS

Each machine works without having an instructor account. Without account you are still able to use the system, change resistance settings and train different exercises for training but you cannot save, look at or analyze any performance.

To be able to fully use this system you will need to have an instructor account. An instructor account will allow you to create and access clients and their training and testing statistics. You can also save, look at or analyze client's performance.

If you wish to record a training or testing session you will have to create one or more client accounts. Clients can be ordered into groups, which will help you organize and find each of your client's quickly. All data related to user accounts are stored in a database. To synchronize all data from the database on your local device to the global database you will need to have a working internet connection

INSTRUCTORS

The instructor's role is to create and supervise clients, coaching them and help them with the data gathered from their training and testing sessions.

If you as an instructor want to train or test yourself, you will need to create your own client account. If you are new to the system, this can be a good first introduction to the management of your future clients.

Instructor accounts can only be created by a system administrator, please contact [1080 Motion AB](mailto:support@1080motion.com) or support@1080motion.com for assistance.

CLIENTS

The person exercising or being tested is considered to be a client. Instructors can create multiple client accounts and this will make it easier to analyze the performance and progression of each client's training.

When creating a client account, you need to fill out all the fields with information about the client.

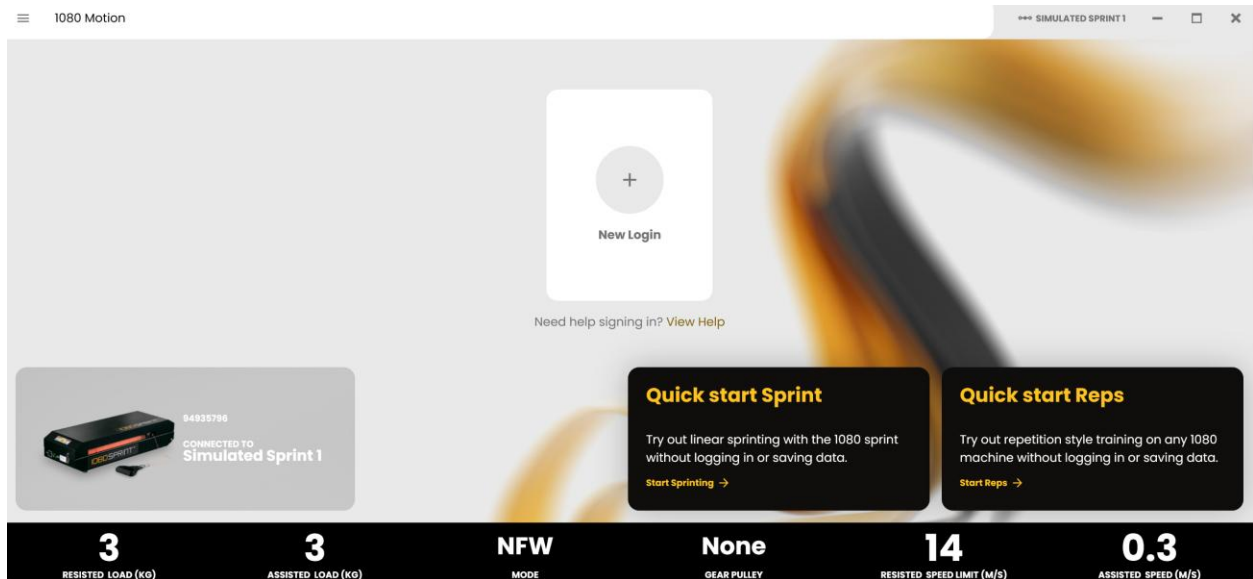
GROUPS

Groups function as containers in which you can attach one or more users. Groups are optional, but are there to help you organize clients.

USER INTERFACE

Start Screen

If you are connected to the machine you will see the resistance, speed and mode settings at the bottom of the screen.



Resistance settings

All resistance and assistance settings in the machine are located on the bottom row in the display. To change any of the settings simply press the corresponding setting whereupon a new page opens up where you can adjust the setting. It is possible to change settings while using the machine for training, but be careful not to change resistance too quickly.

