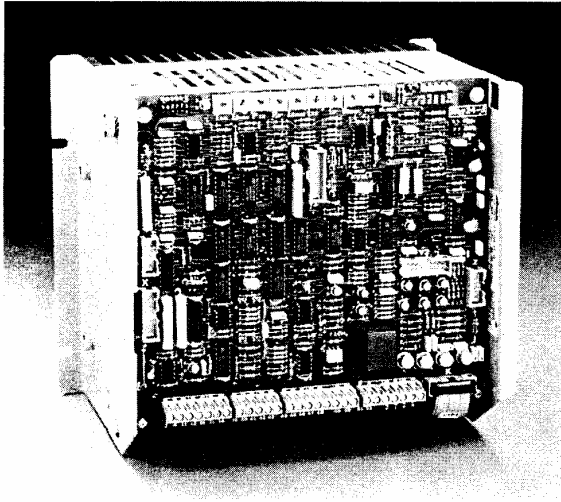


TPy2 REGENERATIVE DC DRIVES



TPy2 Regenerative DC Drives

The Amicon TYPACT Series TPy2 Regen allows the speed of a DC motor to be varied by armature voltage control. The TPy2 is a 4 quadrant regenerative full-wave control designed to regulate the speed or torque of overhauling loads with electric reversal capability. Full power isolation and digital bridge control circuitry assure responsive trouble-free performance. These controls are well suited for winders, unwinders, and related holdback equipment, overhauling load, positioning and high cyclic duty applications.

STANDARD FEATURES:

- 4 Quadrant Operation with full regenerative torque capability.
- Electronic contactorless reversing.
- Inputs – All inputs are low level. No buffer or isolated card required.
- Speed or torque control inputs.
- Full Wave Bridge
- Modular construction – ribbon cable interface.
- Tachometer feedback.
- Speed and current meter outputs, isolated with trim adjustments.
- 1200 PIV rated SCR's with transient protection.
- 150% overcurrent capability for 60 seconds.
- Hinged/Removable front panel allows easy access to power components.
- Aux. Summing Reference Input
- Integral Field Supply.
- Transient Suppression
- **Armature voltage feedback by use of the optional TVO-1 card.**
- **Accel/Decel by use of the optional AGy card.**

1/4 - 10HP

- SINGLE PHASE 50/60 Hz AC INPUT
- FULL WAVE OUTPUT
- FULLY ISOLATED
- TACH OR VOLTAGE FEEDBACK
- L.E.D. INDICATORS

TYPACT

ADJUSTMENTS:

- Maximum and minimum speed
- Speed Loop –
integral and proportional compensation.
- Current Loop –
integral and proportional compensation.
- Current Limit (positive and negative).
- Acceleration and deceleration rate (Optional).
- IR compensation.
- Current and Speed monitor output scaling.
- Zero Speed sensitivity.

SWITCH SELECTABLE FUNCTIONS:

AC Input Voltage:
TPy2-154X or 154A 115/230 VAC
TPy2-304A or 424A 220/240, 380/415VAC
TPy2-154Z, 304Z or 424Z 220/240, 380/415VAC
50 or 60 Hz
DC Tach input level (5 to 300VDC)
Internal/External current limit set point.

CONTACT OUTPUTS:

Zero speed.

OPTIONAL FEATURES:

The TPy2 series of drives can be supplied in chassis form, single drive preassembled panel or in multi-drive systems. Refer to the front of the DC Controls Section for a complete description of various panel options. Contact your AMICON local representative or distributor for multi-drive system quotations.

Standard "y" Control Interface Options mount behind the front board of the TPy2 series drives. Options for follower drives, dancer control, speed trip, winders, etc. are listed in the Standard "y" Control Interface Option Section of the catalog.

Refer to the Standard "y" Control Interface Option Section for other available options. Predesigned PD panels are available.

1

TPy2 REGENERATIVE DC DRIVES			
Model Number	Input Code	1 Phase AC Input	HP Range
TPy2-154	X	115	1/4 - 1
	A	230	1/4 - 2
TPy2-304	A	230	3 - 5
TPy2-424	A	230	7 1/2 - 10

NOTES:

Ramp Function Generator (AGy) and High Voltage Feedback Isolator (TVO-1) are contained on separate option cards. Voltage feedback isolation is required when using armature voltage feedback.

10HP unit rated 100% continuous duty only.

Refer to the front of the DC Drives Controls Section for a complete explanation of the functional and panel options.

Refer to the Custom System Option Section for speed meters, potentiometers, operator stations, pilot lights, etc.

Refer to the Standard "y" Control Interface Section for interface option cards, i.e.: preset speeds, dancer, follower, relay cards, etc.

2

FUNCTIONAL OPTIONS	
Option Code	Description (Choose only one functional option)
- C	Chassis Only
- F	- C with AC input fuses and mounting block
- PD	Predesigned "PD" Panel

3

PANEL OPTIONS	
Option Code	Predesigned "PD" Panel Options
- DB	Dynamic Braking
- CB	Circuit Breaker *
- N1	NEMA 1 Enclosure
- N4	NEMA 4 Enclosure (custom) **
- N12	NEMA 12 Enclosure (custom) **

* NEMA 1 rating, door mounted.

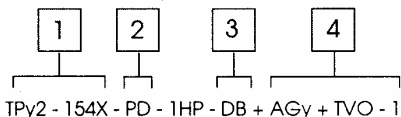
**Contact factory for NEMA 4 or 12 custom enclosures.

ORDERING INSTRUCTIONS

Select the TPy2 Model Number and HP required. Choose the functional option and any interface options desired, and add to the model number. The TPy2 can accommodate up to three interface options. Please specify HP when ordering.

