

The Application Note is pertinent to the Unidrive Family

## Parameter Restoration

When replacing a Unidrive, critical drive application parameters from the original setup must be re-established in the replacement drive. There are 3 basic methods of doing this:

- 1** Manual entry of those parameters that are different from factory defaults. These would come from a printed list during the original setup.
- 2** By downloading a previously saved data file via UniSoft running on a PC using the UD71 Communication Module ( *click on Drive symbol below to obtain info on UD71 and UniSoft* )



PC  
Required

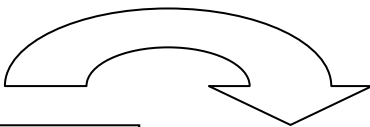


- 3** By selecting which parameter set (out of 8 total) to resurrect from a previous stored file using the UD55 Parameter Storage/Cloning Module



No PC Required



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- 1- Pull Roll
  - 2- Dryer Roll
  - 3- Laminator
  - 4- Gravure Roll
  - 5- #1 Nip Roll
  - 6- Exit Accumulator
  - 7- Rewinder
  - 8- Unwinder



UD55 Parameter  
Storage/Cloning Module

# **UD55 Details**

## **Cloning Module - Operation**

Parameters 11.38, 11.39 and 11.40 allow the user to view the drive type data and checksum stored in the eight parameter set blocks of a UD55 cloning module when fitted to the drive. Parameter 11.38 selects the set to be viewed, 0 = no set selected, 1 = set 1.....8 = set 8. Once a set has been selected the drive type data stored in the set can be viewed with parameter 11.39 and the checksum with parameter 11.40.

## **UD55 at power-up**

When a drive is powered up with a UD55 cloning module fitted the drive checks that the module is not corrupted. If the data is corrupted a **FSH.Err** trip is produced and the memory in the UD55 reformatted with eight empty parameter sets. This is the only time that the UD55 memory is reformatted. If errors are detected after this point, and even if a **FSH.Err** trip occurs, the memory will not be reformatted automatically.

## **Reformatting UD55 memory**

The UD55 memory can be reformatted at any time by the user by entering 3099 in parameter x.00 and pressing reset. If UD55 write is enabled, by linking terminals 40 and 41 on the UD55, the memory will be reformatted and parameter x.00 cleared to 0. If UD55 write is not enabled a **FSH.ACC** trip will be produced and parameter x.00 cleared to 0.

## **Transferring parameters from the drive to a UD55**

The drive parameter set is saved in the UD55 by entering 300y in parameter x.00 and pressing reset, where y is the set location required to store the data in the UD55. Data is only saved if the UD55 is write enabled, by linking terminals 40 and 41 on the UD55, otherwise a **FSH.ACC** trip will be produced. Once the parameters have been saved or a trip has occurred parameter x.00 is cleared to 0.

## **Transferring parameters from a UD55 to the drive**

The drive parameter set is read from the UD55 by entering 400y in parameter x.00 and pressing reset, where y is the set location of the required data. Either the data is transferred to the drive and / or one of the following trips may be produced and then parameter x.00 is cleared.

### **FSH.dAL**

There is not data in the parameter set that should be loaded to the drive. No data is transferred.

### **FSH.tYP**

The drive type for the data set to be loaded to the drive is different from the present drive type. No data is transferred.

### **FSH.L0**

Menu 20 data is present in the parameter set that is to be loaded to the drive, but there is no UD70 ( and hence no menu 20 ) in the drive. All data except menu 20 data is transferred to the drive.

## **FSH.20**

No menu 20 data is present in the parameter set that is to be loaded to the drive, but there is a UD70 in the drive. All data except menu 20 data is transferred to the drive.

## **FSH.rn9**

The data is being transferred from a drive of one rating to a drive of a different rating ( either different voltage or current ratings ). All parameters that are normally transferred except those shown below are transferred to the drive. ( If the UD55 has been loaded with parameters using V3.1.6 software or earlier the drive rating is not stored in the UD55. Therefore the drive will not trip if the rating is different and will load all parameters including those shown below will be transferred to the drive.)

