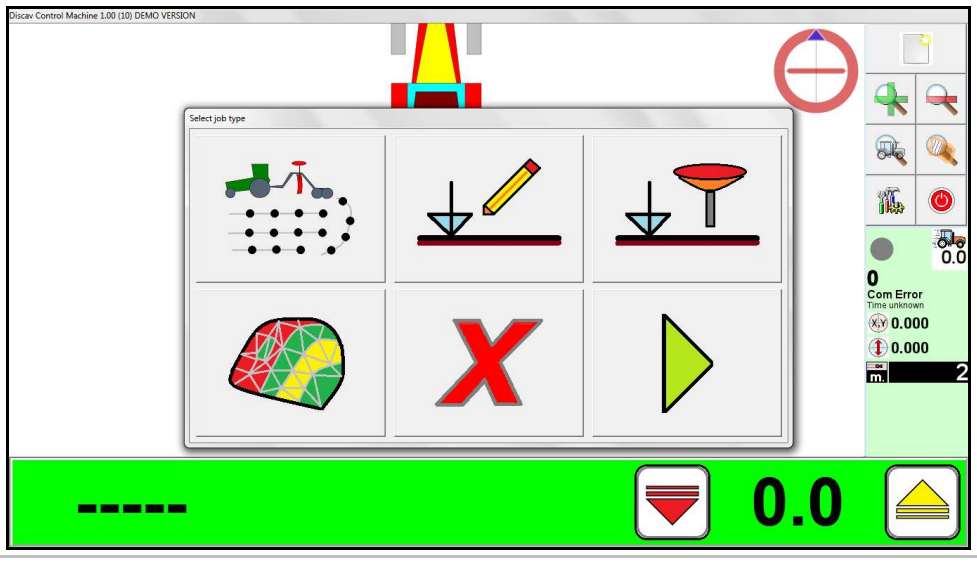
Satellite GNSS Land Levelling System

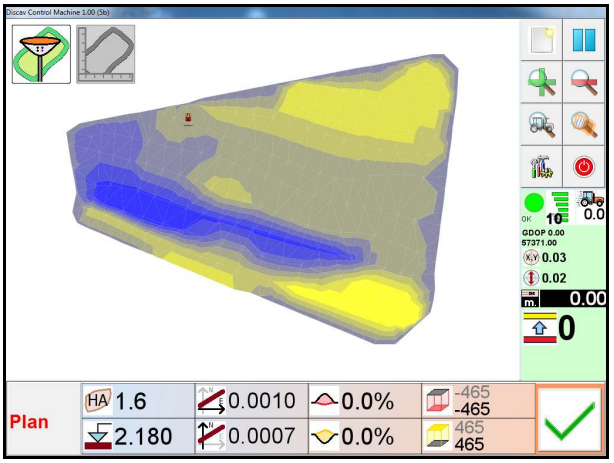
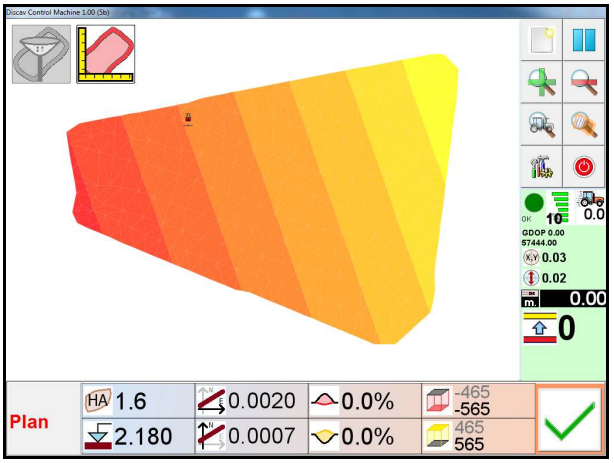
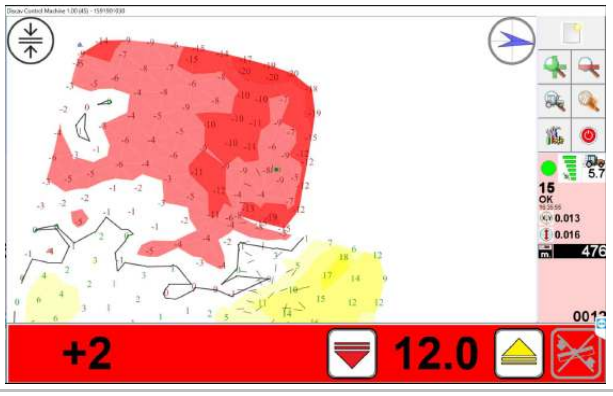
DISCAV is the multi purpose Satellite GNSS system for land levelling in Agriculture and Earthmoving in construction.

