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Characteristics and dimensions subject to change without notice.

YOUR LOCAL CORRESPONDENT

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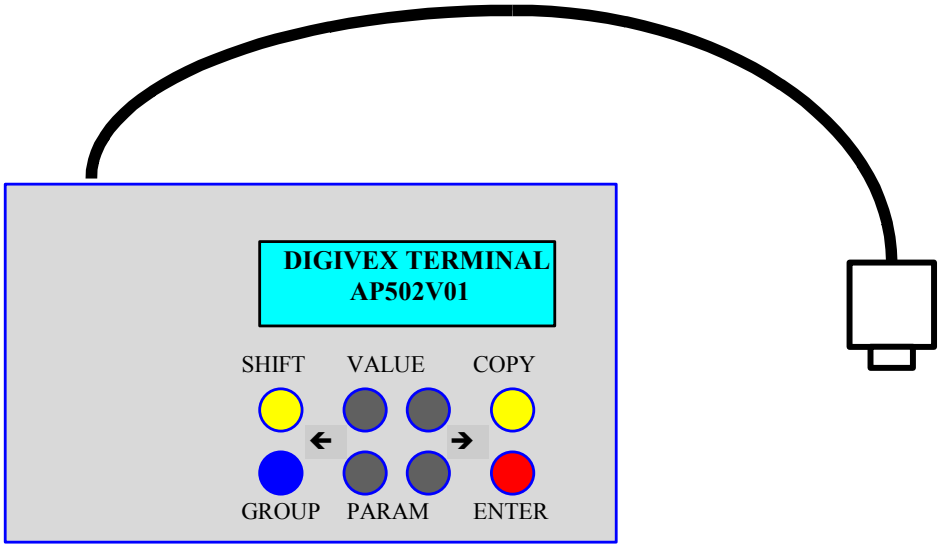
1. GENERAL

This document is for use in conjunction with the DIGIVEX PC SOFTWARE User's Manual PVD 3483 which gives detailed descriptions of the parameters, inputs/outputs, predictors, etc. referred to here.

2. DESCRIPTION



DISPLAY SCREEN: Gives message read-outs on 2 lines of 16 characters.
SHIFT KEY: Provides extra information (possible causes, times) for fault-finding.
« VALUE » KEY : Modifies the value of the parameter selected. Right arrow (➔) to increase, left arrow (🡐) to decrease.
COPY KEY: Uploads or downloads a complete set of parameters. The terminal can store a single parameter file (on EEPROM).

PARAM KEY: Selects the required parameter from a group. Right arrow (➔) to scroll forwards, left arrow (🡐) to scroll backwards through the parameters of a group.
ENTER KEY: Acknowledges new parameter after modification. For most parameters, if ENTER is not used the previous value is restored when passing to the next parameter.
GROUP KEY: Parameters are arranged in separate groups. The Group Key is used for switching from one group to the next, even while working on a parameter.

Weight and dimensions (See Drawing FELX 305318 at the end of this document).

- Dimensions: Length: 146 mm. Width: 90 mm. Depth: 26 mm (plus 3 mm for keys).
- Mass: 0.3 kg

3. CONNECTION

By connecting the RS232 serial link cable incorporated in the terminal to the DIGIVEX's RS232 connector. The servoamplifier powers the unit.

- Cable: Extendible telephone type cable. Cable length at rest approximately 0.38 m. Stretched length approximately 2 m (excluding connector).

4. PARAMETER ACCESS CODE

When setting the servoamplifier with DIGIVEX PC software or at the factory, access to parameters can be restricted by a code.

This code cannot be created or modified via the terminal. If used, it must be keyed in each time the unit is connected up to gain access to level 2.

Level 1: read only parameters, read input/output status, internal variables, motor characteristics, etc.

Level 1, via the terminal, enables only:

- limited gain variation,
- limited speed variation for 1 volt,
- offset adjustment,
- global upload/download.

Level 2 authorises all the parameters to be modified.

If no code is used (00000000 by default), no reference to the code comes up on the terminal.

