DigiDevice S.r.l.

smart 2

USE AND INSTALLATION MANUAL

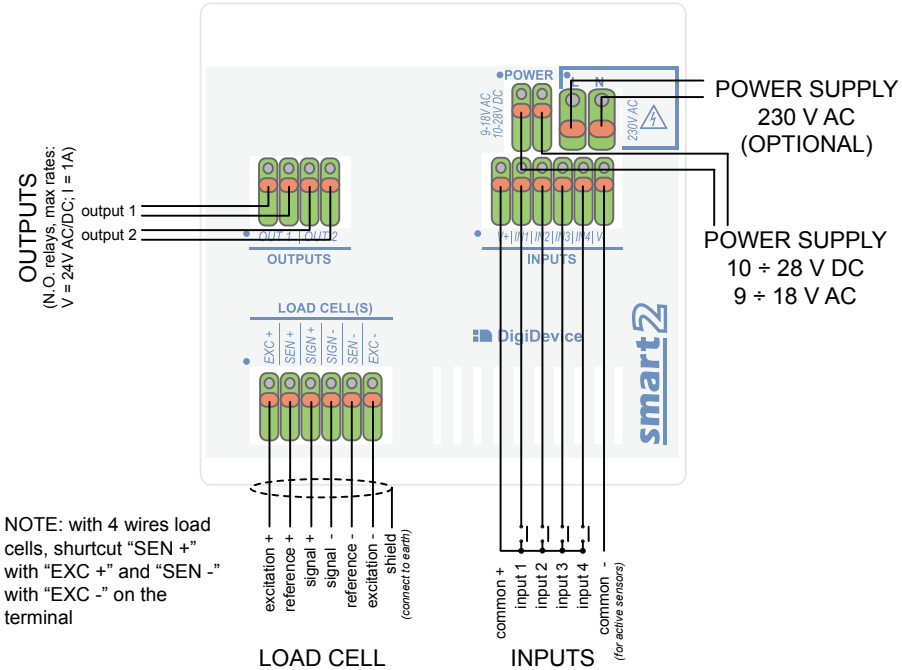
SUMMARY

GENERAL WARNINGS

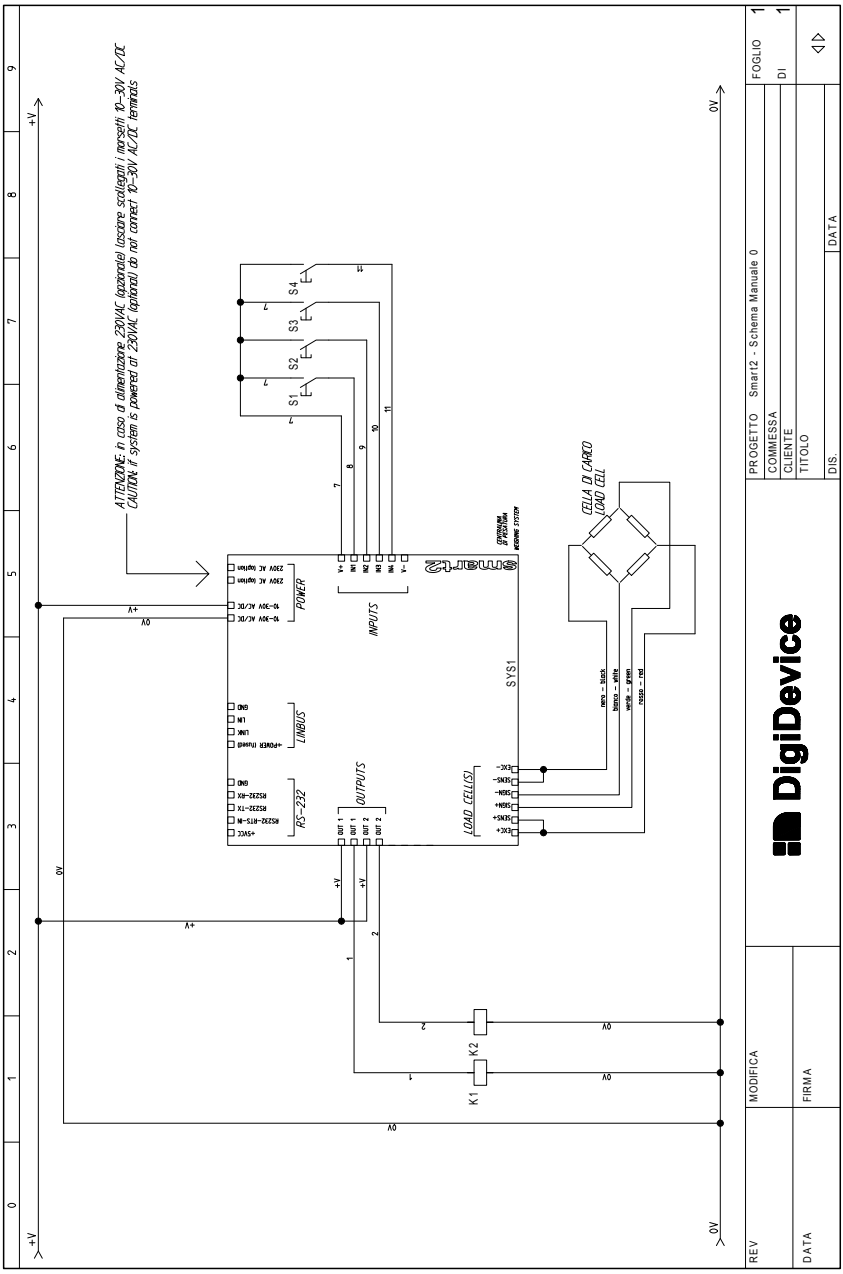
Read carefully this manual before using the weight indicator

- Be sure that the electrical power supply is as per system requirements
- Do not push on the display
- Do not use scratching tools to push buttons
- Do not use chemical dissolvent to clean the indicator
- Do not apply any water jet, high or low pressure, on the system or on its parts
- Use only accessories approved by the manufacturer
- Only qualified personnel can do maintenance on the system
- Do not try to open or misuse the system
- Use the system only for the purpose and following the specifications in this user manual