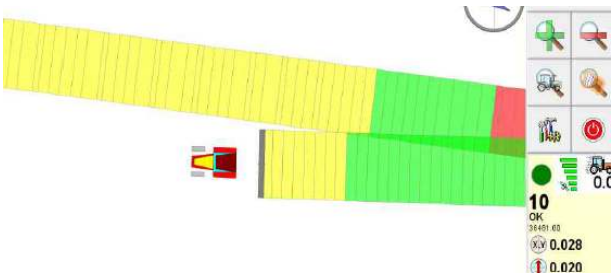
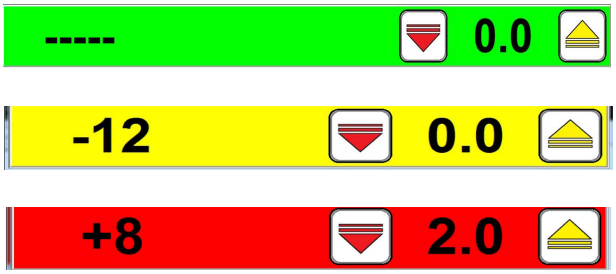
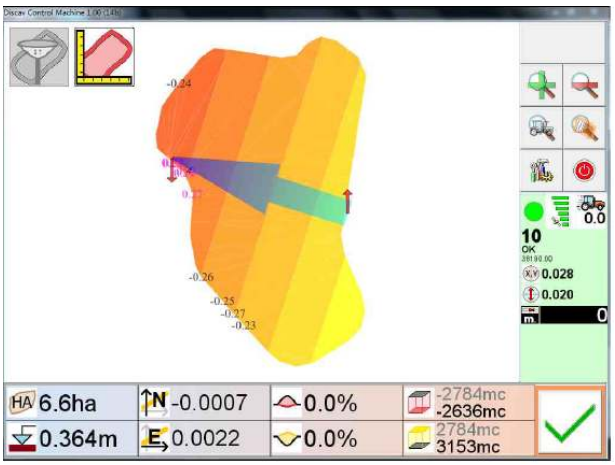
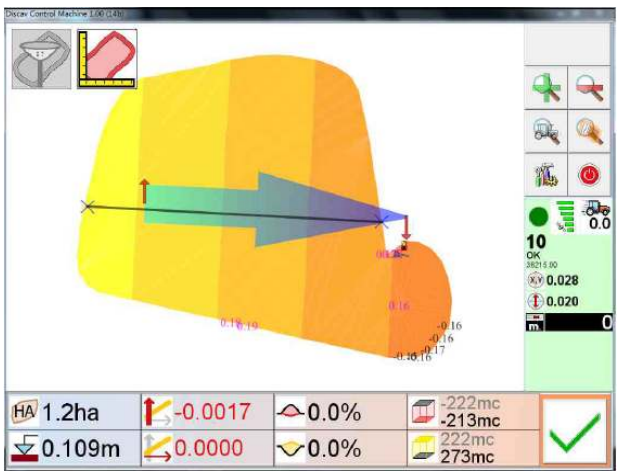
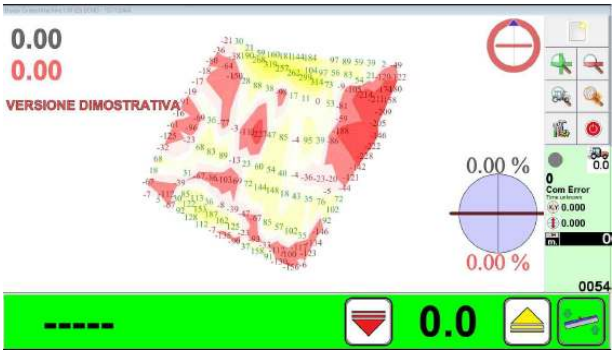
1