5. USE

The DIGIVEX servoamplifier terminal is first and foremost a **maintenance** tool. It allows the following operations:

- Reading or slight modification of the parameters already introduced when initially set up.
- Servoamplifier status display and fault finding.
- Transfer of parameters from one servoamplifier to another when changing servoamplifiers.

5.1 PARAMETER GROUPS, DISPLAY AND MODIFICATION

Each group can be accessed via the GROUP key and most are assigned an order number.

The different parameter groups that can be accessed are:

- Status display and fault finding groups
  - ♦ APPLICATION NAME
  - ♦ SECURITY CODE: parameter protection
  - ♦ FAULT : error diagnosis
  - ♦ NUMBER 1 STATUS: actual status of logic inputs/outputs and internal variables

- Parameter reading or modification groups
  - ♦ No. 0 RESOLVER SETTING: resolver timing (depending on servoamplifier connected)
  - ♦ No. 2 GENERAL DRIVE: general characteristics and access code
  - ♦ No. 3 INPUT SELECTION: forcing of logic inputs and validation of external current limitation
  - ♦ No. 4 ANALOG OUTPUT SELECTION: assignment of internal variables to the two analog outputs
  - ♦ No. 5 SPEED CONTROL SELECTION: speed loop parameters
  - ♦ No. 6 ENCODER STATUS: resolution and encoder emulation zero mark
  - ♦ No. 7 FEED FORWARD COMPENSATION: predictor setting
  - ♦ No. 8 FUNCTION GENERATOR: stimuli validation
  - ♦ No. 9 MOTOR: motor characteristics
- Groups associated with options:
  See the specific documentation for the relevant option.

5.1.1 DETAILED DESCRIPTION OF GROUPS

5.1.1.1 HAND TERMINAL

Terminal welcome message upon connection to the axis and display of the software version of the axis connected (e.g. AP502V01).

5.1.1.2 APPLICATION NAME

Name of the application introduced by the DIGIVEX-PC software.

5.1.1.3 FAULT

Access to display of the last 30 faults recorded in the axis connected. The fault type and total operating time are displayed.

The fault number locates the fault displayed in the list of faults stored: e.g. fault 30 = most recent faults, fault 1 = oldest fault.

Faults displayed:

• maximum motor current		OVERCURRENT,
• dI/dt		SHORT CIRCUIT,
• maximum supply current	POWER	POWER,
• resolver fault		RESOLVER FAULT
• maximum speed		OVERSPEED,
• excessive ambient temperature		AMBIENT OVERTEMP,
• excessive radiator temperature		FIN OVERTEMP,
• excessive motor temperature		MOTOR OVERTEMP,
• If(t)		I AVERAGE FAULT,
• $I^2f(t)$		I RMS FAULT.
• excessive bus voltage		BUS OVERVOLTAGE
• customisation board fault		EEPROM FAULT
• axis-spindle cohesion		SPINDLE BIT DEF.
• microprocessor fault		CPU FAULT

Any fault appearing on the connected axis is immediately displayed on the terminal.

For faults related to options, see the relevant user manuals.

This function can be accessed without the security code.

5.1.1.4 SECURITY CODE

Parameter protection.
Security code validation is displayed on the terminal if it is different from 0000 0000 (see §4).

5.1.1.5 STATUS (GROUP N° 1)

status of logic input/output :
TORQUE, CW, CCW, external current reduction, FLAG SPEED 1, FLAG SPEED 2.

Move from one parameter to the next with the PARAM key and the left (🡐) and right (🡒) keys.

Display the following variable values:
- speed setpoint RPM,
- speed feedback RPM,
- current setpoint A,
- position value DEG,
- bus voltage V,
- radiator temperature °C.

Values displayed are not filtered.
Values cannot be modified with the VALUE+ and VALUE- keys.
Accessible without the security code.

5.1.1.6 GENERAL DRIVE (GROUP N° 2)

Move from one parameter to the next with the PARAM key and the left (🡐) and right (🡒) keys.

Display the application's main characteristics:
- DIGIVEX rating,
- DIGIVEX serial number,
- Motor type,
- Encoder emulation resolution PPR,
- Total operating time H,
- Operating time without torque H.

Values cannot be modified with the VALUE+ and VALUE- keys.