The ability to fully control Resisted and Assisted load and speed-limit independently creates many possibilities to tailor exercises for a wide range of needs. This includes, but is not limited to: normal weight, assisted overload, isokinetic and high velocity training.

IO80MOTION

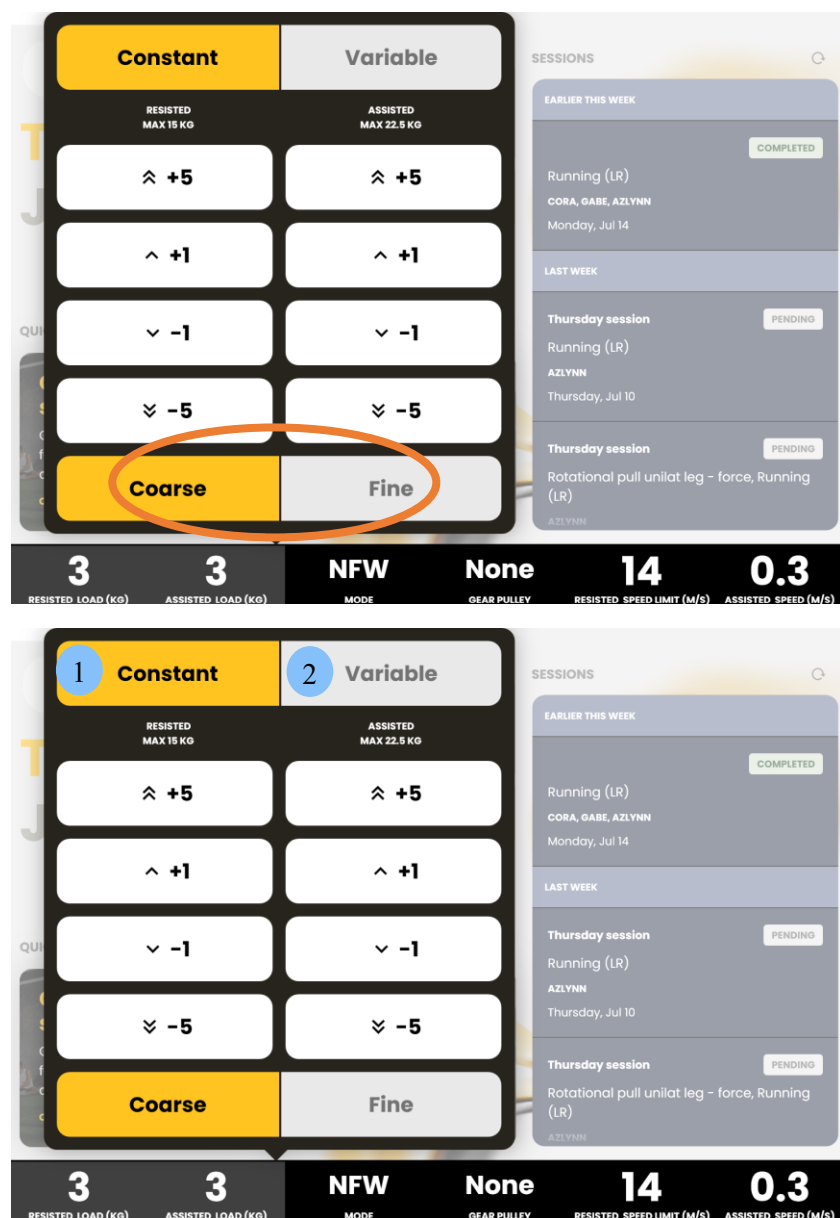
1	2	3		4	5
3	3	NFW	None	14	0.3
RESISTED LOAD (KG)	ASSISTED LOAD (KG)	MODE	GEAR PULLEY	RESISTED SPEED LIMIT (M/S)	ASSISTED SPEED (M/S)

- 1) Resisted load
- 2) Assisted load
- 3) Mode
- 4) Resisted speed limit
- 5) Assisted speed limit

Resisted load

The Resisted load is the resistance provided when the line is pulled out from the machine. Adjust the Resisted load by pressing the increment or decrement buttons. If the Resisted load is set to 0kg the machine will turn off and all other settings will have no effect. The maximum load that can be selected is 15kg at gear 1 and 30kg at gear 2

You can choose between **fine** and **coarse** increments for all speed and load settings. You can choose between Constant **(1)** and Variable **(2)** loading.