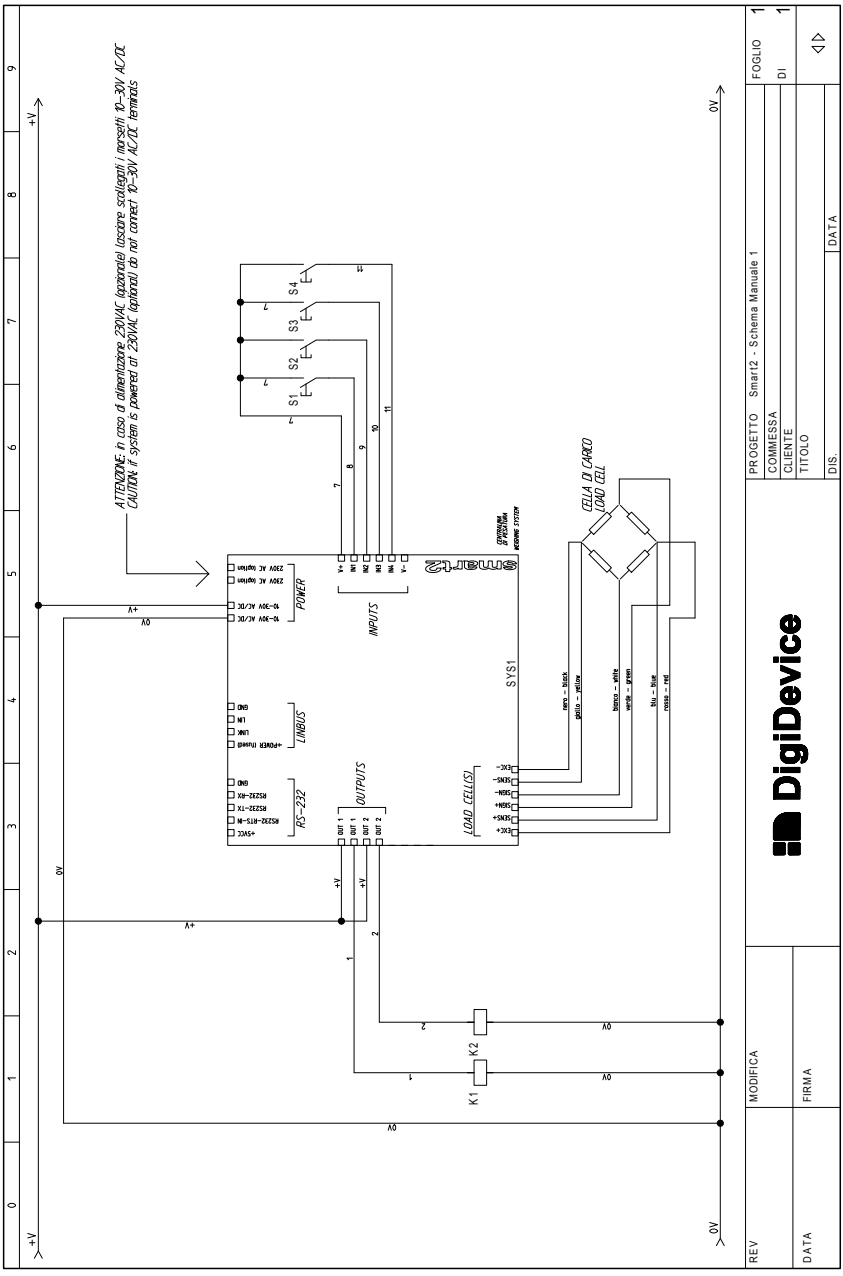
INDICATOR'S ELECTRICAL CONNECTIONS



4 WIRES LOAD CELL CONNECTION



6 WIRES LOAD CELL CONNECTION



CONVENTIONS

The information notes contain important information, highlighted outside the text which they refer

The caution messages contain important information to avoid behavior of the equipment different from the desired

INDICATIONS

Following the main diagnostic and working indications of the SMART system.

Flashing indications on the display mean that the operator action is needed (typically values insertion)

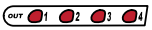
INDICATOR	SYMBOL	DESCRIPTION
STABLE WEIGHT		• On when weight is stable
BATCHING IN PROGRESS		• Switched on fixed when a batching is in progress • Switched on flashing when a batching is in pause • Off when no batching is in progress
NET		• Switched on fixed when net weight is displayed • Off when gross weight is displayed
x 1000		• Switched on fixed when the weight value is divided by 1000
OUTPUTS		• On when the related outputs are on
INPUTS		• On when the related inputs are on

Table 1: SMART 2 indication LEDs

DISPLAY	ERROR MESSAGE	DESCRIPTION
WRNG	ERROR (WRONG)	Wrong password or access denied
-L_[]-	WEIGHT SCALE NEGATIVE	Weight value is out of scale (too low); resettable by doing the tare

DISPLAY	ERROR MESSAGE	DESCRIPTION
-HI-	WEIGHT SCALE POSITIVE	Weight value is out of scale (too high); resettable by doing the tare
ER L	ERROR LOW	Converter out of scale (low)
ER H	ERROR HIGH	Converter out of scale (high)
ER01	NOT ENOUGH WEIGHT FOR CALIBRATION	The loaded weight is to low to perform the master weight calibration procedure
ER02	TYPED WEIGHT IS NOT ENOUGH FOR CALIBRATION	The typed weight is to low to perform the master weight calibration procedure
ER03	MASTER WEIGHT CALIBRATION ERROR (HIGH)	The result of the master weight cal bration procedure is an out of calibration weight value (too high)
ER04	MASTER WEIGHT CALIBRATION ERROR (LOW)	The result of the master weight cal bration procedure is an out of calibration weight value (too low)
ER05	NO DATA FOR RECOVERY	No data for system recovery were inserted
ER06	COMPONENT MISSING	The component is missing during batching
ER07	OUT OF TOLERANCE	The component weight is out of the settled tolerance
ER08	TOO HIGH PROGRAMMED WEIGHT	The sum of sets values exceeds the scale maximum measurable weight
ER09	OUT OF CAPACITY	Scale capacity exceeded
ER10	SCALE NOT EMPTY	On batching start, the scale is not empty (the measured weight is over the minimum scale weight value)
ER11	NOT ENOUGH COMPONENT (UNLOAD)	The component on the scale is lower than SET1 (1ULD type), or lower than SET1 + SET2 (2ULD type)
ER12	TYPE NOT SELECTED	The function is not enabled because no program type were selected for the SMART system
ER13	TOO HIGH WEIGHT FOR CALIBRATION	The weight used for master weight calibration is too high: the value exceeds the 4 available digits

Table 2: Error messages on SMART 2 display

INDICATOR STARTING AND TEST

Once installed the weight sensors and completed the electrical connection, the indicator configuration shall be done, following the phases descr bed below.

Choice of Type

Switching on the system, the following messages will appear in sequence on the display: TWO (SMART 2 model) and NOPR. (no program, no type is selected). To select the indicator type, keep contemporarily pressed the two keys MENU and OK until the NOPR message disappears. A blinking 0 value followed by will now appear, indicating a password request. Insert each digit of the INSTALLER password with the ↑ and ↓ keys, confirming each digit with OK to go to the next one (press MENU to go back of one digit). Confirm the last digit with OK to access the next menu.

During password insertion, if the ▶■ key is kept pressed, a number will appear, which may be used to create a disposable password. In case the password is not available, contact the seller, giving this number; the seller will provide a password which can be used only one time.