<b>2.08</b>	<b>Standard ramp voltage</b>
<b>3.28</b>	<b>Stator resistance</b>
<b>4.05-4.07</b>	<b>Current limits</b>
<b>4.08</b>	<b>Torque reference</b>
<b>4.09</b>	<b>Torque offset</b>
<b>5.07</b>	<b>Motor rated current</b>
<b>5.09</b>	<b>Motor rated voltage</b>
<b>5.18</b>	<b>Switching frequency</b>
<b>5.24</b>	<b>Motor inductance</b>
<b>5.33</b>	<b>Thermal model enable</b>
<b>6.06</b>	<b>D.C. injection braking current</b>
<b>15.07</b>	<b>Regen unit voltage setpoint</b>

## **UD55 and other small option modules**

When a UD55 is fitted it replaces any small option module that may have been fitted previously. If parameters were last saved in the drive EEPROM with a small option module fitted, other than a UD55, then menu 16 will be present and visible via the keypad when a UD55 is subsequently fitted. (If no small option module is fitted menu 16 will not be visible.) Therefore menu 16 parameters previously saved for the small option module can be transferred to/from the UD55. To prevent incorrect drive operation, because the option module is not present, the drive cannot be enabled when a UD55 is fitted and the drive EEPROM contains a parameter set for a small option module. These parameters can be removed from the drive EEPROM by saving parameters with no small option module fitted.

## **Avoiding problems with inter-related parameters.**

The maximum values of some parameters depend on other parameters, i.e. the current limit maximums ( 04.05 - 04.07 ) depend on the rated current ( 05.07 ). With software versions before 3.01.07 the parameters values for the dependent parameters, i.e. in this case the current limits, may not be correct after they are transferred from a UD55. With software versions 3.01.07 onwards the parameters are automatically transferred twice from the UD55, and so the resulting values in the drive will be correct.

### **Parameters not transferred to / from the UD55**

Some parameters are not transferred to / from the UD55. This is either because it is not desirable to transfer them ( i.e. keypad reference, motorised pot output, user security ) or because the values would affect the UD55 checksum ( i.e. run time clock, etc ). The table below shows parameters that are saved in the UD55 as zero and not transferred to the drive.

1.17	Keypad reference
6.24/6.25	Power meter
6.22/6.23	Run time clock
6.27/6.28	Filter and lubrication meters
7.31	UD78 fitted
9.03	Motorised pot output
10.20-10.29	Trip log
10.41	UD78 powering the drive
10.42	IGBT overtemp warning
11.39	UD55 drive type
15.14-15.16	Regen unit controls

User security parameter store

### **Possible problems with the parameters from a UD55**

The table below describes possible problems that could occur when transferring data with a UD55.

3.28 Motor stator resistance Varies between motors and with motor cabling. The value from the UD55 might not be correct for the new application.

5.10 Motor power factor Varies between motors. The value from the UD55 might not be correct for the new application.

5.23 Voltage offset Varies between drives. The value from the UD55 might not be correct for the new application.

5.24 Motor inductance Varies between motors. The value from the UD55 might not be correct for the new application.

6.15 Drive enable In regen mode this parameter can change between 0 and 1 under drive control.

### **Analogue or digital input effects**

If an analogue input is routed to a value that is stored in the UD55 the checksum may vary each time the values are saved in a UD55. If digital inputs are routed to a value that is stored in the UD55 the checksum will vary if the digital input states change.

### **AN1 or UD78 full scale value**

If the source drive has not been user calibrated using parameter 7.25, the destination drive will not be user calibrated. However, if the source drive has been calibrated the destination drive will have the same user calibration value.

### **Parameter Set Save**

To save the drive parameters to the UD55 the parameter write enable must be held at +5v by providing a link between terminals 1 and 2, the drive must also be disabled. The link between terminals 1 and 2 must be as short as possible and should not be connected to any additional circuitry. Up to eight parameter sets can be stored in the UD55 in eight separate arrays. A save is initiated by setting parameter #xx.00 to 300y and pressing reset. The last digit y gives the parameter set to save the drive parameters to. Note, a previously used parameter set can be overwritten by writing to that set again without any warning. Once the save has been successful parameter #xx.00 will return to zero.

### **Parameter Set Load**

To load a set of parameters from the UD55 to the drive no external connections are necessary but the drive must be disabled. The parameter load is started by setting parameter #xx.00 to 400y and pressing reset. The last digit y indicates the parameter set to load.

**Note:**, the UD55 cannot automatically change the drive type. The current drive type must match the stored drive type if the parameter set is to be loaded.

### **Parameter Set Erase**

The cloning module memory can be completely erased by setting parameter #xx.00 to 3099 and pressing reset. Once the erase is complete parameter #xx.00 will return to zero.

If an error occurs during operation of the UD55 the following drive trips are generated. As operation of the UD55 is always initiated by using the reset button (which also acts to reset a trip condition) the trip is delayed for 1 second. This is to avoid accidental pressing of the reset button clearing the trip condition before it has been noted by the user. During this one second period the upper display should remain at its previous setting.



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