ASSISTED LOAD

Assisted load is the load at which the machine will pull the line back towards the machine. The default assisted load is equal to the selected resisted load.

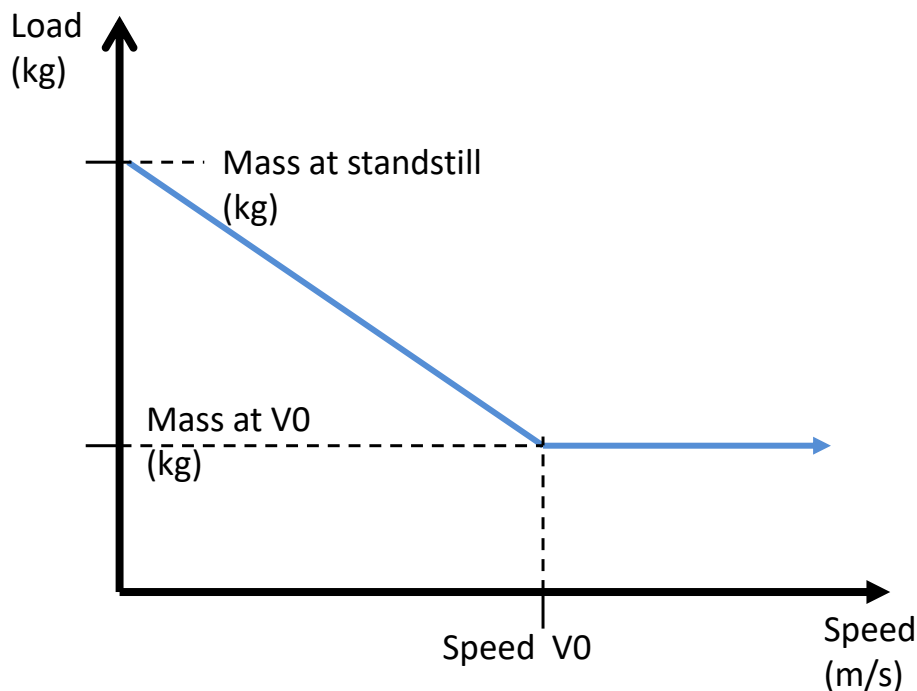
The assisted load can however be set greater than the resisted load. This is primarily used for training using the eccentric overloading principle. The assisted load can maximally be set to 3 times greater than the resisted load or max 22,5 kg.

IMPORTANT: When increasing the assisted load, the system will automatically decrease the assisted speed. This is a safety function to prevent an overly high assisted load and speed to be applied by mistake. The assisted speed must be raised again to the desired level after modifying the assisted load.

VARIABLE LOAD

The function enables advanced resisted acceleration and speed training within the same single sprint repetition. The variable resistance feature is available in the load setting window. You activate this feature by selecting the “Variable load” button.

It will decrease or increase the load as the athlete accelerates and the speed increases. Moving from higher to lower load is beneficial for training with a higher resistance in the initial acceleration phase but thereafter transition into to a lighter load once the athlete reaches a higher speed. This is suitable to optimize the training for the entire sprint distance initial acceleration and throughout the full running distance.



Parameters:

1. The *Start Load (Standstill)* is the starting load the user will feel when initiating the movement i.e. when the speed is zero.
2. The *Target Load* is the load the felt when the speed reaches a preset level *Target Speed*
3. The *Target Speed* is the speed selected at which the Mass at V0 will be reached. The lower the value, the sooner the Mass at Target Speed resistance will be reached as the athlete accelerates.