Once the password is inserted, the NOPR message starts blinking. Select the type, scrolling the list with the ↑ and ↓ keys and confirm with OK. A brief message OK shows that the type has been selected.

TYPE	DESCRIPTION
1 SET	Weight display with 1 alarm threshold on relay output. Inputs for ZEROING, NET and GROSS weight display
2 SET	Weight display with 2 alarm thresholds on relay outputs. Inputs for ZEROING, NET and GROSS weight display
1 LD	Batching of one product (load), with outputs for slow phase, end of cycle and alarms. Inputs for batching START, STOP and PAUSE
2 LD	Batching of two products (load), with outputs for slow phase and end of cycle. Inputs for batching START, STOP and PAUSE
1 ULD	Batching of a product (unload), with output for slow phase. Inputs for batching START, STOP and PAUSE
2 ULD	Batching (unload), repeated two times. Inputs for batching START, STOP and PAUSE

Table 3: list of types for SMART 2 model

Checking Inputs and Outputs

When the indicator is displaying the weight value, press the MENU key and scroll the list with the ↑ and ↓ keys, up to the message SYST (System settings), then confirm with OK. A blinking 0 value followed by will now appear, indicating a password request. Insert each digit of the password with the ↑ and ↓ keys, confirming each digit with OK to go to the next one (press MENU to go back of one digit). Confirm the last digit with OK to access the next menu.

Once the password is inserted, scroll the list with the ↑ and ↓ keys, up to the message TEST, then confirm with OK. The indicator starts a brief self-test sequence, checking the LEDs and the display segments; at the end of the self test the 0 T1 message will blink. The indicator is now ready for inputs and outputs check.
To check an input, close the contact and verify that the LED referring that input will switch on.

To check the outputs, select them with the ↑ and ↓ keys and press ▶■ to activate them, checking the relay activation and that the LED referring that output will switch on.

At the end of the test, press OK to go out of this phase (The scrolling message END will confirm it) and MENU to go back to weight display.

Weight options

The weight options of the plant shall now be selected, in terms of sensitivity (GAIN), number (NCE) and capacity (CAP) of the load cell, divisions (DIV) and number of decimals to display (DECS). This data allow the system to select the pre-loaded theoretical calibration factor.
As weight options are also included the parameters which define the range (AZRG) and time gap (AZTM) for the zero-follow function.

Set the AZRG to 0 to disable the zero-follow function

When the indicator is displaying the weight value, press the MENU key and scroll the list with the ↑ and ↓ keys, up to the message SYST (System settings), then confirm with OK. A blinking 0 value followed by will now appear, indicating a password request. Insert each digit of the INSTALLER password with the ↑ and ↓ keys, confirming each digit with OK to go to the next one (press MENU to go back of one digit). Confirm the last digit with OK to access the next menu.

During password insertion, if the ▶■ key is kept pressed, a number will appear, which may be

used to create a disposable password. In case the password is not available, contact the seller, giving this number; the seller will provide a password which can be used only one time.

Once the password is inserted, scroll the list with the  and  keys, up to the message WOPT, then confirm with  .
The parameters descr bed above will appear in the weight options configuration sequence: the name of the parameter is displayed for a few seconds, followed by its blinking value. Select the value with the  and  keys and confirm with  . A brief message OK confirms the correct insertion of the parameter's value, then the name of the next parameter is displayed. Once the value of the last parameter has been inserted, the scrolling message END confirms the exit from the procedure. Press  to go back to weight display.

When the parameter value is displayed (blinking), it's possible to check which parameter the value refers, by pressing the  key. The name of the parameter will appear for a few seconds, then its value is displayed again.

The default settings are: 4 load cells (NCE) with capability 1000kg (CAP), sensitivity 3mV/V (GAIN). The default number of divisions is 2 units (DIV) and the number of decimals is 0 (DECS).

Master weight calibration

The theoretical cal bration of the system can be modified executing a procedure during which a sample of known weight is weighed.

The more the Master Weight is near to the scale capacity, the higher is the calibration accuracy. Using too light Master Weights during calibration may cause not enough accurate weight reading. On the other hand, the sample weight shall be composed of 4 digits, so that its value can be correctly inserted. In case of weight value not suitable for calibration or errors due to this procedure, the error messages ERR01 ÷ ERR0 or ERR3 will be displayed (see section INDICATIONS in the first pages of the manual).

CAUTION: *This operation cannot be canceled and shall be done only if really needed*

When the indicator is displaying the weight value, press the  key and scroll the list with the  and  keys, up to the message SYST (System settings), then confirm with  . A blinking 0 value followed by will now appear, indicating a password request. Insert each digit of the password with the  and  keys, confirming each digit with  to go to the next one (press  to go back of one digit). Confirm the last digit with  to access the next menu.

Once the password is inserted, scroll the list with the  and  keys, up to the message MSTR, then confirm with  . As this is a delicate operation, the scrolling message P S OK TO GO requires a confirmation before entering in this procedure. Press  to confirm. The indicator displays the blinking value 0. If the master weight is not yet on the scale, put it on the scale (the blinking value will change) and confirm with  . If the master weight is already on the scale, simply confirm with  . If the master weight is placed on the scale after the request "P S OK TO GO ", a brief message DIF shows that the calibration is obtained as a weight difference. Insert each digit of the master weight value with the  and  keys, then confirm with  . The scrolling message ARE YO S RE? requires confirmation of the inserted weight value. Press  to confirm. A brief message OK confirms the correct execution of the procedure and the following scrolling message END confirms the exit from the procedure. Press  to go back to weight display.

Tare zeroing

Ensure that the scale is empty, then keep the  key pressed until will be displayed.

CAUTION: *in order to easier the access to configuration menus, the default OPERATOR PASSWORD is 0000.*
Once installed the system, the default password should be changed, as described in the PASSWORD section to avoid unwanted access to configuration menus.

1 SET TYPE

Weight display with partialization functions and 1 alarm threshold

If the  key is pressed, a partialization is done, that is: the displayed weight will be zeroed, to allow the operator to successively load quantities of product, always seeing the added weight. Each time the  key is pressed, a scrolling message NET is displayed. The same thing happens when input 1, NET, is activated.

Keep the  key pressed for 3 seconds to display the total weight. A scrolling message GROS is displayed. The same thing happens when input 3, GROSS, is activated.

When the weight value on the weighed system falls below the set value, the related output is activated. An hysteresis value can be associated to the set value (FA 1).

EXAMPLE: SET1 = 1000kg, FA 1 = 10kg. The status transition of the relay will be at 990kg when the weight falls, at 1000kg when it rises.

The relays excitation depends on the GROSS weight value

Keep the  key pressed for 3 seconds to zero the scale, or activate input 2, ZERO.