5.1.1.7 INPUT SELECTION (GROUP N° 3)

Move from one parameter to the next with the PARAM key and the left (🡐) and right (🡒) keys.

Logic command set-up:
TORQUE, CW, CCW, current limitation

	ACCESSIBLE VALUE	CODE
TORQUE	INTERN 1, INTERN 0, EXTERN	YES
CW	INTERN 1, INTERN 0, EXTERN	YES
CCW	INTERN 1, INTERN 0, EXTERN	YES
SPEED REF *	INTERN 1, INTERN 0, EXTERN	YES

	ACCESSIBLE VALUE	CODE
Current limitation	YES, NO	YES

* depending on the servoamplifier connected.

Press ENTER to validate.

5.1.1.8 ANALOG OUTPUT SELECTION (GROUP N° 4)

Move from one parameter to the next with the PARAM key and the left (🡐) and right (🡒) keys.

Setting-up the two analog outputs: choice of variable to be displayed + choice of scale.
The accessible variables are:

- Speed setpoint RPM,
- Speed feedback RPM,
- Bus voltage V,
- Current control A,
- Position DEG.
- Power W *

Can be modified with security code.
Variables accessible via the PC and not described above are displayed under the name PC DEFINED. Scaling is then dimensionless.

* Depending on servoamplifier connected.

5.1.1.9 SPEED CONTROL SELECTION (GROUP N° 5)

Move from one parameter to the next with the PARAM key and the left (🡐) and right (🡒) keys.

Display the parameters relating to the speed loop:

- Maximum speed,
- Offset,
- Choice of corrector type,
- Speed gradient 1,
- Speed gradient 2*,
- Proportional gain,
- Integral gain,
- Low-pass filter cut-out frequency,
- Current limitation value,
- Overcurrent strategy,
- SPEED FLAG1,
- SPEED FLAG2.
- Logic output functions*

* Depending on the servoamplifier connected

	MIN VALUE	MAX VALUE	VARIATION	UNIT	CODE
Max speed	100	VMOTOR	4.8	RPM	YES
Current limitation	0	CVI	CVI / 327.68	A	YES
SPEED FLAG1	38.2	SPEED FLAG2	4.8	RPM	YES
SPEED FLAG2	SPEED FLAG1	Max speed	4.8	RPM	YES

	MIN VALUE	MAX VALUE	VARIATION	UNIT	SANS CODE
offset	-0.01 * 10 * GV	0.01 * 10 * GV	34.7.10-6 GV	mV	YES
Speed gradient 1	10	20000	1.05 if < 1720 , 4.2 if not	RPM/V	+/- 10%
Speed gradient 2	10	20000	4,2	RPM/V	+/- 10%
gain	6.392.10-3	209.45	6.392.10-3 CVI	mA/RPM	0.7 - 1.4
integral	0.1	150	0.1	Hz	0.7 - 1.4
Filter frequency	20	800	5	Hz	0.7 0 1.4

VMOTOR = motor speed,
VM = maximum speed,
CVI = servoamplifier pulse current,
GV = speed gradient.

Press ENTER to validate parameter.

	VALUE	CODE
Corrector type	P, PI, PII, current (with validation)	YES
Strategy for excessive current	REDUCTION or STOP	YES

Press ENTER to validate.

5.1.1.10 ENCODER STATUS (GROUP N° 6)

Move from one parameter to the next with the PARAM key and the left (🡐) and right (🡒) keys.

Encoder emulation option set-up:
- Resolution,
- Zero mark placement.

	MIN VALUE	MAX VALUE	VARIATION	UNIT	CODE
Resolution	1	16384	1	points per revolution	YES

Not accessible without security code.

Values can only be changed when torque is off.

Press ENTER to validate choices.

5.1.1.11 FEED FORWARD COMPENSATION (GROUP N° 7)

Move from one parameter to the next with the PARAM key and the left (🡐) and right (🡒) keys.

Compensation set-up:
- gravity,
- static,
- threshold,
- dynamic,
- acceleration.