Variable load is also useful when using the system for assisted sprints. It enables you to provide a higher initial pulling force from standstill (Mass at standstill) which will help the athlete reach max speed faster. The load will taper off or increase to reach Load at V0 value as the athlete speed increases.

Constant		Variable	
START LOAD (STANDSTILL) MAX 15 KG	TARGET LOAD MAX 15 KG	TARGET SPEED MAX 12 M/S	
⧗ +5	⧗ +5	⧗ +0.5	
^ +1	^ +1	^ +0.1	
∨ -1	∨ -1	∨ -0.1	
⧘ -5	⧘ -5	⧘ -0.5	
Coarse		Fine	

MODE

The machine has three different resistance modes. These can be changed during operation. Be advised to notice the difference between the modes. Data collected in the different modes can not freely be compared. This is especially true for Normal/NFW modes compared to Isotonic mode. As intended, Isotonic mode will always yield a lower pulling force on any given load, compared to Normal/NFW modes

NORMAL

When “Normal” is selected, the resistance will feel like a normal weight which means that the sense of inertia is present during acceleration and deceleration of the handle. This may lead to some slack in the line when performing fast movements with a high deceleration. To avoid slack, use “NFW” instead.

NFW (NO FLYING WEIGHT)

When “NFW” is selected the resistance will feel roughly the same as “Normal” during slow movements. During fast movements the machine will become more aggressive in order to decrease the amount of slack in the line. This mode is typically used for change of direction movement or otherwise fast repetitions in power training.

ISOTONIC

In Isotonic mode, the force will be much less affected by acceleration and deceleration. The inertial effects are much lower in isotonic- compared to NFW- and Normal modes. Inertia will never be zero , because of some internal mass and also from rotating parts.. Isotonic mode is especially useful for assisted sprinting.

NFW	Isotonic	Normal
No Flying Weight (NFW) combines isotonic and normal mode.	Applies a constant force.	Attempts to simulate the inertia of a traditional weight.
Recommended for most types of training.	Mostly useful for fast, assisted sprinting because the load is less affected by the movement of the runner.	Rarely used

Speed settings

RESISTED MAX 14 M/S	ASSISTED MAX 14 M/S
⤴ Fast (14)	⤴ Fast (14)
^ +1	^ +1
∨ -1	∨ -1
⤵ Slow (1)	⤵ Slow (1)
Coarse	Fine

14

0.3

RESISTED SPEED LIMIT (M/S)

ASSISTED SPEED (M/S)

RESISTED SPEED LIMIT

The Resisted speed limit prevents the user from moving faster than the selected limit. The machine limits the speed to the set limit by temporarily increasing the amount of resistance, thus decreasing the speed. The Resisted speed limit creates an isokinetic resistance mode.

Restricting the resisted speed is primarily used in swim training or rehabilitation. It is not a useful function for sprinting or running and will cause a sudden jolt if the user accelerates into the speed limit. To avoid this, simply dial in the maximum resisted speed value: 14 m/s.

The lowest speed limit allowed is 0,05m/s

Warning:

Do not set resisted speed lower than the athlete can run as this will cause athlete to hit a speed barrier jolting the athlete and machine. Risk for injury and injury to both machine and user. Always set resisted speed setting at 14ms. Regulate using load to slow athlete down!

ASSISTED SPEED LIMIT

Use the assisted speed limit for assisted or over speed training.

IMPORTANT: All types of over speed training calls for great caution and must only be devised by highly experienced instructors.

The assisted speed limit prevents the line from retracting faster in the assisted direction than the set limit, even if the user lets go of the line completely. The machine reduces the assisted speed by temporarily decreasing the amount of resistance.

IMPORTANT: For safety reasons the assisted speed limit may be automatically lowered when assisted load is increased. It needs to be intentionally increased again if lowered.