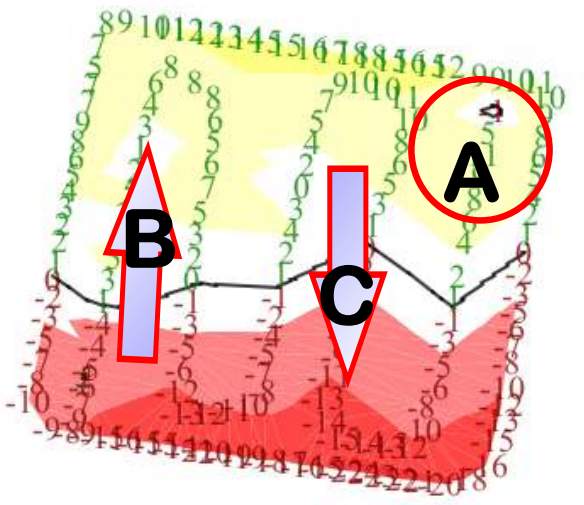
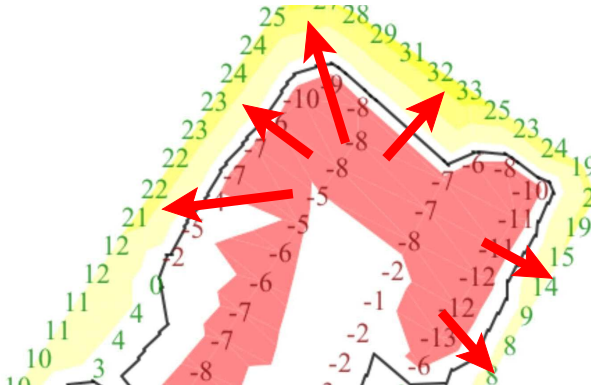
By using GPS DISCAV system you will be able to:

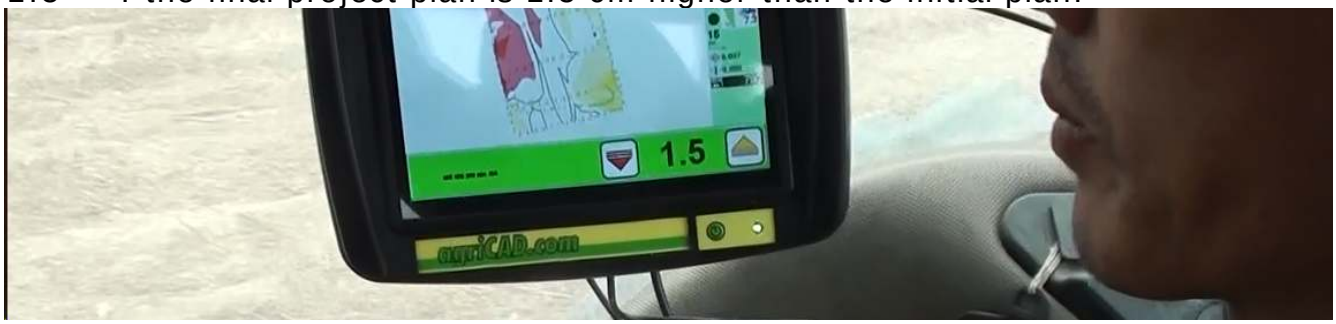
- make the survey of the land by driving machines like tractors or bulldozer;
- immediately get the plan project, under some different aspects;
- import complex projects from AutoCAD and from our software DISCAV DESKTOP