	MIN VALUE	MAX VALUE	VARIATION	UNIT	CODE
GRAVITY	-0.35*CVI	0.35*CVI	0.01*CVI	A	YES
STATIC	0	0.25*CVI	0.005*CVI	A	YES
THRESHOLD	34.7.10-6 * GV	1.01 *GV	34.7.10-6* GV	RPM	YES
VISCOUS	00	100*CVI/ GV	5 * CVI / GV	A/1000RPM	YES
DYNAMIC	0.01	10	0.005	s	YES

CVI = pulse servoamplifier rating
GV = speed gradient

5.1.1.12 FUNCTION GENERATOR (GROUP N° 8)

Move from one parameter to the next with the PARAM key and the left (🡐) and right (🡒) keys.
Stimuli selection and set-up:

- signal type,
- amplitude,
- offset,
- frequency,
- activate or deactivate.

	MIN VALUE	MAX VALUE	VARIATION	UNIT	WITHOUT CODE
Amplitude	0	VM - offset	34.7.10-5GV	RPM	YES
Offset	-(VM - amplitude)	VM - amplitude	34.7.10-5GV	RPM	YES
Frequency	0.0611	500.8	0.0611	Hz	YES

VM = maximum speed
GV = speed gradient.

	ACCESSIBLE VALUE	CODE
Signal type	SINUS or SQUARE	YES
Activation	ON or OFF	YES

Press ENTER to validate.

5.1.1.13 MOTOR (GROUP N° 9)

Move from one parameter to the next with the PARAM key and the left (🡐) and right (🡒) keys.

Access to motor characteristics:
- motor type (not modifiable),
- maximum speed,
- rated current,
- Rpp,
- Lpp,
- Ke,
- Brake choice,
- Thermal choice.

	MIN VALUE	MAX VALUE	VARIATION	UNIT	CODE
Maximum speed	100	100000	4.8	RPM	YES
Rated current	0	CVI	0.01CVI	A	YES
Rpp	1.628.10-3	53.33	1.628.10-3	Ohms	YES
Lpp	76.29.10-3	2499	76.29.10-3	mH	YES
Ke	5	2900	0.08856 if Ke < 1000 0.9741 if not	V	YES

CVI = pulse servoamplifier rating.

Values can only be modified when " torque is off ".
Press ENTER to validate.

	ACCESSIBLE VALUE	CODE
Brake choice	ON or OFF	YES
Thermal choice	ON or OFF	YES

Press ENTER to validate.

5.1.1.14 RESOLVER SETTING* (GROUP N°0)

Accessible only with security code.
Displays polarisation current and electrical timing angle.

ATTENTION: Resolvers mounted on H-series motors are factory set. Consequently the procedure described above below is only to be used exceptionally and exclusively after agreement with PARVEX S.A.
The operator turns the resolver stator mechanically to a position close to 0 degrees: standard setting X0.

* Depending on servoamplifier connected.

6. TRANSFERRING PARAMETERS BETWEEN SERVOAMPLIFIERS:

This operation may be useful for transferring all parameters from one servoamplifier to another (e.g. when swapping servoamplifiers).

Accessible from any parameter via the COPY key.