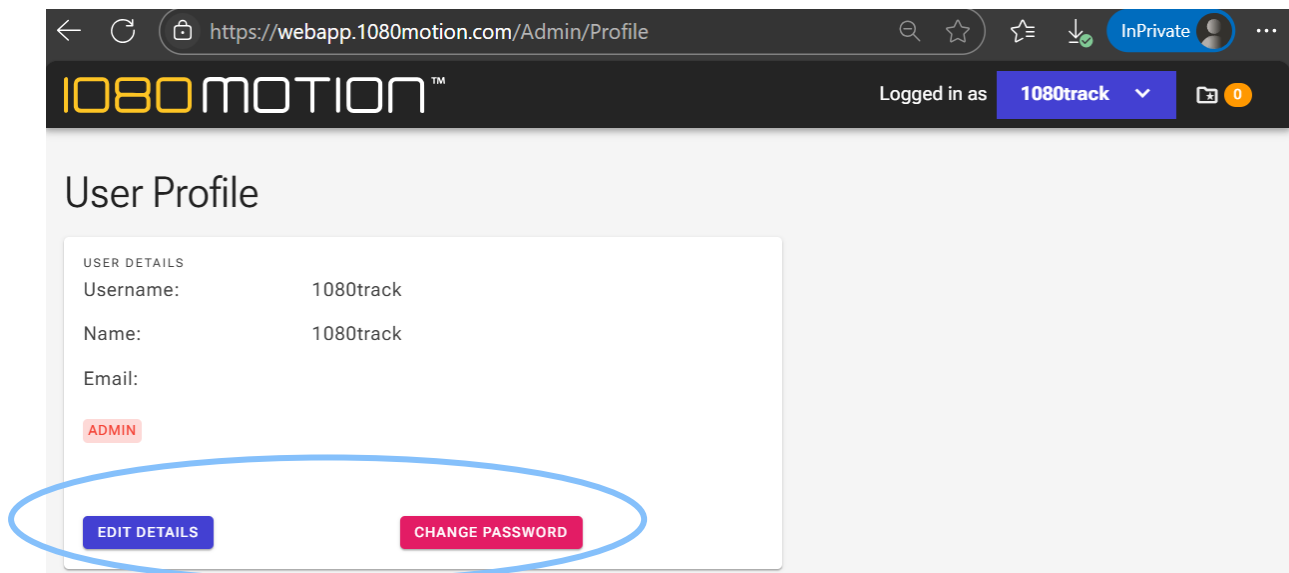
BRAKE FUNCTION

To prevent the end of the cord to slam into the Sprint at high speeds, primarily when doing assisted or over speed training, the system will start breaking the retraction before reaching the calibration point. The breaking distance is a function of speed and is greater the higher the speed.

IMPORTANT: Observe great caution when doing over-speed training. If a carabineer or handle is released from the athlete when doing over speed training at high speeds, the high speed of the moving mass may be dangerous to bystanders and can damage the system. The calibration point should be set no closer than 10-15m from the Sprint unit if doing assisted over-speed training

Account

The account page displays your account information as an instructor. All login account changes are made by logging into webapp.1080motion.com and selecting settings.



Use the edit button to edit your information or change your password.

1080 CONTROL APP

1080 Software is a software program that runs from a standard windows PC. The software accesses the data generated by the machines and is ideal for analysis and reporting of test results. Test protocols and team/athlete information is easily prepared in the Desktop application allowing for efficient and standardized testing on multiple athletes.

System Requirements

- Windows 2000, Windows XP, Windows Vista or Windows 7, Windows 8, Windows 10, Windows 11.
- 512MB of RAM
- 80MB of free disk space
- 1024x768 screen resolution or higher
- Internet connection for syncing with global database

Downloading and installing

The software is downloaded from: <http://download.1080motion.com>

- 1) **Select "Run".**
- 2) **Select "Run" again**
- 3) **1080 Software will now be installed in a default location on the current logged in Windows user.**
- 4) **1080 Software Desktop will open.**
- 5) **You will now be able to log in to user profile**

With the desktop version users may access their account without being connected to a Sprint or Quantum machine. Users can access and use the application to access data, client profiles and exercises.

1080 WEB APPLICATION

The 1080 Web Application (**webapp.1080motion.com**) is a data analysis tool accessible through any standard web browser. The tools access the data generated by the Sprint system and is ideal for in depth analysis and reporting of test results.