Inputs and outputs

OUT 1	OUT 2	IN 1	IN 2	IN 3	IN 4
SET 1	---	NET	ZERO	GROSS	---

Table 4: I/Os list for type 1 SET

Programming

Press the  key to access the parameters to be settled.

On the display, SET1 will appear. Confirming with  the blinking value of level 1 appears. Modify the value with the keys  and  , then confirm with  . A brief message OK shows the correct insertion of the parameter's value.

When the parameter value is displayed (blinking), it's possible to check which parameter the value refers, by pressing the  *key. The name of the parameter will appear for a few*

seconds, then its value is displayed again.

To set the hysteresis values associated to each set and the filtering to be applied to the weight display, when the indicator is displaying the weight value, press the MENU key and scroll the list with the ↑ and ↓ keys, up to the message SYST (System settings), then confirm with OK. A blinking 0 value followed by will now appear, indicating a password request. Insert each digit of the password with the ↑ and ↓ keys, confirming each digit with OK to go to the next one (press MENU to go back of one digit). Confirm the last digit with OK to access the next menu.

Once the password is inserted, select with OK the first item of the menu, PARA.
The below described parameter will appear in sequence.
The name of the parameter is displayed for a few seconds, followed by its blinking value. Select the value with the ↑ and ↓ keys and confirm with OK. A brief message OK confirms the correct insertion of the parameter's value, then the name of the next parameter is displayed. Once the value of the last parameter has been inserted, the scrolling message END confirms the exit from the procedure.
Press MENU to go back to weight display.

- FAL1: Hysteresis values for level 1;
- FLTR: Filtering value, it defines the speed and the stability of the displayed weight value. A low value means a long update time and vice versa.

If the weighed system is affected by strong mechanical vibrations, the DYNA (dynamic) option can be selected for the F TR parameter. Using this setting, the system applies a new filtering algorithm to the weight value, to allow high precision and stability of the weight value.

When the parameter value is displayed (blinking), it's possible to check which parameter the value refers, by pressing the ▶■ key. The name of the parameter will appear for a few seconds, then its value is displayed again.

2 SETS TYPE

Weight display with partialization functions and 2 alarm thresholds

If the key is pressed, a partialization is done, that is: the displayed weight will be zeroed, to allow the operator to successively load quantities of product, always seeing the added weight. Each time the key is pressed, a scrolling message NET is displayed. The same thing happens when input 1, NET, is activated.

Keep the key pressed for 3 seconds to display the total weight. A scrolling message GROS is displayed. The same thing happens when input 3, GROSS, is activated.

When the weight value on the weighed system falls below the set values, the related output is activated. An hysteresis value can be associated to each set value (FA 1 ÷ FA 2).

EXAMPLE: SET1 = 1000kg, FA 1 = 10kg. The status transition of the relay will be at 990kg when the weight falls, at 1000kg when it rises.

The relays excitation depends on the GROSS weight value

Keep the OK key pressed for 3 seconds to zero the scale, or activate input 2, ZERO.

Inputs and outputs

OUT 1	OUT 2	IN 1	IN 2	IN 3	IN 4
SET 1	SET 2	NET	ZERO	GROSS	---

Table 5: I/Os list for type 2 SET

Programming

Press the MENU key to access the parameters to be settled.

On the display, SET1 will appear. Confirming with OK the blinking value of level 1 appears. Modify the value with the keys and , then confirm with OK. A brief message OK shows the correct insertion of the parameter's value. In the same way, select with the keys and the parameter SET2 and modify its value, as with SET1.

When the parameter value is displayed (blinking), it's possible to check which parameter the value refers, by pressing the  *key. The name of the parameter will appear for a few seconds, then its value is displayed again.*

To set the hysteresis values associated to each set and the filtering to be applied to the weight display, when the indicator is displaying the weight value, press the  key and scroll the list with the  and  keys, up to the message SYST (System settings), then confirm with  . A blinking 0 value followed by will now appear, indicating a password request. Insert each digit of the password with the  and  keys, confirming each digit with  to go to the next one (press  to go back of one digit). Confirm the last digit with  to access the next menu.

Once the password is inserted, select with  the first item of the menu, PARA.
The below described parameter will appear in sequence.
The name of the parameter is displayed for a few seconds, followed by its blinking value. Select the value with the  and  keys and confirm with  . A brief message OK confirms the correct insertion of the parameter's value, then the name of the next parameter is displayed. Once the value of the last parameter has been inserted, the scrolling message END confirms the exit from the procedure.
Press  to go back to weight display.

- FAL1 ÷ FAL2: Hysteresis values for levels 1 ÷ 2;
- FLTR: Filtering value, it defines the speed and the stability of the displayed weight value. A low value means a long update time and vice versa.

If the weighed system is affected by strong mechanical vibrations, the DYNA (dynamic) option can be selected for the F TR parameter. Using this setting, the system applies a new filtering algorithm to the weight value, to allow high precision and stability of the weight value.

When the parameter value is displayed (blinking), it's possible to check which parameter the value refers, by pressing the  *key. The name of the parameter will appear for a few seconds, then its value is displayed again.*

1 LD TYPE

Batching of one product (load), with output for slow phase

When the key is pressed or the input 1, START, is activated, the scrolling message CAI and the LED (besides the LED , if already on) show the batching start. The instrument checks now the following:

- Empty scale: checking that the weight on the weighed system is below the value of the parameter MIN. Otherwise, batching will not start and on the display the message ER10 will appear (if the value of the parameter REC is 0). Press OK to exit the batching phase (the exit is confirmed by the scrolling message END).

If the parameter MIN is = 0, this control is not executed. This feature is to allow batching in case of scale not empty

- Maximum scale check: if the weight to be batched, plus the weight on the scale, is higher than the value of the parameter MAX, batching will not start and on the display the message ER08 will appear. Press OK to exit the batching phase (the exit is confirmed by the scrolling message END).

Only after these checks, the instrument zeroes the weight on the scale ad displays 0 if the visualization of the remaining weight to be loaded is not enabled (VRES = OFF), otherwise the value of the remaining weight to be loaded (VRES = ON).
Output 1, SET 1, will be enabled and, once reached the weight value equal to SET1 less its “slow” weight (S W1) less its “fall” weight (FA 1 or the value of the auto-weighed fall, if parameter A F = ON), output 2, SLOW, will activate.
Once the loaded weight is equal to the value of SET1 less its “fall” weight (FA 1 or the value of the auto-weighed fall, if parameter A F = ON), the outputs 1 and 2 will deactivate and the instrument waits for the falling product. The batching cycle ends and the exit from the batching phase is confirmed by the scrolling message END.