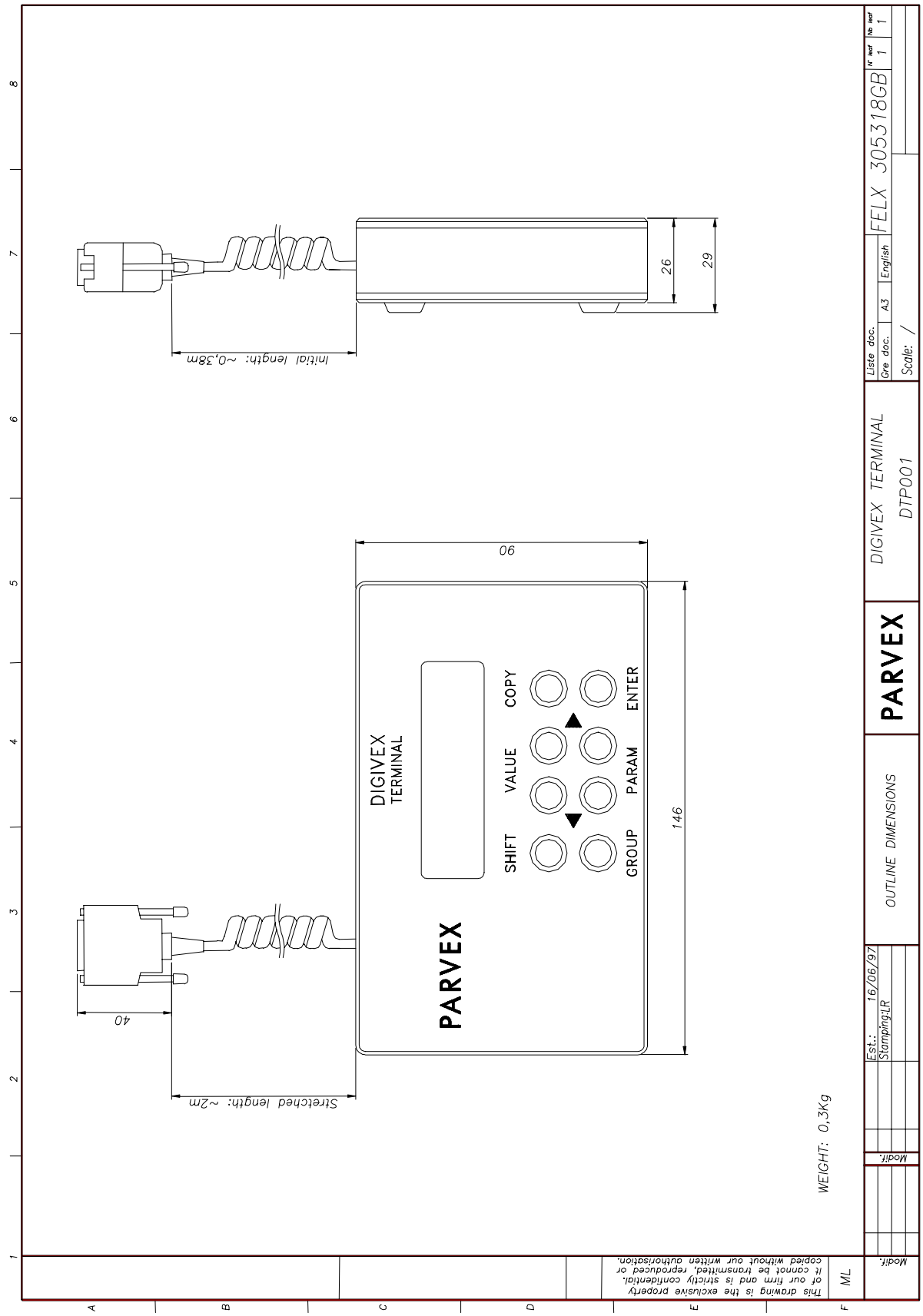
SERVOAMPLIFIER TO TERMINAL:

The transfer may be made with torque off or on.
The terminal advises the user it is going to overwrite a stored parameter file. All the parameters on the customisation board are copied to the terminal, including the security code.

TERMINAL TO SERVOAMPLIFIER:

Three conditions must be met:

- rating of parameter file to be transferred = rating of receiving axis,
- receiving axis with compatible security code:
    - ♦ axis with no security code. In this case the security code of the axis becomes that of the transferred parameter file.
    - ♦ axis with security code. The security code of the parameter file to be transferred must be the same (it is impossible to transfer the parameter file without a code in this case).
- axis automatically switches torque off during transfer.


Initial length: ~0,38m
26
29
90
146
DIGIVEX
TERMINAL
PARVEX
SHIFT
VALUE
COPY
GROUP
PARAM
ENTER
40
Stretched length: ~2m
WEIGHT: 0,3Kg
This drawing is the exclusive property of our firm and is strictly confidential. It cannot be transmitted, reproduced or copied without our written authorisation.
Modif.
Est.: 16/06/97
Stamping:LR
OUTLINE DIMENSIONS
PARVEX
DIGIVEX TERMINAL
DTP001
Liste doc.
Gre doc.
A3
English
FELX 305318GB
Scale: /
N° feuil 1
No feuil 1