VALIDATION

Sensors and measuring accuracy

POSITION AND SPEED

The system measures position and speed using an optical encoder attached to the motor axis. The encoder has a resolution of 20 bits (2^{20}) which gives the measurements of position and speed very high accuracy.

The position and speed of the pull cord is used to calculate the output force, power, speed and acceleration by the user.

TORQUE

The system measures torque indirectly by sensing the amount of current and voltage being sent to the motor. This method gives a very accurate measurement of torque. However, the interesting parameter to know is the amount of force at the handle when the user is exercising. This is calculated using the measured torque and compensating for the inertia of the motor and drum. There is also some amount of friction losses in the chain of mechanical parts from the motor torque to the actual user force. This friction force is also compensated for.

FRICTION COMPENSATION

The friction force is dependent of the speed and load of the motor axis. The exact correlation is validated and the friction force is compensated for in the software.

MEASURING ACCURACY

Accuracy of position and time measures with subsequent calculations of speed amounts to ± 5 mm/m and $\pm 0.5\%$ for position and speed respectively. The accuracy of the force measurements ($p < 0.05$) is - $2.1\text{N} \pm 4.8\text{N}$ Repeatability of force measurements is 0.7%.

Note: Force and power measurements in 1080 Sprint and Quantum

For resisted exercises with no speed-limit, the athlete must overcome anything from 100% to a lower percentage of their own body mass while accelerating or decelerating, as well as the external load exerted by the 1080 Sprint or Quantum. For jumping and running exercises the percentage of body mass moved would be 100%, while in other exercises, such as upper body exercises, the percentage of body mass moved can be anything from 5% - 40%.

The force measurement displayed is the force the athlete is producing to overcome the resistance provided by the machine and does not include, the inertial effects from the body mass, nor other external conditions such air resistance while e.g. sprinting. Based on force and speed, power is calculated based on the following formula: $\text{Power} = \text{Force} \cdot \text{velocity}$.

Thus, neither force nor power is representative of the total force or power produced by the athlete during acceleration or deceleration. The exception is when moving at constant speed, where there are no inertial effects present. Force and power measurements will then be correct (apart from drag from wind which is not included). The functionality that automatically calculates and displays the fastest split in sprints, including average force and power for the split, is very useful for obtaining this data.

System updates

The machine automatically checks for updates each time the application is started and you have internet access. The updates may contain system updates not visible to the user or slight functional changes, which will be done without notification. However, if the update contains any major functional or graphical changes the user will always be notified of the changes. Updates from your operating system (MS Windows), might happen at any time and 1080 motion gets no ahead notice of system updates.

Note: The 1080 Software updates are typically around 20Mb in size to download. If your internet access is slow – we advise you to turn off Wi-Fi on the occasions you do not want to download any update.

TROUBLESHOOTING

If there is any problem with the machine, please refer to this troubleshooting guide to determine if there is a simple solution available. Otherwise please contact your 1080 service representative.

Error messages

An error message may appear at the top of the screen if the machine detects an error. Additional details of the error and a possible solution is available if you press "Details".

Below is a list of common errors that may occur and their possible solutions:

Message	Cause	Solution
Bluetooth connection error	The PC/Tablet is not connected or out of range from the Sprint unit.	• Verify pairing/connection. Move closer to the Sprint if needed.
Safety input error	The Emergency Stop has been activated	• Save any unsaved changes • Close the 1080 Software application • Shut down Windows • Turn off the power supply on the machine. • Release the Emergency Stop by twisting the knob until it pops out • Restart the machine
Overload warning	The machine has been exposed to a load rate exceeding 85% of the maximum capacity.	Wait 30 seconds for the machine to recover
Overload error	The machine has been exposed to a load rate exceeding 85% of the maximum capacity for a time of at least 3 seconds and the motor has been automatically turned off.	• Save any unsaved changes • Close 1080 Software application • Shut down Windows • Turn off the machines power supply • Restart the machine
Regeneration warning	The machine has been used for an extended time at a high load and speed rate.	Wait 30 seconds for the machine to recover
The machine appears dead	• The wall outlet may not have power • The internal fuse in 1080 Sprint may be broken	Authorized Service Personnel Only: Verify that the electrical outlet is working. Next step is to check and if needed replace fuse in machine. During start up, monitor carefully for signs of abnormal function, smoke, fire or other signs of serious malfunction. If fuse continuous to break, disconnect the machine and contact 1080 Motion.