During load, if the component does not reach the weighed system, the missing component error, ER05, will be displayed and the batching sequence is paused. Pressing OK or MENU , the starts blinking and the scrolling message P S OK TO EXIT P S P AY TO R N appears. Press to recover batching from where it was paused, or OK to definitely stop batching, deactivating the output and switching off the LED . The exit from the batching phase is confirmed by the scrolling message END.

The batching sequence can be paused by pressing the key or activating input 3, PAUSE.
During the pause due to input 3, the displayed value and the LED blink and the instrument remains paused until input 3 is deactivated.

During the pause due to the key, the LED blinks and the scrolling message P S OK TO EXIT

PS PAY TO RN is displayed. Press  to recover batching from where it was paused, or  to definitely stop batching, deactivating the output and switching off the LED . The exit from the batching phase is confirmed by the scrolling message END.
The batching operation can be definitely stopped also by activating input 2, STOP.

CAUTION: *The batching procedure will definitely stop in case of black out*

When the indicator is not batching, weight zeroing can be achieved keeping the  key pressed for 3 seconds.

Inputs and outputs

OUT 1	OUT 2	IN 1	IN 2	IN 3	IN 4
SET 1	SLOW	START	STOP	PAUSE	---

Table 6: I/Os list for type 1 LD

Programming

Press the  key to access the parameters to be settled.

On the display, SET1 will appear. Confirming with  the blinking value of the weight to be batched appears. Modify the value with the keys  and  , then confirm with  . A brief message OK shows the correct insertion of the parameter's value.

Parameters connected to the plant and components features, l ke fall and slow weight, scale minimum and maximum, etc., shall now be settled. When the indicator is displaying the weight value, press the  key and scroll the list with the  and  keys, up to the message SYST (System settings), then confirm with  . A blinking 0 value followed by will now appear, indicating a password request. Insert each digit of the password with the  and  keys, confirming each digit with  to go to the next one (press  to go back of one digit). Confirm the last digit with  to access the next menu.

Once the password is inserted, select with  the first item of the menu, PARA.
The below described parameter will appear in sequence.
The name of the parameter is displayed for a few seconds, followed by its blinking value. Select the value with the  and  keys and confirm with  . A brief message OK confirms the correct insertion of the parameter's value, then the name of the next parameter is displayed. Once the value of

the last parameter has been inserted, the scrolling message END confirms the exit from the procedure. Press MENU to go back to weight display.

- FAL1: fall weight value for component 1;
- SLW1: weight value related to the slow load phase for component 1;
- AUFL: parameter to activate / deactivate the automatic calculation of fall weight values;
- MIN: minimum scale weight value;
- MAX: maximum scale weight value;
- WAIT: wait time between components;
- FLTR: Filtering value, it defines the speed and the stability of the displayed weight value. A low value means a long update time and vice versa;
- VRES: parameter to activate / deactivate the remaining weight to be loaded visualization;
- MISS: alarm time for component missing: during load, if the component does not reach the weighed system, the missing component error, ER06, is displayed;
- STAR: after batching start (through keypad or input), once this time has elapsed, the system starts driving the loading devices.

If the weighed system is affected by strong mechanical vibrations, the DYNA (dynamic) option can be selected for the F TR parameter. Using this setting, the system applies a new filtering algorithm to the weight value, to allow high precision and stability of the weight value.

When the parameter value is displayed (blinking), it's possible to check which parameter the value refers, by pressing the key. The name of the parameter will appear for a few seconds, then its value is displayed again.

2 LD TYPE

Batching of two products (load)

When the key is pressed or the input 1, START, is activated, the scrolling message START and the LED (besides the LED , if already on) show the batching start. The instrument checks now the following:

- Empty scale: checking that the weight on the weighed system is below the value of the parameter MIN. Otherwise, batching will not start and on the display the message ERR0 will appear (if the value of the parameter REC is 0). Press OK to exit the batching phase (the exit is confirmed by the scrolling message END).

If the parameter MIN is = 0, this control is not executed. This feature is to allow batching in case of scale not empty

- Maximum scale check: if the weight to be batched, plus the weight on the scale, is higher than the value of the parameter MAX, batching will not start and on the display the message ERR8 will appear. Press OK to exit the batching phase (the exit is confirmed by the scrolling message END).

Only after these checks, the instrument zeroes the weight on the scale ad displays 0 if the visualization of the remaining weight to be loaded is not enabled (VRES = OFF) otherwise the value of the remaining weight to be loaded (VRES = ON).
Output 1, SET 1, will be enabled and, once reached the weight value equal to SET1 less its “fall” weight (FA 1 or the value of the auto-weighed fall, if parameter A F = ON), the output 1 will deactivate and the instrument waits for the falling product.
After the “delay between components” time (WAIT), the instrument zeroes the weight on the scale and displays 0 if the visualization of the remaining weight to be loaded is not enabled (VRES = OFF) otherwise the value of the remaining weight to be loaded (VRES = ON). Output 2, SET 2, will be enabled and, once reached the weight value equal to SET2 less its “fall” weight (FA 2 or the value of the auto-weighed fall, if parameter A F = ON), the output 2 will deactivate and the instrument waits for the falling product.
The batching cycle ends and the exit from the batching phase is confirmed by the scrolling message END.

During load, if the component does not reach the weighed system, the missing component error, ERR6, will be displayed and the batching sequence is paused. Pressing OK or MENU , the starts blinking and the scrolling message P S OK TO EXIT P S PAY TO R N appears. Press to recover batching from where it was paused, or OK to definitely stop batching, deactivating the output and switching off the LED . The exit from the batching phase is confirmed by the scrolling message END.

The batching sequence can be paused by pressing the key or activating input 3, PAUSE.
During the pause due to input 3, the displayed value and the LED blink and the instrument remains

paused until input 3 is deactivated.

During the pause due to the key, the LED blinks and the scrolling message P S OK TO EXIT P S PAY TO RUN is displayed. Press to recover batching from where it was paused, or OK to definitely stop batching, deactivating the output and switching off the LED . The exit from the batching phase is confirmed by the scrolling message END.
The batching operation can be definitely stopped also by activating input 2, STOP.

CAUTION: *The batching procedure will definitely stop in case of black out*

When the indicator is not batching, weight zeroing can be achieved keeping the OK key pressed for 3 seconds.

Inputs and outputs

OUT 1	OUT 2	IN 1	IN 2	IN 3	IN 4
SET 1	SET 2	START	STOP	PAUSE	---

Table 7: I/Os list for type 2 LD

Programming

Press the MENU key to access the parameters to be settled.

On the display, SET1 will appear. Confirming with OK the blinking value of the weight to be batched appears. Modify the value with the keys and , then confirm with OK. A brief message OK shows the correct insertion of the parameter's value. In the same way, select with the keys and the parameter SET2 and modify its relating value, as with SET1.