Example

The model number for a 1 HP, regenerative control, Predesigned "PD" Panel, 115VAC input with Armature Voltage Feedback, Dynamic Braking, Ramp Function Generator and High Voltage Feedback Isolator.



SPARES

FUSES	
Part No.	Description
A25X20	TPy2-154 AC Line Fuse
A50P40	TPy2-304 AC Line Fuse
A50P50	TPy2-424 AC Line Fuse
OMEGA 250mA	Control Fuse
BUSS MDA2	Field Fuse

PC BOARDS	
Part No.	Description
AGy	Ramp Function Generator (Optional)
TVO-1	High Voltage Feedback Isolator (Optional)
Ry24	Regulator Board

DIMENSIONS (Inches)

Model No.	Chassis				Panel			NEMA 1A Enclosure		
	H"	W"	D"	lbs.	H"	W"	D"	H"	W"	D"
TPy2-154	7.875	8.00	5.3	6	21	21	5.8	24	24	10
304	7.875	9.37	6.5	9.6	30	24	8	30	24	15
424	7.875	9.37	6.5	9.6	30	24	8	30	24	15

TERMINAL INPUT AND OUTPUTS

Term	Designation	Function	I/O
1	DT	Tach input - High	I
2	OV	Circuit Common	-
3	+10	Ref. Supply +	O
4	-10	Ref. Supply -	O
5	Ref 1	Ref. Input (No ramp)	I
6	Ref 2	Ref. Input (Aux. Unscaled)	I
7	n ₀	Min. Speed Pot	O
8		Not Used	
9	HI	Factory Use	I
10	Qn	Speed Loop Output	O
11	IRI	Scaled I Reference Input	I
12	RII	Factory Use	I
13	Qlan	Current Monitor	O
14	QDTn	Speed Monitor	O
15	Idn (-)	I Limit External Trim (-)	O
16	Imax (-)	I Limit Input (-)	I
17	Imax (+)	I Limit Input (+)	I
18	Idn (+)	I Limit External Trim (+)	O
19	+24	Enable Voltage Supply	O
20	BIN	Block Integrator	I
21	BG	Drive Enable	I
22	—	Aux -10V Supply	O
25	QEn	Armature Voltage Feedback	O
31	—	Aux. +10V Supply	O
32	n = O	Speed = O Aux. Output	O
33	NO	Speed = O Relay Output	O
34	C	Speed = O Relay Output	O
	+24		O
	+15		O
	-15		O
	OV	Circuit Common	-

I = Current

n = Speed

ADJUSTMENTS

n _{max}	Max. Speed
I _n	Speed regulator integral
n _{min}	Minimum speed
P _n	Speed regulator proportional
I _{AD}	Current regulator adaptation
P _i	Current regulator proportional
I _{AN}	Current monitor output
DT _N	Speed monitor output
±I _{dn}	Current limit
Rxl	IR Compensation
n = O	Zero speed monitor
n	Speed regulator offset
2	Speed regulator offset
3	References = O offset
SI	System disabled
BLG	General Block
BLI	Current Loop Block
I _a = O	Armature Current = O
I _{dn}	Operation in current limit
MP	Motor Positive
MN	Motor Negative
n = O	Speed = O
±15	15V Supply

LEDS

4

STANDARD "y" CONTROL INTERFACE OPTIONS

Option Code	Description	Option Code	Description	Option Code	Description
Ay	Auxiliary Amplifier	* BDAy	Binary to Analog Converter or Multiplying Converter	MTy	Tach Loss Indicator
Ay (P)	Auxiliary Amplifier (High Power)	* CLC	Closed Loop Controller (PID)	RAy4	4 Parallel Relay Board
* ACUy	Analog Mathematical Calculation	CVy	At Speed Signal	RAy41	4 Individual Relay Board
ADy	Analog to Encoder Simulator	* DDAy	BCD to Analog Converter	RRy411-1	4 Reed Relay, Form "C" Board
AGy	Ramp Function Generator	* FSy-1	Frequency Synchronizer	RSy	Quad Analog Switch
AGy (P)	Ramp Function Generator (High Power)	* FVy	Encoder to Analog Signal Converter or Differential Pulse Train Input to Analog Converter	RVy	Speed Level Detector
* ALy	Power Supply	IMTy	Input Scaling	TVO-1	High Voltage Feedback Isolator
* ALy-P	Power Supply (Precision)			XMy	Ribbon Cable to Terminal Adaptor
APSy	Speed Range Extender				

Note: A maximum of (3) option slots are available. Options with * are double wide providing space for a maximum of (1) double and (1) single wide option card.

SPECIFICATIONS

SERVICE CONDITIONS

Altitude (Standard)	3,300 ft(1000m) Max.
Ambient Temperatures	0 to 40°C (32° to 104°F)
AC Line Voltage Variation	±10%
AC Line Frequency Variation	±2Hz
Service Factor	1.0
Maximum Load	150% for 1 minute
Speed Reference Potentiometer	1 to 10K, 1/2 W 2K typical
AC Input Voltages (50 or 60Hz)	115/230 or 220/240, 380/415

ADJUSTMENT RANGE

Maximum Speed	80 to 120%
Minimum Speed	0 to 20% with 2K pot
Accel/Decel	0.5 to 5 sec
Current Limit	0 to 150%
IR (load) compensation	0 to 20%

PERFORMANCE CHARACTERISTICS

Operating Range	0 to rated speed
Range for quoted regulation	
Armature feedback with IR Comp	20:1
DC Tachometer Feedback	100:1
Speed Regulation for a 95% load change	
Armature feedback with IR Comp	2 to 5%
Type APY DC Tachometer	1%*

*% of motor base speed