Mechanical faults

Below is a list of possible mechanical errors and their possible solutions:

Description	Possible cause	Measures
Abnormal sound	The line guide screw, bearing and axle needs lubrication	Lubricate with Krytox or similar high grade lubricant.
The line does not go all the way in	The start position is calibrated at a distance away from the machine.	Recalibrate the line by turning off the 1080 Quantum application and go through the calibration sequence.
The line does not travel all the way out	The line is improperly installed or not winding up evenly on the drum.	Check the line and adjust if needed
The line is damaged	The line will wear out over time or may be damaged by sharp objects	Replace the line following these steps: 1. With the system turned on, apply 1 kg resisted load and pull the entire line off the drum. 2. Turn off the machine application and power off the Sprint machine. 3. Detach the old line by cutting off the stop knot attaching the line to the edge of the drum. 4. Thread in the replacement line through the line guide nozzle and the small hole on the edge of the spool. If the line is fraying at the end, melt it together with a match to make it easier to thread through the hole. 5. Make a figure 8 stop knot and trim off excess line at the end. 6. Turn on the Sprint machine and user application. In calibration mode let the machine spool on the replacement line until the drum is full. 7. Tie a loop knot on the line to stop the line from going through the nozzle. 8. 1080 Motion replacement lines are cut to correct length. Do not use any other line types as this may impair proper function and safety.

Electrical faults

Below is a list of electrical errors that may occur and possible solutions:

Description	Possible cause	Measures
The machine does not start when the power supply is turned on	• The wall outlet may not have power • The internal fuse in the machine may have broken	Authorized Service Personnel Only: Verify that the electrical outlet is working. Next step is to check and if needed replace fuse in machine. During start up, monitor carefully for signs of abnormal function, smoke, fire or other signs of serious malfunction. If fuse continuous to break, disconnect the machine and contact 1080 Motion

Information – settings

If you want to use a low load (2kg or less) **combined** with **both** a low concentric and eccentric (around 0,3m/s - 0,5m/s) speed limit – the motor may “slip” for a short distance.

The motor will not slip for any speed setting combination we found if load is 3kg or more.
The motor will not slip for loads 2kg or less if, either concentric or eccentric speed limit is set at 2m/s or above.

- E.g 2/2kg load and speed limits 0,3/0,3m/s will cause the motor to slip
- E.g 2/2kg load and speed limits 0,3/2,0m/s will **not** cause the motor to slip
- E.g 3/3kg load will **not** cause the motor to slip, regardless of speed limit settings

This behavior in the motor is caused by the fact that we allow for speed limits lower than 0,1 m/s down to 0,05m/s

APPENDIX A1

Technical data

GENERAL

Color	Black powder coated
Weight	29 kg/63 lbs
Dimensions	(LxWxH) 1004x330x216 mm / 39.5"x13.0"x8.5"

PERFORMANCE DATA

Continuous resistance range	0-150N
Maximum resistance in both directions	< 300N during maximum 10s and < 450N during 3s
Resistance boost	Using a pulley max resistance can be doubled at half maximum speed
Maximum speed	14 m/s (46 ft/s)
Resistance types	Normal – simulates a normal physical weight No Flying Weight – reduces line slack when accelerating or decelerating quickly Isotonic – constant load
Length of line	90m/295ft
Line type	130 kg/286 lbs, 1.7 mm/0.067" diameter
Motor	1.5kW
Recorded frequency of force, speed and power	333 samples per second
User interface	Tablet with touch screen: Windows 8 or higher. PC without touch screen: Windows 7 or higher