Parameters connected to the plant and components features, like fall weight, scale minimum and maximum, etc., shall now be settled. When the indicator is displaying the weight value, press the MENU key and scroll the list with the and keys, up to the message SYST (System settings), then confirm with OK. A blinking 0 value followed by will now appear, indicating a password request. Insert each digit of the password with the and keys, confirming each digit with OK to go to the next one (press MENU to go back of one digit). Confirm the last digit with OK to access the next menu.

Once the password is inserted, select with OK the first item of the menu, PARA.
The below described parameter will appear in sequence.
The name of the parameter is displayed for a few seconds, followed by its blinking value. Select the value with the ↑ and ↓ keys and confirm with OK. A brief message OK confirms the correct insertion of the parameter's value, then the name of the next parameter is displayed. Once the value of the last parameter has been inserted, the scrolling message END confirms the exit from the procedure.

Press MENU to go back to weight display.

- FAL1: fall weight value for component 1;
- FAL2: fall weight value for component 2;
- AUFL: parameter to activate / deactivate the automatic calculation of fall weight values;
- MIN: minimum scale weight value;
- MAX: maximum scale weight value;
- WAIT: wait time between components;
- FLTR: Filtering value, it defines the speed and the stability of the displayed weight value. A low value means a long update time and vice versa;
- VRES: parameter to activate / deactivate the remaining weight to be loaded visualization;
- MISS: alarm time for component missing: during load, if the component does not reach the weighed system, the missing component error, ERR06, is displayed.
- STAR: after batching start (through keypad or input), once this time has elapsed, the system starts driving the loading devices.

If the weighed system is affected by strong mechanical vibrations, the DYNA (dynamic) option can be selected for the F TR parameter. Using this setting, the system applies a new filtering algorithm to the weight value, to allow high precision and stability of the weight value.

When the parameter value is displayed (blinking), it's possible to check which parameter the value refers, by pressing the ▶■ key. The name of the parameter will appear for a few seconds, then its value is displayed again.

1 ULD TYPE

Batching of one product (unload), with slow phase output

When the key is pressed or the input 1, START, is activated, the scrolling message N I and the LED (besides the LED , if already on) show the batching start. The instrument checks now that the weight on the weighed system less the quantity to be batched (SET1) is above the value of the parameter MIN. Otherwise, batching will not start and on the display the message ER11 will appear. Press OK to exit the batching phase (the exit is confirmed by the scrolling message END).

Only after these checks, the instrument zeroes the weight on the scale ad displays 0 if the visualization of the remaining weight to be loaded is not enabled (VRES = OFF), otherwise the value of the remaining weight to be unloaded (VRES = ON).
Output 1, SET 1, will be enabled and, once the weight value is equal to the value of SET1 less its "slow" weight (S WI) less its "fall" weight (FA 1 or the value of the auto-weighed fall, if parameter A F = ON), output 2, SLOW, will activate.
Once the loaded weight is equal to the value of SET1 less its "fall" weight (FA 1 or the value of the auto-weighed fall, if parameter A F = ON), the outputs 1 and 2 will deactivate and the instrument waits for the falling product. The batching cycle ends and the exit from the batching phase is confirmed by the scrolling message END.

During unload, if the component weight to be unloaded does not decrease, the missing component unload error, ER06, will be displayed and the batching sequence is paused. Pressing OK or MENU, the starts blinking and the scrolling message P S OK TO EXIT P S P AY TO R N appears. Press to recover batching from where it was paused, or OK to definitely stop batching, deactivating the output and switching off the LED . The exit from the batching phase is confirmed by the scrolling message END.

The batching sequence can be paused by pressing the key or activating input 3, PAUSE.
During the pause due to input 3, the displayed value and the LED blink and the instrument remains paused until input 3 is deactivated.

During the pause due to the key, the LED blinks and the scrolling message P S OK TO EXIT P S P AY TO R N is displayed. Press to recover batching from where it was paused, or OK to definitely stop batching, deactivating the output and switching off the LED . The exit from the batching phase is confirmed by the scrolling message END.
The batching operation can be definitely stopped also by activating input 2, STOP.

CAUTION: *The batching procedure will definitely stop in case of black out*

When the indicator is not batching, weight zeroing can be achieved keeping the OK key pressed for 3 seconds.

Inputs and outputs

OUT 1	OUT 2	IN 1	IN 2	IN 3	IN 4
SET 1	SLOW	START	STOP	PAUSE	---

Table 8: I/Os list for type 1 ULD

Programming

Press the MENU key to access the parameters to be settled.

On the display, SET1 will appear. Confirming with OK the blinking value of the weight to be batched appears. Modify the value with the keys ↑ and ↓, then confirm with OK. A brief message OK shows the correct insertion of the parameter's value.

Parameters connected to the plant and components features, like fall and slow weight, scale minimum, etc., shall now be settled. When the indicator is displaying the weight value, press the MENU key and scroll the list with the ↑ and ↓ keys, up to the message SYST (System settings), then confirm with OK. A blinking 0 value followed by will now appear, indicating a password request. Insert each digit of the password with the ↑ and ↓ keys, confirming each digit with OK to go to the next one (press MENU to go back of one digit). Confirm the last digit with OK to access the next menu.

Once the password is inserted, select with OK the first item of the menu, PARA.
The below described parameter will appear in sequence.
The name of the parameter is displayed for a few seconds, followed by its blinking value. Select the value with the ↑ and ↓ keys and confirm with OK. A brief message OK confirms the correct insertion of the parameter's value, then the name of the next parameter is displayed. Once the value of the last parameter has been inserted, the scrolling message END confirms the exit from the procedure.

Press MENU to go back to weight display.

- FAL1: fall weight value for component 1;
- SLW1: weight value related to the slow load phase for component 1;
- AUFL: parameter to activate / deactivate the automatic calculation of fall weight values;
- MIN: minimum scale weight value;
- MAX: maximum scale weight value;
- WAIT: wait time between components;
- FLTR: Filtering value, it defines the speed and the stability of the displayed weight value. A low value

means a long update time and vice versa;

- VAREG: parameter to activate / deactivate the remaining weight to be loaded visualization;
- MISS: alarm time for component missing: during unload, if the component weight to be unloaded does not decrease, the missing component error, ERR06, is displayed.
- STAR: after batching start (through keypad or input), once this time has elapsed, the system starts driving the unloading devices.

If the weighed system is affected by strong mechanical vibrations, the DYNA (dynamic) option can be selected for the F TR parameter. Using this setting, the system applies a new filtering algorithm to the weight value, to allow high precision and stability of the weight value.

When the parameter value is displayed (blinking), it's possible to check which parameter the value refers, by pressing the  *key. The name of the parameter will appear for a few seconds, then its value is displayed again.*

2 ULD TYPE

Batching (unload), repeated two times

When the key is pressed or the input 1, START, is activated, the scrolling message N I and the LED (besides the LED , if already on) show the batching start. The instrument checks now that the weight on the weighed system less the quantity to be batched (SET1 + SET2) is above the value of the parameter MIN. Otherwise, batching will not start and on the display the message ER11 will appear. Press OK to exit the batching phase (the exit is confirmed by the scrolling message END).