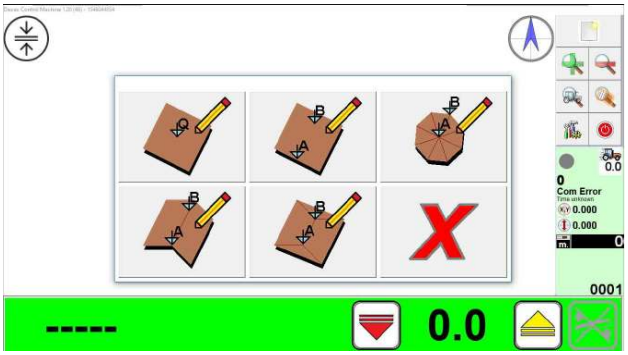


2	During the survey, you can see all topographics points and the position of the machine. In the field we can divide the survey in different parts, in order to save earthmoving work.	
3	At the end of the survey, you can see immediately the land elevation (cut and fill area). Also we have others important information: - the total volume to move; - the average elevation; - the average slope; - the total area of work.	
4	DISCAV will find the best solution to move less material in order to do less work. This is important in Agriculture applications. It is possible to change water direction for specific dreinage.	
5	After the project plan confirmation, we start to work with machine. We also see: - where the cut area are; - where the fill area are; - nearly finished area; - the high or deep of the ground that needs to be moved.	

6	The lane tracked from the machine show us the blade position (in height) referred to the plan. GREEN = nearly finished area; YELLOW = the blade is down, in the fill area; RED = the blade is high, in the cut area.	
7	In the same display, we can see the distance from the blade to the project plan. With the 2 big arrow, it is also possible to move up/down the project plan, in order to apply small correction during the works.	
8	During the works, it's possible to change slope and slope direction.	 
9	In the monitor, on the map, we can clearly see where cut and fill areas are. We also can see the black line, where cut area change to fill area and vice-versa. This information is usefull to better drive the machine and to save time and fuel in the field work.	

10	In Detail: A - the position of the machine B - it shows the direction of the machine when it leaves the red cut area and goes to the fill yellow area. We also can use AUTO function to finish the plan. C - it shows when the machine goes against the red area, the driver must drive more carefully because the machine requires more power. The driver have to use also the blade in manual mode.	
11	So, to manage the work at best, it is very important to know the machine position and the material position.	
12	On the monitor we can check the blade operation. GREEN : the blade is near to the project plan + 3 : the blade is 3 cm higher than the final elevation of the project plan. 1.5 : the whole plan has been changed 1.5 cm higher, in order to adjust the final material compensation.	
13		

14	In this case the monitor shows: RED: the blade is in the cut area + 6 : the blade is 6 cm. higher than the project plan. 1.5 : the whole plan has been changed 1.5 cm higher, in order to adjust the final material compensation.
15	GREEN: the blade is in the nearly finisced area. ------- : the blade is exactly on the project plan. 1.5 : the final project plan is 1.5 cm higher than the initial plan. 

SOME PROJECT FUNCTION		
16	There are some different options to plan the work on the machine. They are divided in 2 different sector: - construction, it includes road, square and so on; - agriculture, it includes land reclamation, rice field, new farms.	
17	The construction plan option was developed to make square, roads, soccer field, construction area. The Input parameters no consider volume compensation, but the final position of the road, pavements, platforms, ect.	
18	The agricolture project function allows you to compensate the same volume in cut and fill. So, when you start to work, you don't have to be worried if material to complete work is enought or not. These function, allows you to: - make rice field; - make field with the less work project plan; - make field for surface irrigation and with speficic direction of the water; - make 2 surface plan; - make 4 surface plan; - make conic surface.	