Power

Power supply	110VAC, 8A 60Hz Grounded - USA and Canada version 220VAC, 8A 50Hz Grounded - Europe version
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APPENDIX A2

PRODUCT MARKINGS AND SYMBOLS

General warning label on outside cover:

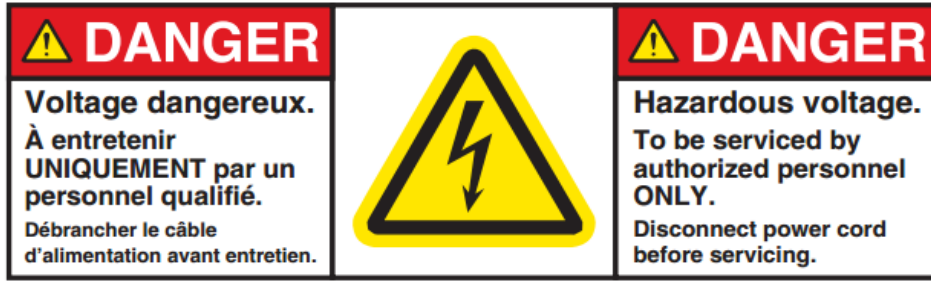
 WARNING
Inappropriate use may lead to injury or death. Risk of electric shock. Connect to a properly grounded outlet ONLY. Do NOT expose to rain. Store Indoor ONLY. Machine ONLY to be used under supervision by trained instructor. Keep children away from machine. Spotter MUST be present and able to use the emergency stop. Check line for damage or wear. Do NOT use and contact supervisor if line shows signs of wear. Keep out of direct sunlight to prevent from overheating. Use safety release between line and attachment to user.

 AVERTISSEMENT
Une mauvaise utilisation peut conduire à des blessures ou à la mort. Risque de choc électrique. Connectez-vous à une prise de terre UNIQUEMENT. Ne pas exposer à la pluie. Stocker à l'intérieur seulement. N'utilisez la machine QUE sous la supervision d'un instructeur formé. Gardez le produit hors de portée des enfants. Un accompagnant DOIT être présent et capable d'utiliser le bouton d'arrêt d'urgence. Vérifiez la ligne pour tout dommage ou usure. N'utilisez PAS la machine et contactez un superviseur si la ligne montre des signes d'usure. Protégez la machine des rayons solaires directs pour empêcher une surchauffe. Utilisez un bouchon de sécurité entre la ligne et le raccordement à l'utilisateur.

Warning label on the outside cover:

 AVERTISSEMENT		 WARNING
Les pièces mobiles peuvent écraser et couper. Ne PAS utiliser avec le couvercle enlevé. Débrancher le câble d'alimentation avant entretien.		Moving parts can crush and cut. Do NOT operate with cover removed. Disconnect power cord before servicing.

Warning label on the lid of the electrical compartment:



SAVE THESE INSTRUCTIONS

APPENDIX A3

Force and power measurements in 1080 Sprint and Quantum

For resisted exercises with no speed-limit, the athlete must overcome anything from 100% to a lower percentage of their own body mass while accelerating or decelerating, as well as the external load exerted by the 1080 Sprint or Quantum. For jumping and running exercises the percentage of body mass moved would be 100%, while in other exercises, such as upper body exercises, the percentage of body mass moved can be anything from 5% - 40%.

The force measurement displayed is the force the athlete is producing to overcome the resistance provided by the machine and does not include, the inertial effects from the body mass, nor other external conditions such as air resistance while e.g. sprinting. Based on force and speed, power is calculated based on the following formula: $\text{Power} = \text{Force} \cdot \text{velocity}$.

Thus, neither force nor power is representative of the total force or power produced by the athlete during acceleration or deceleration. The exception is when moving at constant speed, where there are no inertial effects present. Force and power measurements will then be correct (apart from drag from wind which is not included). The functionality that automatically calculates and displays the fastest split in sprints, including average force and power for the split, is very useful for obtaining this data.