Only after these checks, the instrument zeroes the weight on the scale ad displays 0 if the visualization of the remaining weight to be loaded is not enabled (VRES = OFF), otherwise the value of the remaining weight to be unloaded (VRES = ON).
Output 1, SET 1, will be enabled and, once the weight value is equal to the value of SET1 less its "fall" weight (FA 1 or the value of the auto-weighed fall, if parameter A F = ON), the output 1 will deactivate and the instrument waits for the falling product.
After the "delay between components" time (WAIT), the instrument zeroes the weight on the scale and displays 0 if the visualization of the remaining weight to be unloaded is not enabled (VRES = OFF) otherwise the value of the remaining weight to be loaded (VRES = ON).
Output 2, SET 2, will be enabled and, once the weight value is equal to the value of SET2 less its "fall" weight (FA 2 or the value of the auto-weighed fall, if parameter A F = ON), the output 2 will deactivate and the instrument waits for the falling product.
The batching cycle ends and the exit from the batching phase is confirmed by the scrolling message END.

During unload, if the component weight to be unloaded does not decrease, the missing component unload error, ER06, will be displayed and the batching sequence is paused. Pressing OK or MENU, the starts blinking and the scrolling message P S OK TO EXIT P S P AY TO R N appears. Press to recover batching from where it was paused, or OK to definitely stop batching, deactivating the output and switching off the LED . The exit from the batching phase is confirmed by the scrolling message END.

The batching sequence can be paused by pressing the key or activating input 3, PAUSE.
During the pause due to input 3, the displayed value and the LED blink and the instrument remains paused until input 3 is deactivated.

During the pause due to the key, the LED blinks and the scrolling message P S OK TO EXIT P S P AY TO R N is displayed. Press to recover batching from where it was paused, or OK to definitely stop batching, deactivating the output and switching off the LED . The exit from the batching phase is confirmed by the scrolling message END.
The batching operation can be definitely stopped also by activating input 2, STOP.

CAUTION: *The batching procedure will definitely stop in case of black out*

When the indicator is not batching, weight zeroing can be achieved keeping the OK key pressed for 3 seconds.

Inputs and outputs

OUT 1	OUT 2	IN 1	IN 2	IN 3	IN 4
SET 1	SET 2	START	STOP	PAUSE	---

Table 9: I/Os list for type 2 ULD

Programming

Press the MENU key to access the parameters to be settled.

On the display, SET1 will appear. Confirming with OK the blinking value of the weight to be batched appears. Modify the value with the keys ↑ and ↓, then confirm with OK. A brief message OK shows the correct insertion of the parameter's value. In the same way, select with the keys ↑ and ↓ the parameter SET2 and modify its value, as with SET1.

Parameters connected to the plant and components features, like fall weight, scale minimum, etc., shall now be settled. When the indicator is displaying the weight value, press the MENU key and scroll the list with the ↑ and ↓ keys, up to the message SYST (System settings), then confirm with OK. A blinking 0 value followed by will now appear, indicating a password request. Insert each digit of the password with the ↑ and ↓ keys, confirming each digit with OK to go to the next one (press MENU to go back of one digit). Confirm the last digit with OK to access the next menu.

Once the password is inserted, select with OK the first item of the menu, PARA.
The below described parameter will appear in sequence.
The name of the parameter is displayed for a few seconds, followed by its blinking value. Select the value with the ↑ and ↓ keys and confirm with OK. A brief message OK confirms the correct insertion of the parameter's value, then the name of the next parameter is displayed. Once the value of the last parameter has been inserted, the scrolling message END confirms the exit from the procedure.
Press MENU to go back to weight display.

- FAL1: fall weight value for component 1;
- FAL2: fall weight value for component 2;
- AUFL: parameter to activate / deactivate the automatic calculation of fall weight values;
- MIN: minimum scale weight value;
- WAIT: wait time between components;
- FLTR: Filtering value, it defines the speed and the stability of the displayed weight value. A low value means a long update time and vice versa;
- VRES: parameter to activate / deactivate the remaining weight to be loaded visualization;
- MISS: alarm time for component missing: during unload, if the component weight to be unloaded does not decrease, the missing component error, ER06, is displayed.
- STAR: after batching start (through keypad or input), once this time has elapsed, the system starts driving the unloading devices.

If the weighed system is affected by strong mechanical vibrations, the DYNA (dynamic) option can be selected for the F TR parameter. Using this setting, the system applies a new filtering algorithm to the weight value, to allow high precision and stability of the weight value.

When the parameter value is displayed (blinking), it's possible to check which parameter the value refers, by pressing the  *key. The name of the parameter will appear for a few seconds, then its value is displayed again.*

OTHER FUNCTIONS

Tare recovery

Activates the wizard to cancel the last gross weight zeroing.

CAUTION: *This operation cannot be canceled and shall be done only if really needed*

When the indicator is displaying the weight value, press the MENU key and scroll the list with the ↑ and ↓ keys, up to the message SYST (System settings), then confirm with OK. A blinking 0 value followed by will now appear, indicating a password request. Insert each digit of the password with the ↑ and ↓ keys, confirming each digit with OK to go to the next one (press MENU to go back of one digit). Confirm the last digit with OK to access the next menu.

Scroll the list with the ↑ and ↓ keys, up to the message TARE, then confirm with OK. As this is a delicate operation, the scrolling message P S OK TO GO requires a confirmation before entering in this procedure. Press OK to confirm, then MENU to go back to weight display.

Password

The OPERATOR password can be managed as follows.

When the indicator is displaying the weight value, press the MENU key and scroll the list with the ↑ and ↓ keys, up to the message SYST (System settings), then confirm with OK. A blinking 0 value followed by will now appear, indicating a password request. Insert each digit of the password with the ↑ and ↓ keys, confirming each digit with OK to go to the next one (press MENU to go back of one digit). Confirm the last digit with OK to access the next menu.

Scroll the list with the ↑ and ↓ keys, up to the message PASW, then confirm with OK.
As this is a delicate operation, the scrolling message P S OK TO GO requires a confirmation before entering in this procedure. Press OK to confirm and insert the digits of the new password. Once the last digit of the password is confirmed, the scrolling message ARE YO S RE? requires confirmation of the inserted digits. Press OK to confirm. A brief message OK confirms the correct execution of the procedure and the following scrolling message END confirms the exit from the procedure.

Press MENU to go back to weight display.

Manual tare

The zeroing value can be manually settled as follows.