GNSS BOARD SPECIFICATIONS

Signal Tracking

Channels	1226
GPS	L1 C/A, L2C, L2P
BeiDou	B1, B2
BeiDou Global Signal	B1C, B2b[1]
GLONASS	L1 C/A, L1P, L2C/A, L2P
GALILEO	E1, E5b
QZSS	L1, L2[2]
IRNSS	L5[3]
SBAS	WAAS, EGNOS, MSAS, GAGAN,SDCM

Performance Specifications

Cold start	<60 s[5]
Hot start	<15 s
RTK Initialization time	<10 s
Signal reacquisition	<1 s
Initialization reliability	>99.9%
Velocity accuracy	4 g
Overload	15 g
Time accuracy	20 ns

Positioning Specifications

Post Processing	2.5 mm + 1 ppm Horizontal 5 mm + 1 ppm Vertical
Single Baseline RTK	8 mm + 1 ppm Horizontal 15 mm + 1 ppm Vertical
DGPS	<0.4 m RMS
SBAS	1 m 3D RMS
Standalone	1.5m 3D RMS

Data Format

Correction data I/O	RTCM 2.X, 3.X, CMR (GPS only), CMR+(GPS only)
Position data output	-ASCII: NMEA-0183 GGA, GSA, GSV, RMC, HDT, VHD, ZDA, VTG, GST, GLL; PTNL, PJK; PTNL, AVR; PTNL, GGK -ComNav Binary -BINEX Data: 0x00, 0x01-01, 0x01-02, 0x01-05, 0x7d-00, 0x7e-00, 0x7f-05 -Position data output rate: 1 Hz, 2 Hz, 5 Hz, 10 Hz,20Hz

PACKING LIST

335-002/3 Rugged carrying bag with padding	
019-036 Aluminum tripod	
333-001 GNSS Antenna - Base	
*018_015SS*0150 0.8/1/1.5m Antenna cable - Base	

502-005 433MHz Radio Antenna - Base	
004-005 Bracket for Radio Antenna *502-008_0100* 1m BNC cable for Radio Antenna	
001-022 Aluminum tube with fitting	
000-040 Base box	

018-005
Base power supply

STANDARD MONITOR in the cabin
207-003
Rugged Tablet 10"

TECHNICAL FEATURES:
Screen Size: 10.1"
Processor Brand: Intel
Memory Capacity: 4GB
Hard Drive Capacity: 64
Processor Main Frequency: 1.44-1.92GHz
Display: 8" 1200x1920 IPS
Camera: 2MP / 5MP
Touch Panel: G+P 5 points
Operate System: Windows 10
Battery: 3.7V/7500mAh
Wireless: WIFI 802.11 A/B/G/N
Bluetooth: BT4.0 high speed
Languages: multi languages
Output: micro USB 3.0, HDMI
Integrated GPS
IP67

055-040
Monitor bracket

037-001 Sphere to fix monitor support	
037-002 Arm to connect sphere to monitor support	
333-001 GNSS Antenna - Rover x2	
*018_015SS*0800 8/10/12m Antenna cable - Rover x2 *Variable length depending on the machine.*	

502-005 433MHz Radio Antenna - Rover	
502-002 Radio Antenna sucker base with 4.5m BNC cable - Rover	
018-004 Rover power supply	
001-025 Aluminum tube with fitting for pole x2	

050-516 GPS Control Box with Rover inside to connect computer to oil system machine. The connection to the computer is high speed via Ethernet.	
050-123 Joystick to manage all machines It allows you to: - quickly raise and lower the blade - slowly raise and lower the blade - activate the automatic height of the blade - zoom +/- on the map in the monitor	
018-042 8m oil valve cable x2	
018-012 Monitor - box serial cable	
346-001 USB to serial converter	

004-110D Ethernet cable	