When the indicator is displaying the weight value, press the MENU key and scroll the list with the ↑ and ↓ keys, up to the message SYST (System settings), then confirm with OK. A blinking 0 value followed by will now appear, indicating a password request. Insert each digit of the INSTALLER password with the ↑ and ↓ keys, confirming each digit with OK to go to the next one (press MENU to go back of one digit). Confirm the last digit with OK to access the next menu.

Scroll the list with the ↑ and ↓ keys, up to the message TARA, then confirm with OK.

The blinking value of the tare is displayed. Select the value with the ↑ and ↓ keys and confirm with OK. A brief message OK confirms the correct insertion of the parameter's value and the scrolling message END confirms the exit from the procedure. Press MENU to go back to weight display.

CAUTION: *This operation cannot be canceled and shall be done only if really needed*

Settings recovery

The manufacture's settings can be recovered as follows.

When the indicator is displaying the weight value, press the MENU key and scroll the list with the ↑ and ↓ keys, up to the message SYST (System settings), then confirm with OK. A blinking 0 value followed by will now appear, indicating a password request. Insert each digit of the INSTALLER password with the ↑ and ↓ keys, confirming each digit with OK to go to the next one (press MENU to go back of one digit). Confirm the last digit with OK to access the next menu.

Scroll the list with the ↑ and ↓ keys, up to the message SRCV, then confirm with OK.

The scrolling message ARE YOU SURE? requires a confirmation. Press OK to confirm. During the recovery operation, the blinking message WAIT will be displayed. A brief message OK confirms the correct execution of the procedure and the following scrolling message END confirms the exit from the procedure. Press MENU to go back to weight display.

CAUTION: *This operation cannot be canceled and shall be done only if really needed*

TECHNICAL DATA *

Voltage Power Supply	10 ÷ 28 V dc; 9 ÷ 18 V ac	
Maximum Consumption	2 W (Typ. 0.16A @ 12V)	
Load Cells Excitation Voltage	5 V DC	
Divisions	60 000	
Resolution	x1 x2 x5 x10	
Number of Connectable Load Cells	Verify with the installer	
Weight Display Refresh Rate	Software selectable	
Weight A/D Converter	Delta Sigma 24 bit	
Interface Commands	5 keys keypad	
Display	Alphanumeric high brightness	
Microprocessor	16 bit 56Mhz	
Memory	Flash + Static RAM + E2PROM	
Inputs	4 Digital inputs, see scheme for connections	
Outputs	2 N.O. relays, max. rates: V = 24V AC/DC , I = 1A	
Protection grade	IP 54	IP 65 (1)
Working Temperature	0 ÷ 50 °C	
Stock Temperature	-20 ÷ 80 °C	
Humidity	90 %	
Housing	PPO / PC / ABS	ABS (1)
Color	Anthracite	Grey (1)
Mounting Fixture	DIN 43700 box with mounting brackets	Holes on the box (1)
Dimensions	96x96x79mm (LxHxP)	120x122x88mm (LxHxP) (1)
Weight	~ 230 g	~ 380 g (1)
Conformity	CE Normative Conformity	

* Product features may change without notice

(1) Stand alone version

WARRANTY

This warranty shall apply in Europe. DigiDevice Srl warrants that this Product is at the time of its original purchase free of defects in materials, design and workmanship subject to the following terms and conditions:

1. This warranty is given to the end purchaser of the Product. It shall neither exclude nor limit:
   a. Any mandatory statutory rights of the Customer, or
   b. Any of the Customer's rights against the seller/dealer of the Product.
2. The warranty period is twelve (12) months from the date on which the first Customer purchased the Product. In case of a subsequent Purchase or other change of owner/user, such warranty period shall continue for the remaining part of the twelve (12) of the period and otherwise remain unaffected.
3. During the warranty period DigiDevice or its authorized service company will repair or replace, at DigiDevice sole discretion, a defective Product. DigiDevice will return the repaired Product or another Product to the Customer in good working condition. All parts or other equipments which replacement have been provided shall become the property of DigiDevice.
4. A repaired o replaced Product will not be given a prolonged or renewed warranty period.
5. This warranty shall not apply the deteriorations due to normal wear and tear.
6. This warranty shall further not apply if:
   a. The defect was caused by the fact that the Product has been subjected to: use in contradiction with the user's manual, rough handling, or extreme thermal or environment conditions, unauthorized modifications or connections, unauthorized opening or repair, repair by use of unauthorized spare parts, misuse, improper installation, accident, forces of nature, influence from chemical products or other acts beyond all reasonable control of DigiDevice, unless the defect was caused directly by defects in materials, design or workmanship.
   b. The authorized service company was not notified by the Customer of the defect within thirty (30) days after the appearance of the defect within the warranty period.
   c. The Product serial number has been removed, erased, defaced altered or is illegible.
   d. The defect was caused by the fact that the Product was used with or connected to an accessory not approved by DigiDevice or used in other than its intended use.
   e. The defect was caused by short-circuit or bad power supply.
7. To claim this warranty the Customer shall present a legible and non-modified original purchase receipt, with the name of the seller/dealer of the Product.
8. This warranty is the Customer's sole and exclusive remedy against DigiDevice and DigiDevice's sole and exclusive liability against the Customer for defects or malfunctions of the Product. This warranty replaces all other warranties and liabilities, whether oral, written (non mandatory) statutory, contractual in tort or otherwise. DigiDevice is no even liable for any incidental, consequential or indirect damage, costs or expenses.

DECLARATION OF CONFORMITY

Dichiarazione di Conformità

Noi / We:

DigiDevice Srl
via Guerzoni, 42
25018 – Montichiari (BS)
ITALY

dichiariamo sotto nostra unica responsabilità che il prodotto
declare under our sole responsibility that the product

Indicatore Serie SMART modello SMART 2
SMART Series Indicator SMART 2 model

al quale si riferisce la presente dichiarazione, è conforme alla/e seguente/i norma/e o documento/i normativo/i:
to which this declaration relates, is in conformity with the followings standard(s) or other normative document(s):

Conformità CE / CE Conformity:

Direttiva CEE 2004/108/CE sulla Compatibilità Elettromagnetica
Norme Europee EN 61000-6-2:2005, EN 61000-6-4:2007
2004/108/CE EMC Directive adopted European Standard
EN 61000-6-2:2005, EN 61000-6-4:2007

Direttiva CEE 2006/95/CE sulla sicurezza elettrica in bassa tensione
Norma Europea EN 61010-1:2010
2006/95/CE EU Directive adopted Europe an Standard
EN 61010-1:2010

Ultime due cifre dell'anno in cui è stata apposta la marcatura CE: 10
Last two digits of the year in which the CE marking was affixed: 10

Data / Date: 11/01/2010

Il Responsabile Tecnico
The Technical Manager
Nicola Roncali

NOTES

Authorized Seller

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